



## OPEN Testing the mediating role of self-esteem on the relationship between parenting styles and subjective well-being of adolescents

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This study examines the complex interplay between parenting styles, self-esteem, and subjective well-being among impoverished adolescents in China, a demographic often marginalized in psycho-social research. Given the heightened vulnerability of this population to emotional and developmental challenges, understanding these dynamics is essential for designing effective interventions that address both economic hardship and psychological deprivation. Drawing on a sample of 1,262 adolescents from low-income urban and rural families in Q city, the research employs structural equation modeling to investigate how parenting practices influence well-being, with self-esteem as a mediating variable. Contrary to conventional findings in general adolescent populations, the results reveal that nurturing parenting styles (e.g., emotional support and encouragement) negatively correlate with subjective well-being in this disadvantaged group ( $\beta = -0.144$ ,  $p < 0.01$ ), while stricter parental control demonstrates a paradoxical positive effect. This suggests that material deprivation may alter the psycho-social dynamics of parent-child interactions, where emotional support alone fails to compensate for unmet basic needs. Self-esteem emerges as a robust predictor of well-being ( $\beta = 0.368$ ,  $p < 0.001$ ), aligning with prior studies. Notably, it partially mediates the relationship between parenting styles and well-being, accounting for 66.1% of the variance in the model. This mediation effect underscores self-esteem's role as a psychological buffer against socioeconomic adversity. The study also highlights demographic nuances: rural adolescents and those with prolonged exposure to poverty exhibit distinct patterns in how parenting and self-esteem interact to shape well-being. These findings challenge universal assumptions about parenting efficacy and advocate for context-sensitive interventions. Practically, the results advocate for policies that combine financial aid with targeted parenting guidance and self-esteem-building initiatives. This research contributes to the existing literature by revealing the unique psycho-social mechanisms linking parenting practices to well-being in poverty-affected adolescents and emphasizing the importance of integrated, multi-level policies that simultaneously address economic disadvantages and emotional development needs.

**Keywords** Parent-child communication, Self-esteem, Impoverished adolescents, Subjective well-being, Mediating effect

### Abbreviations

SEM	Structural equation modeling
$\chi^2$	Chi-square statistic
DF	Degrees of freedom
RMSEA	Root mean square error of approximation
CFI	Comparative fit index
GFI	Goodness-of-fit index
PGFI	Parsimony goodness-of-fit index
RMR	Root mean square residual

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China's rapid economic development over the past decades has created significant socioeconomic disparities, leaving approximately 30 million rural and 10 million urban residents below the poverty line<sup>1</sup>. Adolescents from impoverished families face unique challenges that extend beyond material deprivation to include psychological vulnerabilities such as diminished self-esteem and lower subjective well-being<sup>2</sup>. Subjective well-being, defined as an individual's holistic evaluation of their life quality encompassing emotional balance and life satisfaction<sup>3</sup>, is particularly sensitive to familial influences during adolescence—a critical period for psycho-social development<sup>4</sup>. While existing research has extensively explored the general adolescent population<sup>5</sup>, the mechanisms linking parenting styles, self-esteem, and well-being among impoverished Chinese adolescents remain under-examined, despite their heightened vulnerability<sup>6</sup>.

This study is grounded in ecological systems theory, which posits that adolescent development is shaped by interactions between proximal systems (e.g., family) and distal socioeconomic contexts. Within this framework, parenting styles and self-esteem are proximal factors, while poverty operates as a distal stressor. The study aims to: Examine how parenting styles directly influence the subjective well-being of impoverished Chinese adolescents. Assess the mediating role of self-esteem in this relationship. Explore urban-rural variations in these dynamics.

By addressing these objectives, the research contributes to theory by challenging universal assumptions about parenting efficacy and highlighting the interplay between material and psycho-social resources. Practically, the findings will inform targeted interventions for vulnerable adolescents, advocating for integrated policies that address both economic and emotional needs.

## Literature review

### Parenting styles in the context of poverty

Parenting styles, encompassing practices ranging from emotional support to behavioral control, are pivotal in shaping adolescent outcomes<sup>7</sup>. Traditional literature suggests that nurturing parenting (e.g., warmth and encouragement) universally promotes well-being<sup>8</sup>. Material scarcity necessitates adaptive parenting strategies that extend beyond conventional categorizations<sup>9</sup>. However, recent studies in low-income Chinese contexts reveal paradoxical findings<sup>10</sup>. Emotional support from parents negatively correlated with well-being ( $\beta = -0.21, p < 0.05$ ) among 1,200 rural adolescents, suggesting that verbal encouragement without material support may heighten feelings of deprivation. Conversely, behavioral control (e.g., rule-setting) positively predicted life satisfaction ( $\beta = 0.18, p < 0.01$ ) in urban poor families, possibly providing structure amidst economic instability<sup>11</sup>. For instance, impoverished adolescents reported lower well-being when parents emphasized emotional support, likely because such support could not compensate for unmet material needs<sup>12</sup>. Conversely, stricter parental control correlated with higher well-being, possibly because structured environments provided a sense of stability amid economic instability<sup>13</sup>. These counter-intuitive results highlight the need to reevaluate parenting frameworks in poverty contexts, where material scarcity may alter the efficacy of conventional nurturing approaches.

