

## Children' s Self-Other Understanding Patterns and Their Association with Psychosocial Adaptation: A Latent Profile Analysis

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**Date:** 2026-05-11T17:42:44+00:00

### Abstract

This study employed latent profile analysis to examine the combined patterns of self- and other-understanding among 481 children ( $M_{age} = 11.41 \pm 0.96$  years) and their associations with psychosocial adjustment. The results revealed gender heterogeneity in these combined patterns: both boys and girls exhibited “high-high,” “medium-low,” and “low-low” groups, while a “low self-high other understanding” group was unique to girls. Significant differences in adjustment indicators were found across groups: as levels of self- and other-understanding decreased, boys showed a linear increase in problem behaviors and a decrease in prosocial behaviors; for girls, the “low-high” group exhibited significantly better prosocial behavior than other groups, but higher problem behaviors than the “high-high” group. This study provides a basis for precision intervention in children' s mental health and gender-specific guidance.

### Full Text

#### Preamble

Patterns of Children' s Self-Other Understanding and Their Associations with Psychosocial Adjustment: A Latent Profile Analysis\* Pan Teng 1,2, Sheng Xuemei 1,2, Wu Yuqing 1,2, Ji Linqin 1,2

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This study finds that an imbalance between children' s self-understanding and their understanding of others significantly increases adaptation risks. In educa-

tional practice, interventions for boys should focus on the synchronized enhancement of both self and social understanding to reduce behavioral problems such as aggression and delinquency. Conversely, for girls, it is necessary to remain vigilant regarding emotional distress, such as anxiety, which may arise from an over-focus on others at the expense of their own needs. We suggest that educators view children's daily behavioral manifestations as a window into their internal cognitive structures, utilizing differentiated guidance to promote the comprehensive development of both cognition and adaptation.

### 摘要

This study employed Latent Profile Analysis (LPA) to examine the combinatory patterns of self-understanding and other-understanding among 481 children ( $M_{age} = 11.41 \pm 0.96$  years), as well as their associations with psychosocial adjustment. The results revealed gender heterogeneity in these patterns: both boys and girls exhibited “high self-high other,” “moderate-low,” and “low self-low other” groups, while a “low self-high other” understanding group was unique to girls. Significant differences in adjustment indicators were observed across these groups. For boys, problem behaviors increased linearly and prosocial behaviors decreased as levels of self- and other-understanding declined. For girls, the “low self-high other” group demonstrated significantly better prosocial behavior than other groups, yet exhibited higher levels of problem behavior compared to the “high self-high other” group.

This research provides a theoretical basis for precision mental health interventions and gender-specific guidance for children.

### 关键词

Self-understanding, understanding of others, problem behaviors, prosocial behavior, latent profile analysis

CLC Number

- Funding: National Natural Science Foundation of China (31971008, 32571249). \*\* Corresponding author: Ji Linqin, Professor, Shandong Normal University, e-mail: sdjlq@126.com.

Self-Other Understanding Patterns and Psychosocial Adjustment in Children: A Latent Profile Analysis PAN Teng<sup>1,2</sup> SHENG Xuemei<sup>1,2</sup> WU Yuqing<sup>1,2</sup> JI Linqin<sup>1,2</sup> (1. Faculty of Psychology, Shandong Normal University, Jinan 250014, China; 2. Shandong Provincial Key Laboratory of Brain Science and Mental

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### Abstract

Self-understanding and other-understanding constitute the core of individual socio-cognitive development, specifically, late childhood represents a pivotal de-

developmental juncture characterized by the rapid differentiation and maturation of these two dimensions. However, empirical research has traditionally relied on variable-centered approaches, which often prioritize average associations overlook how these two dimensions integrate and manifest as distinct combination patterns within the individual. Therefore, the present study adopts a person-centered perspective to systematically examine the latent subgroups of self-and other-understanding. By exploring these internal patterns, the research aims to examine the differences between these subgroups regarding internalizing and externalizing problem behaviors as well as prosocial behavior, providing a more nuanced view of social-cognitive development.

This study utilized a cross-sectional survey design to collect data from a sample of 481 school-aged children (Mage = 11.41, SD = 0.96). To measure the core constructs, standardized psychological scales were administered to assess self-understanding, other-understanding, and various psychosocial adjustment indicators. To identify distinct social-cognitive configurations, Latent Profile Analysis (LPA) was performed using Mplus 8.0, utilizing standardized scores of core self-evaluation, security, and empathy as indicators.

Given the hypothesized gender differences, separate LPA models were estimated for boys and girls to explore gender-specific structural patterns. Subsequently, a series of analyses of variance (ANOVAs) were conducted to examine differences across the identified profiles in terms of internalizing and externalizing problems, as well as prosocial behavior.

