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# The Relationship Between Childhood Trauma and Borderline Personality Features in Adolescents with Depression: The Mediating Role of Reflective Functioning

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**Abstract:** ***Objective**: To examine the mediating role of reflective functioning in adolescents with depression between childhood trauma and borderline personality features. **Methods**: In September–October 2025, a questionnaire survey was conducted among 260 adolescents with depression at the Xi'an Mental Health Center. The instruments used included the Beck Depression Inventory-II, the Childhood Trauma Questionnaire, the Adolescent Borderline Personality Traits Questionnaire, and the Adolescent Reflective Functioning Questionnaire. A total of 244 valid questionnaires were collected. **Results**: Childhood trauma and borderline personality features showed a significant positive correlation ($r = 0.397$, $P < 0.01$). Childhood trauma showed a significant negative correlation with reflective functioning ($r = -0.206$, $P < 0.01$). Reflective functioning exhibited a significant negative correlation with borderline personality features ($r = -0.526$, $P < 0.01$). Reflective functioning mediated the relationship between childhood trauma and borderline personality features in adolescents with depression. **Conclusion**: Childhood trauma not only directly influences the development of borderline personality features in adolescents with depression but also indirectly affects this development through reflective functioning.*

**Keywords:** Childhood trauma, Reflective functioning, Borderline personality features.

## 1. Introduction

Adolescence, as a critical period for psychological and personality development, has seen mental health issues increasingly become a significant public health concern. Among these, adolescent depressive disorder, a common mood disorder, manifests not only as persistent low mood and diminished interest but also frequently co-occurs with other complex psychological problems, presenting a more challenging clinical landscape [1]. Among these comorbidities, borderline personality disorder (BPD) stands out. BPD is a severe mental disorder characterized by emotional instability, identity confusion, unstable interpersonal relationships, and impulsive self-harming behaviors [2]. Epidemiological data indicate that the prevalence of borderline personality disorder ranges from 1% to 4% in the general population, while it reaches as high as 10% to 15% among psychiatric outpatients and 20% among inpatients [3]. Although BPD typically emerges during adolescence and stabilizes in early adulthood, its diagnosis during adolescence is less reliable due to ongoing personality development. Consequently, researchers have proposed that the diagnosis of BPD during adolescence may be influenced by the development of borderline personality features in adolescents with depression [3]. Although borderline personality disorder typically begins in adolescence and stabilizes in early adulthood, the diagnostic stability during adolescence is low due to ongoing personality development. Consequently, scholars have introduced the concept of borderline personality features to describe adolescent subgroups exhibiting significant personality deviations that do not fully meet the diagnostic criteria for borderline personality disorder [4]. Crucially, research indicates that adolescents with borderline personality features exhibit significantly higher levels of depression than those without such features. These conditions often intertwine, creating a vicious cycle that substantially increases clinical burden and risk for affected individuals [5].

Childhood trauma is widely recognized as a major environmental trigger for borderline personality disorder [6]. Childhood trauma refers to adverse life events experienced during childhood that exceed an individual's coping capacity, typically encompassing various forms such as emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect [7]. Cross-sectional studies indicate that 50%-70% of individuals with borderline personality disorder report experiences of physical or sexual abuse, or witnessing domestic violence [8]. Moreover, the severity of childhood trauma positively correlates with the number and severity of borderline personality symptoms [9-10]. However, the precise psychological mechanisms through which childhood trauma influences the development of borderline personality features remain a core issue requiring further exploration in current research.

Reflective functioning, rooted in attachment theory, refers to an individual's capacity to understand and reflect on their own and others' mental states (such as desires, feelings, beliefs, and intentions) within the context of attachment relationships [11]. Extensive research indicates that individuals with borderline personality disorder commonly exhibit impaired reflective functioning. This deficit in mentalization capacity makes it difficult for them to accurately interpret their own and others' behaviors when facing interpersonal conflicts and emotional stress. Consequently, they are more prone to manifest core symptoms such as emotional dysregulation, interpersonal chaos, and difficulties with self-identity [12]. It

can be inferred that childhood trauma, as a disruptive early relational experience, likely severely impedes the healthy development of reflective function, thereby laying the groundwork for the emergence of borderline personality features.

In summary, while the relationships between childhood trauma, reflective functioning, and borderline personality features have been preliminarily established, research integrating all three into a unified model—particularly examining the mediating role of reflective functioning in the specific population of adolescents with depression—remains scarce. Therefore, this study aims to construct a mediation model using adolescent patients with depression as subjects. It seeks to deeply explore the impact of childhood trauma on borderline personality features and investigate the mediating role of reflective functioning within this process. It is expected to reveal the underlying psychological mechanisms through which childhood trauma influences personality development from a mentalization perspective, providing precise targeting for the early identification and psychological intervention of comorbid personality issues in adolescents with depression.