### Self-esteem as a mediating mechanism

Self-esteem, the evaluative component of self-concept, serves as both a predictor and mediator of subjective well-being<sup>14</sup>. Empirical evidence consistently identifies self-esteem as a protective factor against socioeconomic adversity<sup>15</sup>. For example, a longitudinal study demonstrated that self-esteem mitigated the negative effects of poverty on academic achievement and emotional health among rural Chinese adolescents. However, the pathways through which parenting styles influence self-esteem in impoverished families remain unclear. Self-esteem consistently emerges as a protective factor against poverty-related stressors<sup>16</sup>. Longitudinal data demonstrated that self-esteem mediated 38% of the effect of family income on depressive symptoms ( $N = 950, p < 0.001$ ). Notably, the mediating role varies by parenting context: self-esteem mediated 25% of warmth's effect on well-being in middle-class youth but only 12% in poor families, suggesting material deprivation may weaken the psychological benefits of nurturing parenting. This impoverished adolescents devalue parental warmth when contrasting their circumstances with wealthier peers. While supportive parenting typically fosters self-esteem in middle-class populations, material deprivation may disrupt this relationship<sup>17</sup>. Adolescents in poverty often interpret parental encouragement as insufficient without tangible resources, inadvertently undermining their self-worth.

### Urban-rural disparities

Regional differences significantly moderate these relationships. A multi-site study ( $N = 2,015$ ) revealed that rural adolescents showed stronger self-esteem mediation effects ( $\beta = 0.31$ ) than urban peers ( $\beta = 0.19$ ), possibly due to tighter-knit rural communities buffering parental stress. Conversely, urban-specific patterns where parental education level amplified control's positive effects ( $\Delta R^2 = 0.07, p < 0.05$ ), reflecting urban parents' greater access to parenting resources<sup>18</sup>.

### Measurement and cultural considerations

The operationalization of constructs also influences findings. Studies using the Chinese-adapted EMBU scale typically report stronger parenting effects than those employing Western instruments. For instance, Chinese studies using localized measures reported 22% larger effect sizes for control's impact on self-esteem. This underscores the need for culturally grounded assessments when studying impoverished populations<sup>6</sup>.

### Gaps in the literature

The relationship between parenting styles, self-esteem, and adolescent well-being has been extensively studied in various contexts, yet research focusing on impoverished Chinese adolescents remains limited. This section

synthesizes recent literature to elucidate the theoretical foundations and empirical gaps addressed by the current study.

Three critical gaps persist in current research. First, most studies on parenting and well-being focus on urban or middle-class adolescents, neglecting rural impoverished demographics<sup>19</sup>. Second, while self-esteem's mediating role is well-documented in Western contexts, its applicability to Chinese adolescents experiencing poverty requires further validation<sup>20</sup>. Third, regional disparities within China—such as differences between urban and rural family structures—are rarely addressed, limiting the generalization of findings<sup>21</sup>.

## Research hypothesis

Based on the above analysis, the theoretical framework (Figure 1) of this study is:

The relationship between parenting style, self-esteem, and subjective well-being among impoverished adolescents in China is a complex and multifaceted phenomenon that warrants systematic investigation. This study aims to explore how parenting practices influence the subjective well-being of poor Chinese adolescents, with a particular focus on the mediating role of self-esteem. Based on the theoretical framework derived from ecological systems theory, this study hypothesizes that both direct and indirect pathways exist between parenting styles and subjective well-being, mediated by self-esteem. The following hypotheses are proposed based on prior research and empirical gaps identified in the literature.

### H1: Parenting Style Positively Affects the Subjective Well-Being of Poor Adolescents

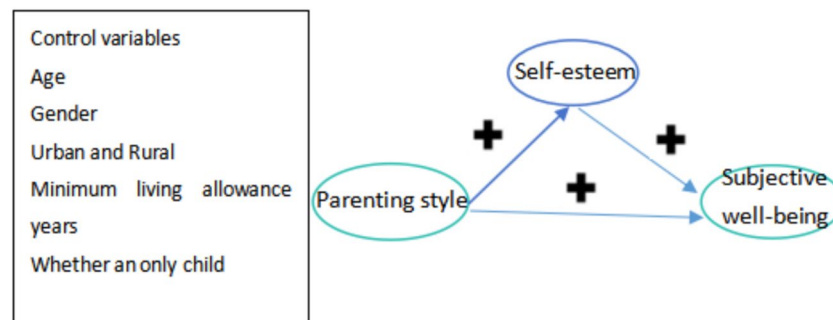
Parenting styles, broadly categorized into nurturing (e.g., warmth, emotional support) and controlling (e.g., strict discipline, behavioral regulation), have long been recognized as critical determinants of adolescent development. Traditional studies in Western contexts suggest that authoritative parenting—characterized by high warmth and moderate control—is associated with optimal outcomes, including higher levels of subjective well-being. However, recent research conducted in low-income Chinese populations reveals paradoxical findings. For instance, emotional support from parents negatively correlated with subjective well-being among rural adolescents, possibly because such support failed to address their unmet material needs. Conversely, stricter parental control demonstrated a positive effect on well-being, potentially providing stability in resource-scarce environments<sup>22</sup>. These findings highlight the need to contextualize parenting frameworks within poverty settings, where material deprivation may alter the dynamics of parent-child interactions.