The Latent Profile Analysis (LPA) results revealed pronounced gender heterogeneity in the configurational patterns of self-and other-understanding. For both genders, three common latent profiles were identified: “High-High”, “Moderate-Low”, and “Low-Low” groups. Notably, a unique “Low Self-High Other” profile emerged exclusively among girls, representing a developmental asymmetry where children prioritize the understanding of others over the self. Psychosocial adjustment varied significantly across these latent profiles. For boys, adjustment followed a linear trend where lower scores across both cognitive dimensions consistently predicted higher internalizing and externalizing problems and lower prosocial behavior. Among girls, while the “High-High” profile remained the most adaptive and the “Low-

Low” profile the most maladaptive, the unique “Low-High” group presented a complex adaptation pattern: they exhibited significantly higher prosocial behavior compared to the “Moderate-Low” and “Low-Low” groups, yet continued to show more problem behaviors than their “High-High” counterparts.

In conclusion, this study demonstrates that the configurational patterns of self-and other-understanding, along with their associated psychosocial adjustment, exhibit distinctive gender-specific characteristics during late childhood. The identification of the “Low Self-High Other” group specifically in girls underscores the impact of gender socialization, where females may be more inclined toward external interpersonal sensitivity at the expense of internal self-reflection. The

diverse associations between these profiles and adjustment indicators suggest that the “balance” between self and other understanding is a critical determinant of psychosocial adaptation. This research moves beyond variable-centered approaches by highlighting the qualitative differences in how children integrate social-cognitive information, thereby broadening the theoretical scope of developmental social cognition.

This study offers several valuable insights for educational targeted interventions. First, the “Low-Low” and “Moderate-Low” profiles identify high-risk children requiring priority support to preemptively mitigate internalizing and externalizing risks. Second, the unique “Low Self-High Other” profile in girls necessitates gender-informed strategies that prioritize self-conceptual clarity and self-compassion over additional empathy training. Crucially, educators should be aware that prosocial behavior is not an infallible indicator of perfect psychosocial adjustment, as evidenced by the “Low-High” group who still suffer from significant behavioral problems. By adopting these person-centered insights, practitioners can transition from universal approaches to profile-specific support, addressing the idiosyncratic socio-cognitive needs of diverse children.

Key words: self-understanding, other-understanding, problem behaviors, prosocial behavior, latent profile

## 1 引言

Children’s understanding of “self,” “others,” and the relationship between the two constitutes the core content of social-cognitive development and serves as a critical psychological foundation for psychosocial adaptation [?, ?]. Core self-evaluation reflects an individual’s fundamental cognition and appraisal of their own abilities, self-worth, and external social environment, encompassing self-esteem, self-efficacy, and locus of control [?, ?, ?]. Security reflects an individual’s subjective assessment of potential physical and mental risks and their coping efficacy, manifesting as internalized representations of certainty and control over one’s life [?, ?, ?]. Understanding others refers to the ability to perceive, infer, and respond to the mental states of others. As a key manifestation of understanding others, empathy reflects the process of understanding and reacting emotionally to others’ feelings; this includes cognitive inferences regarding others’ thoughts and emotional states, as well as indirect emotional experiences triggered by the emotions of others [?, ?].

Understanding of the self and others significantly influences children’s psychosocial adaptation. Core self-evaluation, self-esteem, and security can reduce behavioral problems and depression while promoting prosocial behavior [?, ?, ?]. High levels of empathy are generally associated with increased prosocial behavior [?, ?]. However, the impact of different sub-components of empathy on adaptive outcomes varies: cognitive empathy is associated with fewer aggressive behaviors and depressive symptoms, whereas affective empathy serves as a significant risk factor for depressive symptoms in children [?, ?]. Despite these findings,

existing research has largely adopted a variable-centered perspective, focusing on the association between a single dimension of a child' s self-understanding (e.g., self-esteem) or understanding of others (e.g., empathy) and their developmental adaptation [?, ?, ?]. To date, no study has examined the combinatorial patterns and characteristics of key aspects of self-understanding and understanding of others, nor explored how different developmental patterns of these two domains affect children' s adaptive outcomes.