## 2. Participants and Methods

### 2.1 Study Participants

Participants were adolescents aged 13-17 years who sought treatment at the Child and Adolescent Mental Health Outpatient Clinic and Inpatient Department of Xi'an Mental Health Center between September and late October 2025. Inclusion criteria were: (1) meeting ICD-10 diagnostic criteria for depressive episode (F32); (2) age 13-17 years; (3) Beck Depression Inventory score ≥14; (4) Willingness to provide demographic and questionnaire data to researchers. Exclusion criteria: (1) Mental disorders such as schizophrenia or intellectual disability; (2) Coexisting cognitive impairment; (3) Severe physical illness hindering data collection. This study was approved by the Xi'an Mental Health Center Ethics Committee (Approval No.: XAJWKY-2025053).

Data collection employed convenience sampling with voluntary participation. All subjects provided informed consent. A total of 260 questionnaires were distributed, with 244 valid responses obtained after excluding invalid ones, yielding a response rate of 94%.

### 2.2 Survey Instruments

2.2.1 General Information Questionnaire

Included demographic data such as gender, household registration location.

2.2.2 Beck Depression Inventory-II (BDI-II) [13]

Comprising 21 items rated on a 4-point scale (0-3), this tool assesses depressive symptoms defined in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM -IV), such as sadness, guilt, loss of interest, social withdrawal, and suicidal ideation. Respondents report their subjective experiences over the preceding two weeks. The Beck Depression Inventory serves both as a screening tool and for treatment outcome assessment, making it the most widely used self-report depression scale. Total scores of 0-13 indicate no depression, 14-19 mild depression, 20-28 moderate depression, and 29-63 severe depression. This study included participants with total scores ≥14. The Cronbach's α coefficient for this scale in the present study was 0.914, within an acceptable range.

2.2.3 Chinese Revised Version of the Childhood Trauma Questionnaire-Short Form (CTQ-SF) [14].

Developed by Bernstein and Fink (1998), it is one of the globally recognized tools for measuring childhood maltreatment. Xingfu Zhao et al. (2005) translated and revised the Chinese version [15]. This scale primarily assesses childhood maltreatment experiences. It comprises 28 items across five subscales: Physical Abuse (PA), Physical Neglect (PN), Emotional Abuse (EA), Emotional Neglect (EN), and Sexual Abuse (SA). It employs a 5-point Likert scale, with total scores ranging from 25 to 125. Higher scores indicate more childhood traumatic experiences. In this study, the Cronbach's α coefficient for this scale was 0.807, within an acceptable range.

2.2.4 Borderline Personality Feature Scale - Children (BPFSC)

BPFS-C is a self-report questionnaire comprising 24 items designed to assess borderline personality features in children and adolescents aged 9-18. The Chinese version was revised by Pengyang Liu et al. [16] and demonstrates good reliability and validity in Chinese populations. Respondents are asked to evaluate their feelings about themselves and others, selecting options that best describe their experiences. The questionnaire measures four dimensions: (1) Affective Instability: 6 items (1, 5, 8, 14, 17, 21). (2) Identity Problems: 6 items (3, 9, 12, 16, 18, 22). (3) Negative Relationships: 6 items (2, 6, 10, 13). (4) Self-Harm: 6 items (4, 7, 11, 15, 19, 23). The scale uses a 5-point scoring system (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Always). Higher scores indicate more severe borderline personality features. The BPFS-C serves not only as a screening tool for borderline personality features but also as a quantitative measure reflecting the severity of borderline personality pathology. The cutoff score for borderline features in children and adolescents is 77 points. In this study, the Cronbach's α coefficient for this scale was 0.868, indicating acceptable reliability.

2.2.5 Reflective Function Questionnaire for Youth (RFQY).

Adapted by SHARP from the self-report version of the Reflective Functioning Questionnaire (RFQ) developed by FONAGY et al. [17]. Translated and revised by Fangzhou Zuo et al. into the Chinese version of the Youth Reflective Functioning Questionnaire [18], the scale comprises 46 items organized into two subscales (A and B) with 23 items each. Scoring follows a 6-point Likert scale, assessing agreement or disagreement with statements about reflective functioning, ranging from "Strongly Disagree" to "Strongly Agree." Higher scores indicate greater reflective functioning. In this study, the Cronbach's α coefficient for this scale was 0.798,

indicating acceptable reliability.

### 2.3 Statistical Methods

Statistical analysis was performed using SPSS 26.0, including descriptive statistics, difference tests, and correlation analysis. The PROCESS macro program in SPSS 26.0 was employed to examine mediating effects. A significance level of $P < 0.05$ was adopted.

## 3. Results

Common method bias analysis using SPSS 26.0 [19] revealed that the first extracted common factor explained 14.59% of variance, far below the 40% threshold, indicating no severe common method bias in the study data.