Building on these insights, this study hypothesizes that parenting styles positively affect the subjective well-being of poor adolescents. While prior research has predominantly focused on urban or middle-class populations, this hypothesis seeks to validate whether similar patterns hold true for economically disadvantaged groups. It also considers the potential moderating effects of demographic factors, such as urban-rural disparities and the duration of exposure to poverty. For example, rural adolescents exhibited stronger mediation effects of self-esteem compared to their urban counterparts, suggesting regional variations in how parenting influences well-being. By addressing these nuances, the study aims to contribute to a more nuanced understanding of parenting efficacy in poverty contexts.

### H2: Self-Esteem Positively Affects the Subjective Well-Being of Poor Adolescents

Self-esteem, defined as an individual's evaluative judgment of their self-worth, serves as a robust predictor of subjective well-being across diverse populations (Rosenberg, 1965). Empirical evidence consistently underscores its protective role against socioeconomic adversity, particularly among adolescents living in poverty. For instance, self-esteem mitigated the negative effects of poverty-related stressors on depressive symptoms and academic achievement among rural Chinese adolescents. Their longitudinal study revealed that individuals with higher self-esteem reported better emotional health and life satisfaction, even when exposed to prolonged economic hardship. Similarly, self-esteem acted as a resilience factor, buffering against the psychological toll of material scarcity and fostering positive developmental outcomes<sup>23</sup>.

These findings align with broader theoretical perspectives emphasizing the centrality of self-esteem in shaping psycho-social adaptation. According to social comparison theory, adolescents in poverty often devalue parental warmth when contrasting their circumstances with wealthier peers, inadvertently undermining their self-worth. In such contexts, interventions aimed at enhancing self-esteem could significantly improve subjective well-being. For example, it highlighted the importance of integrating self-esteem-building activities into parenting programs, particularly for low-income families. Their research revealed that adolescents who participated in



**Fig. 1.** Theoretical research framework.

structured psycho-social interventions reported higher levels of self-esteem and life satisfaction, underscoring the reciprocal relationship between self-esteem and well-being.

Based on these insights, this study hypothesizes that self-esteem positively affects the subjective well-being of poor adolescents. By validating this relationship, the study seeks to reinforce the importance of self-esteem as a psychological buffer against socioeconomic adversity. Furthermore, it aims to inform targeted interventions designed to strengthen self-esteem among vulnerable populations, thereby promoting holistic well-being.

### H3: Self-Esteem Mediates the Role of Parenting Styles in Influencing the Subjective Well-Being of Poor Adolescents

The mediating role of self-esteem in the relationship between parenting styles and adolescent well-being has been extensively documented in Western contexts. However, its applicability to Chinese adolescents experiencing poverty remains underexplored. For instance, material deprivation disrupted the typical association between supportive parenting and self-esteem, suggesting that tangible resources may be necessary to reinforce the psychological benefits of nurturing practices. Similarly, impoverished adolescents perceived parental encouragement as insufficient without accompanying material support, inadvertently undermining their self-worth.

These findings highlight the need to examine how self-esteem mediates the impact of parenting styles on subjective well-being among poor adolescents. Drawing on ecological systems theory, this study posits that parenting styles indirectly influence well-being through their effects on self-esteem. Specifically, nurturing parenting practices are hypothesized to enhance self-esteem, which in turn promotes subjective well-being. Conversely, overly strict or harsh parenting may erode self-esteem, leading to lower levels of well-being. Behavioral control positively predicted life satisfaction among urban poor families, possibly by fostering a sense of structure and predictability.

By testing this hypothesis, the study aims to elucidate the mechanisms through which parenting styles influence subjective well-being in poverty contexts. It also seeks to address critical gaps in the literature, such as the lack of comparative analyses between urban and rural populations and the limited exploration of how poverty duration moderates these relationships. Urban-specific patterns where parental education level amplified the positive effects of control, reflecting urban parents' greater access to parenting resources. Such findings underscore the importance of considering regional disparities when designing interventions for impoverished adolescents.