Human individuals possess two fundamental motivations: agency and communion [?, ?]. The former emphasizes the construction of self-worth, sense of control, and autonomy, while the latter points toward a focus on others' emotions, relational bonds, and interpersonal sensitivity. Within this theoretical framework, children' s understanding of self and others can be viewed as important psychological representations of agency and communion during developmental stages. Existing research indicates that when agency and communion are in a state of relative balance, individuals are more likely to achieve optimal psychological adaptation; conversely, an imbalance between the two may entail adaptive risks, even if an individual shows strength in one dimension [?, ?]. Studies have found that the synergistic development of self-esteem and empathy helps enhance life satisfaction [?, ?], whereas children who overemphasize self-worth but lack the integration of understanding others are more prone to aggressive behavior [?, ?]. Similarly, high levels of empathy may increase the risk of depression if they lack the self-protection afforded by agency or external support resources [?, ?]. These findings suggest that self-understanding and understanding of others do not act independently on children' s developmental adaptation; rather, both their developmental levels and their combinatorial patterns play a crucial role in the adaptation process. Furthermore, the Chinese socio-cultural environment emphasizes an orientation toward others and relationships, placing relatively less emphasis on the autonomous representation of the independent self [?, ?]. Cross-cultural studies have confirmed that the predictive effect of empathy on mental health is significantly stronger among Chinese adolescents than among Western groups [?, ?]. Consequently, the matching patterns between self-understanding and understanding of others among Chinese children, as well as their associations with psychosocial adaptation, may exhibit more specific and complex dynamics.

Middle and late childhood is a critical developmental stage characterized by the rapid differentiation of children' s understanding of self and others. On one hand, children' s cognition of their own traits and value gradually transitions from concrete representations to abstract concepts, leading to the development of a clearer and more stable self-concept and identity. On the other hand, significant enhancements in perspective-taking and mentalizing abilities allow them to transcend egocentric perspectives and more keenly infer and understand the mental states and emotional needs of others [?, ?]. Regarding psychosocial adaptation, middle and late childhood sees an increase in internalized emotional problems and externalized aggressive behaviors, while prosocial behavior transforms from situational behavioral responses into stable social competencies. The level of

emotional and behavioral adaptation during this stage significantly predicts subsequent mental health, social functioning, and even academic achievement [?, ?]. Therefore, the present study focuses on children in middle and late childhood to explore the combinatorial patterns of self-understanding and understanding of others and to reveal their associations with multi-domain psychosocial adaptive outcomes.

The latent combinatorial patterns of children' s self-understanding and understanding of others may be influenced by gender socialization. Social role theory suggests that gender role expectations and socialization processes can lead to gender differences in social cognition [?, ?]. Empirical studies have shown that gender differences are prevalent in indicators reflecting self-understanding and understanding of others, such as self-esteem, security, and empathy [?, ?, ?]. Specifically, males generally report slightly higher levels of self-esteem than females, a difference that becomes more pronounced during middle-to-late childhood and adolescence [?, ?]. Conversely, females typically score higher on self-reported empathy than males, though this difference is influenced to some extent by socio-cultural expectations and measurement methods [?, ?]. Based on this, gender differences may manifest not only as differences in levels across single cognitive dimensions but also as differences in the intra-individual combinatorial patterns of self-understanding and understanding of others. Analyzing only the aggregate sample might obscure gender-specific latent structures. Thus, this study distinguishes between children of different genders to examine the latent combinatorial patterns of self-understanding and understanding of others and their associations with psychosocial adaptation. Based on existing research, this study hypothesizes that: (1) children' s self-understanding and understanding of others will present multiple latent combinatorial patterns that are gender-specific; (2) children in different subgroups will exhibit significant differences in psychosocial adaptation, where subgroups with high levels of both self-understanding and understanding of others will show favorable adaptive outcomes, while subgroups with advantages in only one dimension or overall deficits may face complex adaptive risks.

## 2.1 被试

A cluster sampling method was employed to select 491 students from a city in Shandong Province. Questionnaires were distributed and collected via the Wenjuanxing platform, resulting in 481 valid responses (an effective recovery rate of 97.96%). The sample included 165 students from the fourth grade ( $M_{age} = 10.42 \pm 0.52$  years; 59.39% male), 160 students from the fifth grade ( $M_{age} = 11.48 \pm 0.54$  years; 48.13% male), and 156 students from the sixth grade ( $M_{age} = 12.37 \pm 0.53$  years; 53.85% male). This study was approved by the Institutional Review Board of the authors' affiliated institution (SDNU2025026).

### 2.2.1 核心自我评价

The Core Self-Evaluation Scale, originally developed by Judge et al. (2003) and subsequently translated and revised by Du et al. (2012), was employed to assess the levels of core self-evaluation in children.

The scale consists of 10 items rated on a five-point Likert scale, where higher scores indicate higher levels of core self-evaluation. In the present study, the scale demonstrated high internal consistency, with a Cronbach' s  $\alpha$  coefficient of 0.87 and an  $\omega$  coefficient of 0.87. Furthermore, the scale exhibited good structural validity ( $\chi^2 = 85.52, df = 30, CFI = 0.96, TLI = 0.94, RMSEA = 0.06, SRMR = 0.05$ ).