### 3.1 Descriptive Statistics of Childhood Trauma, Borderline Personality features, and Reflective Functioning, and Differences in Demographic Characteristics

Nonparametric tests were employed for difference analysis due to non-normal distribution of sample data. Female participants scored higher on childhood trauma than males, while males scored higher on borderline personality features than females. No significant differences were observed across the three variables for household registration location, as shown in Table 1.

**Table 1:** Differences in Childhood Trauma, Borderline Personality features, and Reflective Functioning Scores Across Demographic Variables

| Item | Category | n | CTQ-SF | BPFS-C | RFQY |
|---|---|---|---|---|---|
| Total Sample | | 244 | | | |
| Gender | Male | 49 | 51.00 (42.50, 57.00) | 74.00 (68.00, 87.00) | 8.17 (7.60, 8.78) |
| | Female | 195 | 56 .00(47.00, 65.00) | 72.00 (84.00, 94.00) | 8.21 (7.47, 8.73) |
| | Z-score | | -2.738 | -2.647 | -0.871 |
| | P-value | | 0.006 | 0.008 | 0.384 |
| Household Registration Location | Urban | 141 | 53.00 (45.00, 63.00) | 81 (70.00, 91.00) | 8.26 (7.60, 8.78) |
| | Rural | 103 | 56.00 (47.00, 65.00) | 82 (72.00, 95.00) | 8.08 (7.39, 8.69) |
| | Z-score | | -0.804 | -1.414 | -1.359 |
| | P-value | | 0.422 | 0.158 | 0.174 |

### 3.2 Correlation Analysis of Childhood Trauma, Borderline Personality features, and Reflective Functioning

To explore the relationship among childhood trauma, reflective function and borderline personality features in adolescent patients with depression, Pearson's correlation coefficient was used to analyze the data. The results indicated varying degrees of correlation among childhood trauma, reflective function, and borderline personality features. Specifically, childhood trauma showed a significant positive correlation with borderline personality features ($r = 0.397$, $P < 0.01$), while childhood trauma and reflective function showed a significant negative correlation ($r = -0.206$, $P < 0.01$). Reflective function and borderline personality features also exhibited a significant negative correlation ($r = -0.526$, $P < 0.01$), as shown in Table 2.

**Table 2:** Correlation Analysis of Childhood Trauma, Borderline Personality features, and Reflective Functioning (r Values)

| | CTQ-SF | BPFS-C | RFQY |
|---|---|---|---|
| CTQ-SF | 1 | | |
| BPFS -C | 0.397** | 1 | |
| RFQY | -0.206** | -0.526** | 1 |

Note: ** indicates $P < 0.01$ (two-tailed test), indicating extremely significant correlation.

### 3.3 Mediating Role of Reflective Functioning in Childhood Trauma and Borderline Personality Features

To examine the mediating role of reflective functioning, a mediation model was constructed with childhood trauma as the independent variable, borderline personality features as the dependent variable, reflective functioning as the mediator, and gender as the control variable. Analysis was conducted using the SPSS PROCESS macro (Model 4). All variables were standardized, and 95% confidence intervals were calculated via 5000 bootstrap resamples. Controlling for gender, the mediation analysis results (see Tables 3 and 4) revealed that childhood trauma significantly and negatively predicted reflective functioning ($\beta = -0.196$, $p < 0.01$), and reflective functioning significantly and negatively predicted borderline personality features ($\beta = -0.460$, $p < 0.001$). Effect decomposition revealed that childhood trauma had a significant total effect on borderline personality features ($\beta = 0.379$, $p < 0.001$). The direct effect was 0.289 ($p < 0.001$), while the indirect effect through reflective functioning was 0.090, with a 95% confidence interval of [0.019, 0.166] did not include zero. This indirect effect accounted for 23.7% of the total effect, indicating that reflective functioning partially mediated the relationship between childhood trauma and borderline personality features.

**Table 3:** Regression Analysis of Reflective Functioning Mediating Childhood Trauma and Borderline Personality features

| Outcome Variable | Predictor Variables | R | R2 | F | β | t | Boot LLCI | Boot ULCI |
|---|---|---|---|---|---|---|---|---|
| BPFS-C | Gender | 0.409 | 0.167 | 24.224*** | 0.101 | 1.686 | -0.638 | 8.202 |
| | CTQ-SF | | | | 0.379 | 6.357*** | 3.951 | 7.500 |
| RFQY | Gender | 0.212 | 0.045 | 5.678** | -0.054 | -0.836 | -0.447 | 0.181 |
| | CTQ-SF | | | | -0.196 | -3.069** | -0.322 | -0.070 |
| BPFS-C | Gender | 0.608 | 0.369 | 46.850*** | 0.076 | 1.458 | -1.002 | 6.719 |
| | CTQ-SF | | | | 0.289 | 5.450*** | 2.787 | 5.942 |
| | RFQY | | | | -0.460 | -8.767*** | -8.499 | -5.380 |

Note: **P < 0.01, ***P < 0.001.