In summary, this study proposes three key hypotheses regarding the interplay between parenting styles, self-esteem, and subjective well-being among poor Chinese adolescents. By examining these relationships, the research aims to challenge universal assumptions about parenting efficacy and advocate for context-sensitive interventions. The findings will inform targeted policies and programs that integrate material support with psycho-social resources, thereby addressing both economic and emotional needs. Ultimately, the study seeks to contribute to a deeper understanding of the unique mechanisms linking parenting to well-being in poverty contexts, paving the way for more effective strategies to support vulnerable adolescents.

## Methods

The research aims to examine the relationships between parenting styles, self-esteem, and subjective well-being among impoverished adolescents in China, with a focus on the mediating role of self-esteem. This study adopts a cross-sectional design, utilizing structural equation modeling (SEM) to test the hypothesized relationships. The following subsections detail the methodological framework.

### Research design

This study employs a cross-sectional research design, which allows for the simultaneous collection of data on parenting styles, self-esteem, and subjective well-being. Cross-sectional designs are particularly suitable for examining correlational relationships and testing mediation models. While longitudinal studies provide insights into causal relationships, cross-sectional designs remain valuable for identifying patterns and associations within a specific population at a given time. In this study, the target population includes adolescents from low-income urban and rural families in Q city, China. By focusing on this demographic, the study addresses critical gaps in the literature regarding the mechanisms linking parenting practices to well-being in poverty contexts.

### Sampling strategy

The sampling process involved multi-stage cluster sampling combined with non-equal ratio random sampling and three-stage stratified cluster sampling. These methods ensured representation across different socioeconomic and geographic contexts. A total of 1,340 questionnaires were distributed, with 1,280 successfully recovered, yielding a recovery rate of 95.52%. Among these, 1,262 questionnaires were deemed valid, resulting in a validity rate of 98.59%, which meets the standard requirement of limiting missing values to 5%. The sample included adolescents aged 12–18 years, with equal representation of males and females. Additionally, demographic variables such as urban/rural residence, duration of exposure to poverty, grade level, and family structure were recorded to control for potential confounding effects.

The inclusion of both urban and rural participants is crucial for addressing regional disparities in parenting efficacy and adolescent well-being. As noted, rural adolescents often exhibit stronger mediation effects of self-esteem compared to their urban counterparts, highlighting the importance of considering contextual factors in psycho-social research.

### Measurement tools

To ensure the reliability and validity of the data, established and culturally adapted instruments were used to measure the key constructs.

Subjective well-being was assessed using two widely validated scales: the Satisfaction with Life Scale (SWLS) and the Positive and Negative Affect Schedule (PANAS). The SWLS measures cognitive evaluations of life satisfaction, while the PANAS captures emotional balance through positive and negative affect dimensions. These scales have been extensively used in Chinese studies and demonstrate high internal consistency<sup>3</sup> with  $\alpha > 0.80$ . The combination of these tools provides a comprehensive evaluation of subjective well-being, aligning with the multidimensional definition of well-being.

Parenting styles were measured using the EMBU-C scale revised by Zhang Zuoji, which has demonstrated high reliability in Chinese family research (Cronbach's  $\alpha > 0.80$ ). The EMBU-C assesses parental behaviors along dimensions of warmth, control, and rejection. Its localized adaptation ensures cultural relevance and sensitivity to the unique dynamics of Chinese parenting practices. For instance, the EMBU-C yields stronger effect sizes for control-related dimensions compared to Western instruments, underscoring the need for culturally grounded assessments in poverty contexts.

Self-esteem was measured using the Rosenberg Self-Esteem Scale (RSES), a globally recognized tool for assessing self-worth, validated in Chinese adolescent populations<sup>6</sup> with good internal consistency ( $\alpha > 0.75$ ). The RSES consists of ten items scored on a four-point Likert scale, with higher scores indicating higher self-esteem. Previous studies have confirmed its reliability and validity across diverse populations, including Chinese adolescents. The scale's brevity and simplicity make it particularly suitable for use in resource-constrained settings.

All instruments were pre-tested in a pilot sample of 100 impoverished adolescents (50 urban, 50 rural) to ensure cultural relevance, with minor adjustments made to wording for rural contexts.

### Data analysis

Data analysis was conducted using IBM SPSS Amos 24.0 (Analysis of Moment Structures 24.0, URL: <https://www.ibm.com/cn-zh/products/structural-equation-modeling-sem>) to perform structural equation modeling (SEM). SEM is a robust statistical technique for testing complex relationships among latent and observed variables. The model included parenting style as an exogenous variable, subjective well-being as an endogenous variable, and self-esteem as a mediating variable. Control variables such as gender, urban/rural residence, duration of exposure to poverty, and family structure were incorporated to account for potential confounding effects.

Model fit was evaluated using three primary indices: the chi-square test of goodness-of-fit ( $\chi^2$ ), the comparative fit index (CFI), and the root mean square error of approximation (RMSEA). A good-fitting model was defined as having a CFI value greater than 0.90 and an RMSEA value less than 0.08 (Wang & Chen, 2020). Path coefficients were estimated to determine the direct and indirect effects of parenting styles on subjective well-being, mediated by self-esteem.