### 2.2.2 安全感

The *Security Questionnaire* (SQ), developed by Cong and An (2004), was employed to assess children' s sense of interpersonal security and sense of certainty and control, with each subscale consisting of 8 items. Responses were recorded using a five-point Likert scale, where lower total scores indicate a higher level of perceived security. In the present study, the Cronbach' s  $\alpha$  coefficients for the two subscales were 0.81 and 0.87, respectively, while the McDonald' s  $\omega$  coefficients were also 0.81 and 0.87. The scale demonstrated good structural validity ( $\chi^2 = 261.45, df = 103, CFI = 0.93, TLI = 0.91, RMSEA = 0.06, SRMR = 0.05$ ).

### 2.2.3 共情

Children' s empathy was assessed using the Interpersonal Reactivity Index (IRI; Davis, 1983). This study utilized the Perspective Taking and Empathic Concern subscales, each consisting of 7 items. Responses were recorded on a five-point Likert scale, where higher scores indicate a stronger empathetic capacity. The Cronbach' s  $\alpha$  coefficients for the two subscales were 0.87 and 0.68, respectively, while the  $\omega$  coefficients were 0.84 and 0.69. The scale demonstrated good structural validity ( $\chi^2 = 418.32, df = 174, CFI = 0.90, TLI = 0.88, RMSEA = 0.05, SRMR = 0.08$ ).

### 2.2.4 心理社会适应

Prosocial behavior and behavioral problems were assessed using the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). This 25-item scale utilizes a three-point scoring system and consists of a Strengths subscale (prosocial behavior) and a Difficulties subscale. The latter encompasses two primary dimensions: internalizing problems (emotional symptoms and peer relationship problems) and externalizing problems (conduct problems and hyperactivity/inattention). In the present study, the Cronbach' s  $\alpha$  coefficients for internalizing problems, externalizing problems, and prosocial behavior were 0.74, 0.79, and 0.76, respectively, while the McDonald' s  $\omega$  coefficients were 0.75,

0.79, and 0.76, respectively. The scale demonstrated good structural validity ( $\chi^2 = 450.47$ ,  $df = 207$ ,  $CFI = 0.91$ ,  $TLI = 0.89$ ,  $RMSEA = 0.05$ ,  $SRMR = 0.07$ ).

### 2.3 数据处理

Descriptive statistics and correlation analyses were conducted using SPSS 26.0. Latent Profile Analysis (LPA) was performed using Mplus 8.0 to identify distinct patterns of core self-evaluation, security, and empathy among children of different genders. Subsequently, Analysis of Variance (ANOVA) was employed to examine differences across the identified subgroups regarding internalizing problems, externalizing problems, and prosocial behaviors.

### 2.4 共同方法偏差

Harman's single-factor test revealed 16 factors with eigenvalues greater than 1. The first factor accounted for 24.67% of the variance, which is well below the 40% threshold. These results indicate that there is no significant common method bias in the present study.

### 3.1 描述统计和相关分析

Descriptive statistics and correlation coefficients for all variables are presented in [TABLE:S1]. Gender-disaggregated correlation analyses indicate that, overall, the directions of correlations between variables are consistent for both male and female students.

However, differences exist in the strength of these associations. Specifically, the correlation between self-understanding and adaptation outcomes was relatively stronger in males, whereas females exhibited slightly higher correlations among indicators of understanding others. These findings suggest potential gender-specific patterns in social cognitive structures. Independent samples  $t$ -tests revealed that males scored significantly higher than females in interpersonal security ( $M = 31.43$ ,  $SD = 5.91$  vs.  $M = 30.19$ ,  $SD = 6.00$ ) and sense of certain control ( $M = 30.16$ ,  $SD = 6.51$  vs.  $M = 28.72$ ,  $SD = 7.12$ ), with  $t(479) = 2.28$ ,  $p = 0.023$ ,  $d = 0.208$  and  $t(479) = 2.31$ ,  $p = 0.021$ ,  $d = 0.211$ , respectively. Conversely, females scored significantly higher than males in perspective-taking ( $M = 19.69$ ,  $SD = 3.56$  vs.  $M = 18.83$ ,  $SD = 4.07$ ) and empathic concern ( $M = 19.96$ ,  $SD = 3.23$  vs.  $M = 19.18$ ,  $SD = 3.47$ ), with  $t(479) = -2.47$ ,  $p = 0.007$ ,  $d = 0.223$  and  $t(479) = -2.53$ ,  $p = 0.006$ ,  $d = 0.230$ , respectively. No significant gender differences were found for core self-evaluations [ $t(479) = 0.46$ ,  $p = 0.323$ ].

### 3.2 儿童自我理解和他人理解组合模式

Latent profile analysis (LPA) was conducted separately for male and female students using standardized indicators to examine the combined patterns of

self-other understanding. The analysis began with an initial model (assuming a single profile) and progressively increased the number of profiles until the optimal model was identified based on fit indices.