**Table 4:** Standardized Effect Sizes and Effect Sizes in the Mediating Model

| | Effect Size | SE | Bootstrap 95% CI | Effect Proportion |
|---|---|---|---|---|
| Total Effect | 0.379*** | 0.060 | [0.262, 0.497] | — |
| Direct Effect | 0.289*** | 0.053 | [0.185, 0.394] | 76.3% |
| Indirect Effect | 0.090* | 0.037 | [0.019, 0.166] | 23.7% |

Note: Indirect effects were calculated via 5000 Bootstrap samples. A confidence interval not containing zero indicates a significant effect. Effect proportion = effect value / total effect value.

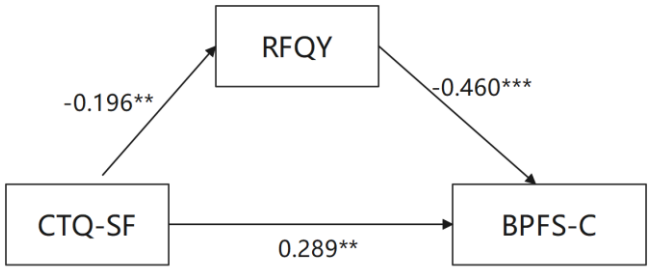


**Figure 1:** Mediating Model of Reflective Functioning Between Childhood Trauma and Borderline Personality features

Note: *P < 0.05; ***P < 0.001.

## 4. Discussion

### 4.1 Relationship between Childhood Trauma, Reflective Functioning, and Borderline Personality Features

The findings indicate a significant positive correlation between childhood trauma and borderline personality features, suggesting that individuals who experience childhood trauma are more likely to develop borderline personality features. This aligns with previous research conclusions [20]. Childhood traumas, such as abuse and neglect, are considered major environmental risk factors for the development of borderline personality disorder [21]. These traumatic experiences may undermine individuals' emotional regulation abilities and shape insecure attachment patterns, preventing them from acquiring effective emotional regulation strategies. This can easily trigger emotional instability, interpersonal sensitivity, and impulsive behaviors—characteristics of borderline personality [22].

Research findings not only confirm a significant negative correlation between childhood trauma and reflective functioning but also reveal a strong negative association between reflective functioning and borderline personality features. This aligns with existing research [23]. Mentalization theory posits that impaired reflective functioning (or mentalization capacity) is intrinsically linked to borderline personality pathology [24]. Traumatic childhood experiences undermine the foundation for individuals to safely explore their own and others' mental states, hindering the development of healthy capacities to understand emotions, intentions, and beliefs. When individuals struggle to accurately interpret their own and others' mental states, they become more susceptible to the emotional dysregulation, interpersonal chaos, and identity distress characteristic of borderline personality features.

### 4.2 Mediating Role of Reflective Functioning

Mediation analysis revealed that reflective function partially mediated the relationship between childhood trauma and adolescent borderline personality features. This indicates that childhood trauma influences borderline personality features in part by impairing reflective function. Specifically, childhood trauma experiences impair adolescents' reflective function, and this cognitive impairment subsequently leads to more severe borderline personality features. This mediating pathway explains 23.8% of the total effect, indicating it is a significant mechanism that cannot be overlooked. The findings suggest that childhood trauma indirectly fosters borderline personality issues by impairing reflective functioning. This offers a potential explanation for why not all individuals who experience childhood trauma develop borderline personality disorder: those who retain or later restore their reflective functioning may possess a crucial "psychological buffer layer," thereby resisting the development of pathological personality features.

## 5. Research Significance and Limitations

This study preliminarily elucidates the pathway through which childhood trauma influences borderline personality features in adolescents with depression, providing a theoretical foundation for constructing a relational model between childhood trauma and borderline personality features. Additionally, it confirms the significance of childhood trauma experiences and reflective functioning levels for adolescents with depression, offering further practical evidence for their treatment.

This study has several limitations. First, as a cross-sectional design, it lacks sufficient validation of causal relationships among variables. Second, it examined only reflective functioning as a single mediating variable. The pathways through which childhood trauma influences borderline personality features may be multifaceted, with factors such as emotional regulation difficulties and insecure attachment potentially playing significant roles. Future research should incorporate additional potential mediating variables to construct and test more complex multiple mediation or chain mediation models, thereby revealing the underlying mechanisms more comprehensively. Third, the study's small sample size and limited geographical scope restrict the generalizability of its findings. Subsequent research could consider multi-center studies or longitudinal intervention designs to provide more robust evidence on the mechanisms influencing borderline personality features in adolescents with depression.

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