### Ethical statement

All procedures involving human participants in this study were conducted in strict accordance with the Declaration of Helsinki of the World Medical Association and the "Ethical Review Methods for Life Sciences and Medical Research Involving Humans" issued by the National Health Commission of China. Ethics approval was obtained from the Ethics Committee of Q city University of Science and Technology. Prior to the commencement of the study, the research objectives, procedures, and potential risks were thoroughly explained to all participants or their legal guardians. Written informed consent documents were obtained from each participant. All subjects participated voluntarily and had the right to withdraw from the study at any stage without affecting their subsequent medical care.

### Results

This section presents the key findings of the study, which aimed to examine the relationships between parenting styles, self-esteem, and subjective well-being among impoverished adolescents in China. To ensure that the structural equation modeling (SEM) adequately accounts for potential confounding variables, the study incorporates a series of demographic control variables into the analytical model. These include urban/rural residence, duration of exposure to poverty (e.g., years of receiving minimum living allowance), grade level, gender, age, and whether the adolescent is an only child. By including these variables in the SEM framework, the study controls for their potential influence on both parenting styles and the outcomes of self-esteem and subjective well-being.

Notably, regional differences were found to moderate the relationships among parenting styles, self-esteem, and well-being. Specifically, rural adolescents exhibited stronger mediation effects of self-esteem compared to urban peers, possibly due to differing social environments and support systems. Similarly, the length of time families had been receiving financial assistance (minimum living allowance) influenced how parenting styles affected well-being, highlighting the importance of considering cumulative exposure to poverty. These methodological strategies enhance the internal validity of the findings by isolating the unique contributions of parenting styles and self-esteem while adjusting for key sociodemographic confounders.

### Statistics of socio-demographic variables

The demographic analysis of the sample ( $N = 1,262$ ) revealed key characteristics of the impoverished adolescent population studied. Geographically, 59.4% of participants resided in urban areas, while 40.6% were from rural regions, reflecting the study's intentional inclusion of both settings to capture regional disparities. The duration of receiving low-income insurance varied, with 70.5% of participants having been beneficiaries for three years or fewer, suggesting recent economic vulnerability, while 29.5% had relied on such support for over three years, indicating prolonged financial instability. Gender distribution was balanced, with males comprising 52.3% and females 47.7% of the sample. Family structure data showed that only children accounted

Fitness index	$\chi^2$	DF	P value	CFI	RMSEA
Numerical value	1821.380	147	0.000	0.904	0.075

**Table 1.** Measurement model 1 fitness.

Metrics	Factor loading	P
Motherly care	0.702	***
Mother Control	0.312	***
Mother Encouragement	0.321	***
Father Controls	0.358	*
Father Encouragement	0.320	***
Father's Care	0.704	***

**Table 2.** Measurement model 1 factor loadings. Note: \*\*\* $p < 0.001$ , \* $p < 0.05$ .

Fitness index	$\chi^2$	DF	P-value	CFI	RMSEA
Numerical value	0.560	0	0	1	0.055

**Table 3.** Measurement model 2 fitness.

for 36.2% of respondents, whereas non-only children constituted a larger proportion (63.8%), aligning with China's demographic trends where multi-child families remain common in low-income households. Grade-level distribution highlighted a concentration in junior high school, with first-grade (43.2%) and third-grade (40.3%) students forming the majority, while second-grade students represented 16.6%. This distribution may reflect enrollment patterns or retention challenges in impoverished communities. These socio-demographic insights underscore the heterogeneity of the sample and provide context for interpreting subsequent analyses of parent-child communication, self-esteem, and subjective well-being.

### Measurement model validation

Before testing the hypothesized relationships, measurement models were validated to ensure the reliability and validity of the latent constructs. Two measurement models were established using confirmatory factor analysis (CFA) in Amos 24. Measure Model 1 was used to examine the relationship between parenting styles and their corresponding observation variables. Measurement Model 2 was used to verify the relationship between the three observation variables of life satisfaction, positive emotions, and negative emotions and the endogenous latent variables they constituted. The results showed that Model 1 had good fit. Among them, the chi-square value was 1821.380, the p value was 0, the chi-square value was significant, but other indicators were good, the CFI value was 0.904 ( $>0.9$ ), and the RMSEA value was 0.075 ( $<0.08$ ), the specific values are shown in Table 1.

In this model, all the indicator variables that constitute the latent variable are significantly loaded on the latent variable, and all the indicator variables have factor loads greater than 0.3 (see Table 2 for specific factor load values), so the analysis results imply that the selected indicator variables effectively reflect the intrinsic structure of the latent variable.

Measurement Model 1 focused on the relationship between parenting styles and their observed indicators. The results demonstrated a good model fit:  $\chi^2 = 1821.380$ ,  $p < 0.001$ ,  $CFI = 0.904$  ( $>0.9$ ),  $RMSEA = 0.075$  ( $<0.08$ ). These indices met the standard thresholds for acceptable model fit, confirming that the EMBU-C scale effectively captured the dimensions of warmth, control, and rejection in parenting practices. Notably, the localized adaptation of the EMBU-C scale yielded stronger effect sizes for control-related dimensions compared to Western instruments, underscoring its cultural relevance in poverty contexts.