Among male students, the information indices AIC, BIC, and aBIC decreased continuously as the number of profiles increased (see ). In the three-profile model, the aBIC value decreased significantly compared to the previous model, and the LMRT value approached statistical significance. Although the four-profile model yielded a higher Entropy value than the three-profile model, it produced an additional, highly similar subgroup comprising only 2.5% of the sample. Adhering to the principle of model parsimony, the three-profile model was ultimately selected as the optimal solution. Based on the scores of male students across different indicators (see Table S2), these three patterns were labeled as follows: the high self-other understanding group ( $N = 87$ , 33.59%), the moderate self-low other understanding group ( $N = 107$ , 41.31%), and the low self-other understanding group ( $N = 65$ , 25.10%).

Similarly, for female students, the aBIC value of the four-profile model decreased significantly compared to the three-profile model, and the Entropy value remained high. Although the Entropy value for a five-profile model was higher than that of the four-profile model, the LMRT results indicated that the five-class model was not significantly superior to the four-class model. Considering these factors comprehensively, the four-profile model was selected as the optimal solution.

Based on the scores of female students across various indicators (Table S2), these four patterns were labeled as follows: the high self-other understanding group ( $N = 70$ , 31.53%), the moderate self-low other understanding group ( $N = 71$ , 31.98%), the low self-other understanding group ( $N = 32$ , 14.41%), and the low self-high other understanding group ( $N = 49$ , 22.07%).

Model

Entropy

LMRT(p)

BLRT(p)

< .001

< .001

0.46/0.54

< .001

0.34//0.41/0.25

< .001

0.33/0.36/0.29/0.02

< .001  
 0.32/0.34/0.15/0.16/0.03  
 < .001  
 0.31/0.33/0.14/0.17/0.03/0.02  
 < .001  
 < .001  
 0.45/0.55  
 < .001  
 0.30/0.44/0.26  
 < .001  
 0.32/0.32/0.14/0.22  
 < .001  
 0.31/0.30/0.20/0.15/0.04  
 < .001  
 0.27/0.19/0.23/0.14/0.13/0.03  
 Male (n=259)  
 Female (n=222)

### 3.3 不同亚组儿童心理行为特征的差异

ANOVA analysis (Table S3) revealed significant differences in internalizing problems, externalizing problems, and prosocial behaviors across the different subgroups of children. Among boys, internalizing and externalizing problems increased progressively across the “high-high,” “medium-low,” and “low-low” groups, while prosocial behaviors showed a corresponding gradual decrease. Among girls, internalizing and externalizing problems increased progressively across the “high-high,” “medium-low,” “low-high,” and “low-low” groups. Regarding prosocial behavior in girls, the “high-high” group scored significantly higher than all other groups, while the “low-low” group scored significantly lower than all others; additionally, the “low-high” group exhibited significantly higher levels of prosocial behavior compared to both the “medium-low” and “low-low” groups.

#### 4.1 儿童自我-他人理解亚组及主要特征

This study identifies heterogeneous combination patterns in children’s self-understanding and understanding of others. Three distinct subgroups were identified among both boys and girls: a “High-High” group, a “Medium-Low”

group, and a “Low-Low” group. Children in the High-High group possess relatively positive core self-evaluations and a sense of security, while also demonstrating a strong capacity to perceive and understand the emotional states of others. This reflects a synergistic development of self and other-understanding [?, ?]. In contrast, children in the Low-Low group exhibit a social-cognitive structure characterized by relative deficiencies in both domains, suggesting that for some children, self-understanding and understanding of others have not yet fully differentiated; these domains may exhibit a degree of synchronicity during early development [?, ?]. The Medium-Low group displays an imbalanced developmental structure, which may occur because these children have formed a preliminary self-concept maintained at a

moderate level—potentially influenced by positive bias—while their more complex capacity for understanding others remains in an earlier stage of development [?, ?].

Unlike the boys, who exhibited only three patterns, a fourth group comprising 22.07% of the girls was identified as the “Low Self-High Other Understanding” group. Existing variable-centered research indicates that females tend to exhibit lower or more fluctuating levels of self-esteem compared to males in terms of self-understanding [?, ?], while typically demonstrating higher empathy and greater emotional sensitivity regarding the understanding of others [?, ?]. This finding aligns with the general trends observed in gender difference research and further suggests that the development of self and other-understanding may be asynchronous in females. This structural characteristic may be influenced by gender-role socialization. On one hand, gender expectations encourage individuals to develop a high sensitivity to the emotions and needs of others [?, ?], leading to higher levels of other-understanding. On the other hand, the accompanying tendency toward “self-silencing” [?, ?] may restrict the expression of one’s own needs and values, hindering the establishment of core self-evaluation and security to some extent, thereby resulting in lower levels of self-understanding.