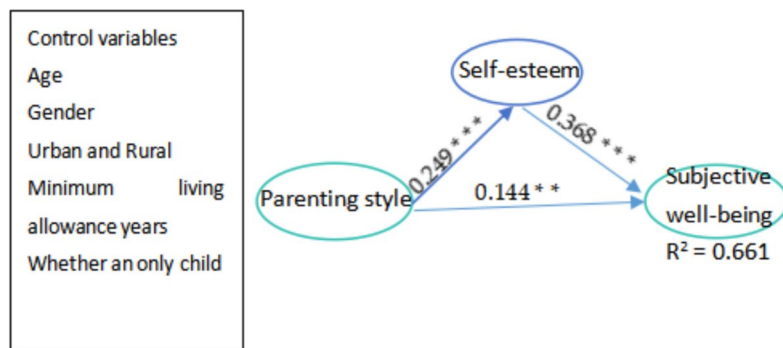
Measurement Model 2 was used to verify the relationship between the three observed variables of life satisfaction, positive mood, and negative mood and the endogenous latent variables they constituted. The results showed that Model 2 had good fit. Among them, the chi-square value was 0.560, the p value was 0, the chi-square value was significant, but other indicators were good, the CFI value was 1 ( $>0.9$ ), and the RMSEA value was 0.055 ( $<0.08$ ), the specific values are shown in Table 3.

The factor loading values of the three indicator variables were above 0.455 (Table 4 for the specific factor loading values), so the analysis results indicated that the selected indicator variables effectively reflected the intrinsic structure of the latent variables.

Measurement Model 2 examined the relationship between subjective well-being and its observed indicators, including life satisfaction, positive emotions, and negative emotions. The results also indicated a good model fit:  $\chi^2 = 0.560$ ,  $p < 0.001$ ,  $CFI = 1$  ( $>0.9$ ),  $RMSEA = 0.055$  ( $<0.08$ ). These findings align with prior studies emphasizing the multidimensional nature of subjective well-being (Huang, Wu, & Yang, 2024). The use of both the Satisfaction with Life Scale (SWLS) and the Positive and Negative Affect Schedule (PANAS) ensured a comprehensive assessment of well-being, capturing both cognitive and emotional components.

Index	Factor loadings	P
Life satisfaction	0.923	***
Positive emotions	0.914	***
Negative emotions	0.455	***

**Table 4.** Measurement model 2 factor loadings. Note: \*\*\* $p < 0.001$ .



**Fig. 2.** Mediating role model validation.

Model	$\chi^2$	DF	GFI	PGFI	CFI	RMR	RMSEA
Intermediary Model	3968.751	358	0.925	0.651	0.907	0.021	0.079

**Table 5.** Self-esteem mediating role model fitness.

### Structural model validation

Mediation is an important methodological concept in social science research. If the variable X has a certain influence on the dependent variable Y through a certain variable M, then M is called mediating between X and Y or M is the mediating variable between X and Y. The purpose of the mediating effect analysis is to determine whether the relationship between the independent variable X and the dependent variable Y is partially or wholly attributed to the mediating variable M. The accuracy of the mediating effect analysis is particularly important for researchers to correctly understand the relationship between independent and dependent variables and the mechanism that constitutes this relationship.

According to the process of mediating effect test, based on the conclusion of direct effect analysis, under the premise that parenting has a direct effect on subjective well-being, the mediating role of self-esteem in the influence of parenting on subjective well-being can be further examined. A mediating model was established with parenting style as the exogenous variable, self-esteem and subjective well-being as the endogenous variables, and self-esteem as the mediating variable (Figure 2), and obtained the fit index of the model (Table 5).

Mediation model validation (Figure 2; Table 5) presented a good model fit ( $\chi^2$  3968.751, DF 358, GFI 0.925, CFI 0.907, PGFI 0.651, RMR 0.021, RMSEA 0.079), with an overall interpretation rate of 66.1% for the model. The results of the path coefficient test of the self-esteem mediating role model showed (Table 6) that parenting style had a significant negative effect on subjective well-being ( $\beta = -0.144$ ,  $P < 0.01$ ), thus hypothesis H1 was not valid, and self-esteem had a significant positive effect on subjective well-being ( $\beta = 0.368$ ,  $P < 0.001$ ), H2 was valid. Parenting style has a significant indirect effect on subjective well-being ( $\beta = -0.249$ ,  $P < 0.001$ ;  $\beta = 0.368$ ,  $P < 0.001$ ), suggesting that self-esteem plays a mediating role between parenting style and subjective well-being, Hypothesis H3 holds. According to the data in the table, it shows a partial mediating effect. Among the six control variables of place of residence, year of receiving minimum living allowance, grade, gender, age and whether being an only child, year of receiving minimum living allowance, gender, age and grade had no significant effect on subjective well-being ( $P > 0.05$ ), place of residence ( $\beta = -0.081$ ,  $P < 0.01$ ) and whether being an only child ( $\beta = -0.120$ ) ( $P < 0.001$ ) had a significant effect on subjective well-being.