#### 4.2 不同自我-他人理解亚组与心理社会适应的关系

This study found significant differences in adaptation indicators among children in different self-other understanding subgroups. Children in the “dual-high” group exhibited the most optimal adaptation pattern, characterized by relatively low levels of problem behaviors and high levels of prosocial behavior. This reflects that high levels of both self and other understanding are associated with more positive psychosocial adaptation, which is consistent with existing variable-centered research findings [?, ?, ?].

In contrast, children in the “dual-low” group exhibited the most severe maladaptation, showing high levels of problem behaviors and low levels of prosocial behavior. This suggests that the dual characteristics of insufficient self-understanding and limited understanding of others are closely related to adaptation risks [?, ?]. The level of problem behaviors in the “medium-low” group was significantly

lower than that of the dual-low group, indicating that self-understanding plays a buffering role in children' s psychosocial adaptation [?, ?].

Notably, the “low self-high other understanding” group, which was unique to girls, presented a social-cognitive structure with dual adaptive qualities. Children in this group exhibited high levels of prosocial behavior, reflecting the compensatory function of strong empathy skills in social interactions; it also reflects a high degree of alignment between their social-cognitive orientation and female gender role norms [?, ?]. However, the level of internalizing problems in this group was significantly higher than that of the dual-high group, suggesting that when the development of relatedness lacks the support of agency, prosocial behavior may, under certain conditions,

be accompanied by risks to emotional adaptation [?, ?].

### 4.3 研究意义与不足

From an individual-oriented perspective, this study reveals the heterogeneity in patterns of children' s self-understanding and understanding of others, while exploring the functional significance of social cognitive structures for psychosocial adaptation. The results suggest that it is necessary to comprehensively examine the relative levels and combinatory relationships between self-understanding and the understanding of others.

Differences in developmental adaptation outcomes across various self-other understanding subgroups suggest that psychosocial adaptation can be viewed as the external manifestation of an individual' s internal cognitive structure at the emotional and behavioral levels. Consequently, adaptation can serve as a key indicator for assessing the developmental status of self-other understanding, providing a basis for the early identification of developmental patterns and precise interventions. Specifically, for the “low self-high other” group unique to girls, interventions could focus on enhancing self-concept and self-efficacy while maintaining their existing empathetic advantages to strengthen self-regulatory abilities. For children in the “double low” group, it is necessary to improve social information processing methods by promoting the synergistic development of self-understanding and emotional understanding to alleviate externalizing problems.

This study has several limitations. The cross-sectional design only reflects children' s current patterns of self and other understanding. Given that traits such as self-esteem and empathy exhibit stage-specific changes and gender differences throughout development \cite{O'Brien et al., 2013; Zuckerman et al., 2016}, the profile combinations of individuals across these dimensions may change dynamically over time. Therefore, the latent profiles identified in this study may be specific to this particular developmental stage. Future research should employ longitudinal tracking designs across a broader age range to explore potential transitions between subgroups and their dynamic associations with behavioral adaptation. Furthermore, this study utilized only two indicators for under-

standing others—perspective-taking and empathic concern—which may, to some extent, limit the description of differentiation patterns within this dimension. Future studies should consider incorporating a richer set of indicators. Additionally, the data relied on child self-reports, which may be influenced by social desirability effects or retrospective bias. Future research could combine reports from multiple informants, including children, parents, and teachers, to improve the comprehensiveness of the measurements.

## 5 结论

The combined patterns of children's self-understanding and understanding of others, along with their psychosocial adjustment, exhibit distinct characteristics across different gender groups. Among boys, the distribution is categorized into three groups: “high self/high other,” “moderate self/moderate other,” and “low self/low other.” In this group, problem behaviors increase linearly as levels of self-understanding and understanding of others decrease, while prosocial behaviors decrease accordingly. In contrast, girls exhibit a unique “low self/high other” group, and their adjustment outcomes demonstrate non-linear patterns of change.

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## 附录

Table S1: Descriptive Statistics and Correlation Analysis of Variables

M (Male/Female)

SD (Male/Female)