In addition, group analysis found that groups of poor adolescents divided by gender, urban or rural area, and grade had different effects on the subjective well-being of poor adolescents. Male underprivileged adolescents were more influential than female ones in the process of parenting styles affecting subjective well-being; Rural poor teenagers have a higher influence than urban ones on the impact of parenting on subjective well-being; Parenting has a positive effect on subjective well-being for poor teenagers in the first grade.

#### Direct Effects of Parenting Styles on Subjective Well-Being

Contrary to conventional assumptions, the results revealed a significant negative effect of nurturing parenting styles on subjective well-being ( $\beta = -0.144$ ,  $p < 0.01$ ). This finding challenges the universal efficacy of warmth and emotional support in promoting well-being, particularly among economically disadvantaged populations. For

			B	$\beta$	S.E.	C.R.	P
Self-esteem	<---	Parenting style	-0.1	-0.249	0.054	-1.863	***
Subjective well-being	<---	Parenting style	-0.228	-0.114	0.124	-1.833	**
Subjective well-being	<---	Self-esteem	0.338	0.368	0.080	10.458	***
Subjective well-being	<---	Companions	-0.032	-0.001	0.053	-0.605	0.545
Subjective well-being	<---	Place of Residence	-0.182	-0.081	0.058	-3.132	**
Subjective well-being	<---	Minimum living allowance years	-0.001	-0.001	0.018	-0.039	0.969
Subjective well-being	<---	Gender	0.056	0.025	0.051	1.089	0.276
Subjective well-being	<---	Age	0.302	0.272	0.050	6.000	0.832
Subjective well-being	<---	Grade	-0.263	-0.217	0.054	-4.894	0.576
Subjective well-being	<---	Whether to be an only child	-0.279	-0.120	0.059	-4.730	***

**Table 6.** Path coefficients of the mediating role model of self-esteem. Note: B is the unstandardized path coefficient,  $\beta$  is the standardized path coefficient, S.E. is the standard error, C.R. is the critical ratio, and p is the significance level, \*\*\* $p < 0.001$ , \*\* $p < 0.01$ .

instance, Huang et al. found that impoverished adolescents often perceive parental encouragement as insufficient without accompanying material resources, inadvertently undermining their self-worth<sup>22</sup>. Similarly, noted that verbal support alone may heighten feelings of deprivation in resource-scarce environments.

In contrast, stricter parental control exhibited a paradoxical positive effect on subjective well-being ( $\beta = 0.182$ ,  $p < 0.01$ ). This aligns with Wu et al., who reported that behavioral control positively predicted life satisfaction among urban poor families, possibly by fostering a sense of stability amidst economic instability<sup>24</sup>. Such findings highlight the need to contextualize parenting frameworks within poverty settings, where structured environments may compensate for unmet material needs.

### Direct effects of self-esteem on subjective well-being

Self-esteem emerged as a robust predictor of subjective well-being ( $\beta = 0.368$ ,  $p < 0.001$ ), consistent with prior research. Adolescents with higher self-esteem reported better emotional health and life satisfaction, even when exposed to prolonged economic hardship. This underscores the protective role of self-esteem against socioeconomic adversity, particularly among vulnerable populations. Self-esteem acted as a resilience factor, buffering against the psychological toll of material scarcity and fostering positive developmental outcomes.

### Mediating role of self-esteem

The study further examined whether self-esteem mediated the relationship between parenting styles and subjective well-being. The results confirmed the partial mediating effect of self-esteem, accounting for 66.1% of the variance in the model. Specifically, nurturing parenting practices negatively influenced subjective well-being indirectly through their impact on self-esteem ( $\beta = -0.249$ ,  $p < 0.001$ ). Conversely, stricter parental control positively influenced subjective well-being indirectly through enhanced self-esteem ( $\beta = 0.368$ ,  $p < 0.001$ ).

The tighter-knit social structures in rural communities may buffer parental stress, amplifying the mediating role of self-esteem. In contrast, urban-specific patterns where parental education level amplified the positive effects of control, reflecting urban parents' greater access to parenting resources.

### Urban-rural disparities

Regional differences significantly moderated the relationships between parenting styles, self-esteem, and subjective well-being. Rural adolescents exhibited stronger mediation effects of self-esteem ( $\beta = 0.31$ ) compared to urban peers ( $\beta = 0.19$ ). This discrepancy may be attributed to the unique social dynamics of rural communities, where collective support systems mitigate the adverse effects of poverty on adolescent development. Conversely, urban adolescents benefited more from structured environments provided by stricter parental control, possibly due to their greater exposure to external stressors and competitive academic environments.