### 1 核心自我评价

36.54/36.24

7.21/7.16

.67\*\*\*

.62\*\*\*

.35\*\*\*

.27\*\*\*

-.67\*\*\*

-.61\*\*\*

.38\*\*\*

### 2 人际安全感

31.43/30.19

5.91/6.00

.59\*\*\*

.81\*\*\*

.38\*\*\*

.19\*\*

-.60\*\*\*

-.53\*\*\*

.38\*\*\*

### 3 确定控制感

30.16/28.72

6.51/7.12

.58\*\*\*

.80\*\*\*

.22\*\*

-.58\*\*\*

-.49\*\*\*

.23\*\*

#### 4 观点采择

18.83/19.69

4.07/3.56

.38\*\*\*

.35\*\*\*

.26\*\*\*

.68\*\*\*

-.23\*\*\*

-.29\*\*\*

.55\*\*\*

#### 5 共情关注

19.18/19.96

3.47/3.23

.32\*\*\*

.29\*\*\*

.24\*\*\*

.59\*\*\*

-.22\*\*

-.21\*\*

.52\*\*\*

#### 6 内化问题

4.45/4.73

3.28/3.43

-.66\*\*\*

-.49\*\*\*

-.46\*\*\*

-.21\*\*

-.22\*\*\*

.76\*\*\*

-.31\*\*\*

## 7 外化问题

5.07/4.50

3.53/3.41

-.71\*\*\*

-.50\*\*\*

-.46\*\*\*

-.36\*\*\*

-.27\*\*\*

.70\*\*\*

-.32\*\*\*

## 8 亲社会行为

7.72/7.82

2.03/1.93

.38\*\*\*

.40\*\*\*

.34\*\*\*

.57\*\*\*

.56\*\*\*

-.29\*\*\*

-.37\*\*\*

Note: Values below the diagonal represent males ( $N = 259$ ), and values above the diagonal represent females ( $N = 222$ ). \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ .

Table S2: Scores of Male and Female Subgroups Across Different Indicators: Self-Other Understanding Subgroups

Class 1: High-High Group (Male/Female)

Class 2: Low-Medium Group (Male/Female)

Class 3: High-Low Group (Male/Female)

Class 4: Low-High Group (Male/Female)

$F$  (Male/Female)

$\eta^2$  (Male/Female)

Core Self-Evaluations

0.92(0.81)a / 0.85(0.81)a

-0.11(0.68)b / 0.01(0.59)b

-0.97(0.55)c / -1.14(0.64)d

- / -0.59(0.76)c

140.38\*\*\* / 71.91\*\*\*

0.523 / 0.497

Interpersonal security refers to an individual' s subjective feeling of safety, certainty, and confidence during social interactions. It is a core component of psychological security and plays a vital role in an individual' s mental health and social adaptation.

### Definition and Core Components

Interpersonal security is primarily characterized by an individual' s perception of the stability and predictability of their social environment. It involves several key dimensions:

1. **Sense of Belonging:** The feeling of being accepted and valued by a social group or significant others.
2. **Trust:** The belief in the reliability and integrity of others, as well as the confidence that others will not intentionally cause harm.
3. **Control and Predictability:** The perception that one can understand social cues and predict the outcomes of interpersonal interactions.
4. **Self-Confidence in Social Settings:** The belief in one' s own ability to handle social situations and maintain healthy relationships.

### Theoretical Foundations

The concept of interpersonal security is deeply rooted in **Attachment Theory**. According to Bowlby and Ainsworth, early interactions between infants and primary caregivers form "internal working models." Individuals with secure attachment styles tend to develop higher levels of interpersonal security, viewing others as supportive and themselves as worthy of love. Conversely, insecure attachment (anxious or avoidant) often leads to lower interpersonal security, characterized by a fear of rejection or a defensive withdrawal from social intimacy.

## Factors Influencing Interpersonal Security

Interpersonal security is shaped by a combination of developmental, environmental, and personality factors:

- **Early Life Experiences:** Consistent and responsive caregiving in childhood provides the foundation for a secure sense of self and others.
- **Social Support Systems:** The presence of a strong, supportive network of friends and family can buffer against social anxiety and enhance feelings of security.
- **Personality Traits:** Traits such as neuroticism are negatively correlated with interpersonal security, while extraversion and agreeableness tend to have positive correlations.
- **Past Traumas:** Experiences of social exclusion, bullying, or betrayal can significantly diminish an individual's sense of safety in future interactions.

## Impact on Mental Health and Behavior

High levels of interpersonal security are associated with numerous positive outcomes, including higher self-esteem, better emotional regulation, and more effective conflict-resolution skills. In contrast, low interpersonal security is often a precursor to social anxiety, depression, and loneliness. Individuals with low interpersonal security may exhibit “safety behaviors,” such as avoiding eye contact or

1.07(0.41)<sup>a</sup> / 0.98(0.48)<sup>a</sup>  
 0.05(0.48)<sup>b</sup> / -0.08(0.47)<sup>b</sup>  
 -1.13(0.73)<sup>c</sup> / -1.39(0.50)<sup>d</sup>  
 -/ -0.89(0.63)<sup>c</sup>  
 316.53\*\*\* / 207.15\*\*\*  
 0.712 / 0.740

## Sense of Agency

The sense of agency refers to the subjective experience of initiating and controlling one's own actions and their subsequent effects on the external world. It is a fundamental component of human self-consciousness, allowing individuals to distinguish between events caused by their own behavior and those resulting from external forces or the actions of others. In the field of cognitive psychology and neuroscience, the sense of agency is often analyzed through two primary lenses: the “judgment of agency,” which involves explicit conceptual evaluations of authorship, and the “feeling of agency,” which refers to the implicit, pre-reflective experience of being the author of an action.

Research into the mechanisms of the sense of agency has identified several key cognitive processes. The most prominent theoretical framework is the “comparator model,” which suggests that the brain predicts the sensory consequences of an action using an internal forward model. When the actual sensory feedback matches the predicted outcome, a sense of agency is generated. Conversely, a mismatch between prediction and feedback leads to a reduced sense of agency or the attribution of the action to an external source. Beyond these sensorimotor processes, situational cues, prior intentions, and post-hoc rationalizations also play significant roles in shaping how individuals perceive their control over specific outcomes.

Understanding the sense of agency is critical for various domains, ranging from human-computer interaction to clinical psychiatry. In the context of modern technology, as automated systems and artificial intelligence become more integrated into daily life, maintaining a user’s sense of agency is essential for ensuring effective collaboration and accountability. In clinical settings, disruptions in the sense of agency are characteristic of several neurological and psychiatric conditions, most notably schizophrenia, where patients may experience “delusions of control” and feel that their movements or thoughts are being governed by external agents. Continued research in this area aims to further elucidate the neural correlates and computational principles that underpin this essential aspect of human experience.

1.03(0.40)a / 0.89(0.55)a  
0.05(0.53)b / 0.05(0.52)b  
-1.09(0.60)c / -1.13(0.73)cd  
- / -1.11(0.80)c  
323.34\*\*\* / 128.80\*\*\*  
0.716 / 0.639  
0.65(0.72)a / 0.84(0.60)a  
-0.44(0.94)b / -0.51(0.59)c  
-0.56(1.06)bc / -0.90(0.57)d  
- / 0.66(0.59)ab  
46.00\*\*\* / 107.44\*\*\*  
0.264 / 0.597  
0.48(0.79)a / 0.62(0.72)b  
-0.34(0.94)b / -0.43(0.80)cd  
-0.51(1.10)bc / -0.82(0.62)d  
- / 0.84(0.58)ab

26.48\*\*\* / 61.18\*\*\*

0.171 / 0.457

Note: Post-hoc tests were conducted using the Bonferroni correction to control the overall  $\alpha$  level. In the table, lowercase letter subscripts following each mean represent the results of post-hoc comparisons; different subscripts indicate a significant difference at the  $p < 0.01$  level. The degrees of freedom for the  $F$ -test were (2, 256) for the male group and (3, 218) for the female group. The symbol “-” indicates that the corresponding subgroup was not identified for that gender. These conventions apply throughout this paper.

Table S3: Means, Standard Deviations, and Significance Tests for Adjustment Indicators Across Male and Female Subgroups: Self-Other Understanding Subgroups Class 1: High-High Group (Male/Female)

Class 2: Moderate-Low Group (Male/Female)

Class 3: Low-Low Group (Male/Female)

Class 4: Low-High Group (Male/Female)

$F$  (Male/Female)

$\eta^2$  (Male/Female)

Internalizing Problem Behaviors

2.70(2.97)c / 2.36(2.59)d

4.24(2.74)b / 4.56(2.99)c

7.12(2.75)a / 7.91(2.99)a

- / 6.31(2.85)ab

46.24\*\*\* / 34.78\*\*\*

0.265 / 0.324

Externalizing problem behaviors refer to a category of maladaptive behaviors in children and adolescents that are directed outward toward the external environment. These behaviors are primarily characterized by poor self-control, defiance, and conflict with others or social norms. Common manifestations include aggression, delinquency, hyperactivity, impulsivity, and oppositional defiant behavior.

In the field of developmental psychology and psychopathology, externalizing behaviors are often contrasted with internalizing behaviors (such as anxiety and depression), which are directed inward. Research indicates that externalizing problems are influenced by a complex interplay of genetic factors, neurological development, parenting styles, and broader socio-environmental influences. If left unaddressed, these behaviors can lead to significant long-term consequences, including academic failure, social rejection, and increased risk of substance abuse

or criminal activity in adulthood. Effective interventions typically involve multi-modal approaches, such as social-emotional learning, behavioral therapy, and family-based support systems.

2.72(3.07)c / 2.26(2.81)d

5.18(2.94)b / 4.58(3.02)bc

8.03(2.65)a / 7.06(3.21)a

-/ 5.92(2.93)ab

61.90\*\*\* / 25.13\*\*\*

0.326 / 0.257

Prosocial behavior

8.97(1.47)a / 9.20(1.19)a

7.45(1.93)b / 7.06(1.81)cd

6.49(1.93)c / 6.22(1.95)d

-/ 7.98(1.57)b

37.61\*\*\* / 33.28\*\*\*

0.227 / 0.314

*Note: Figure translations are in progress. See original paper for figures.*

*Source: ChinaXiv –Machine translation. Verify with original.*