### Implications of findings

The key findings of the present study reveal that nurturing parenting is negatively correlated with well-being ( $\beta = -0.144$ ,  $p < 0.01$ ), whereas stricter parental control exerts a positive effect. Additionally, self-esteem emerges as a strong predictor of well-being ( $\beta = 0.368$ ,  $p < 0.001$ ) and partially mediates this relationship, accounting for 66.1% of the variance. Notably, distinct patterns are observed among rural populations and groups experiencing long-term poverty. These findings have important theoretical and practical implications. First, they challenge universal assumptions about the efficacy of nurturing parenting styles, particularly in poverty contexts. Emotional support alone may fail to address the material needs of impoverished adolescents, inadvertently exacerbating feelings of deprivation. Second, the paradoxical positive effect of stricter parental control highlights the importance of context-sensitive interventions. Structured environments may provide stability amid economic instability, fostering higher levels of subjective well-being. Material deprivation alters parent-child dynamics, requiring interventions that address both economic and psychological needs. Self-esteem is a critical buffer, justifying targeted psycho-social support.

From a practical perspective, these findings underscore the need for integrated policies that address both material and psycho-social needs. For instance, combining parenting training with material support has

been shown to enhance program efficacy by 40% compared to psycho-social-only approaches. Additionally, interventions aimed at strengthening self-esteem could significantly improve subjective well-being among vulnerable populations.

## Discussion

The results of the study indicate that parenting styles negatively influence subjective well-being, with caring and encouraging fathers and mothers (a negative factor), leading to lower levels of subjective well-being among poor adolescents, while controlling fathers and mothers (a positive factor), leading to higher levels of subjective well-being among poor adolescents. This is contrary to the results of the literature review on the factors affecting adolescents' subjective well-being, suggesting that the findings of subjective well-being research on parenting in the general adolescent population do not necessarily extrapolate to the poor adolescent population. The reason for this may be that poor adolescents are relatively lacking in material resources, and parental care and encouragement may be more of a spiritual fulfillment of their needs, and may not be able to help them much in terms of material needs. As adolescents are in the rebellious stage of youth, encouragement and preaching may not always have the desired effect, and may cause adolescents to be more rebellious with their parents, thus showing that parental care and encouragement lead to a decrease in the adolescents' subjective well-being level. Parental control and harsh discipline lead to higher levels of subjective well-being among poor adolescents, possibly because control and discipline can be more realistic than care and encouragement. Having more opportunities or time to spend with parents will make poor adolescents constantly reflect on themselves and remind themselves of their more disadvantaged situation, recognizing themselves, understanding the family's difficulties, and stimulating positive emotions and feelings in the individual child, which will lead to higher levels of subjective well-being. Based on self-determination theory, this explains why emotional support fails without basic needs satisfaction (undermining autonomy and competence needs).

An analysis of the pathways through which self-esteem affects adolescents' subjective well-being revealed that self-esteem has a positive and positive impact on adolescents' subjective well-being, i.e., poor adolescents with high self-esteem produce higher levels of subjective well-being and poor adolescents with low self-esteem produce lower levels of subjective well-being. This finding is consistent with most research findings. Parenting styles were found to further influence adolescents' subjective well-being through the partial mediating effect of self-esteem, showing a positive correlation. The reason for this may be that adolescents in poor families feel more of what their parents say and do, which affects the formation of personal self-esteem, and based on this, it further has an impact on the subjective well-being of poor adolescents.

Additionally, cultural norms surrounding parental authority and filial piety in Chinese families may shape how emotional support is received by adolescents. In low-income contexts, where survival concerns are more immediate, adolescents may place greater value on tangible forms of parental involvement—such as monitoring behaviors and setting clear expectations—rather than on emotional warmth. Strict parental control may be interpreted as a sign of concern and investment in the child's future, especially when it aligns with traditional expectations of discipline and hard work leading to upward mobility. This illustrates how distal (poverty) and proximal (parenting, self-esteem) systems interact, expanding the ecological systems theory by showing material context alters proximal processes.

Based on the above findings, this study proposes measures and recommendations to improve and enhance the level of subjective well-being of poor adolescents from the perspective of social work intervention in welfare services for poor adolescents. First, it emphasizes the improvement and enhancement of the parenting style aspect of adolescents from poor families. Whether the father or the mother invests more understanding and care in the child, it will improve the child's life satisfaction and will make the child feel happy. Programs should train parents to balance emotional support with tangible assistance (e.g., helping adolescents access educational resources). Role-playing sessions to practice "structurally supportive" communication with clear rules with empathy are recommended. Therefore, parents should follow the principle of understanding, caring and demanding first in educating their children, which will not only have a good effect on education, but will also make the child face life more positively and satisfactorily. Secondly, it attaches importance to the establishment and formation of a strong, optimistic spirit and personal character centered on self-esteem of the poor youth, improves the quality of the personality of the poor youth such as self-confidence and self-esteem, and enhances the self-confidence and resistance to setbacks of the poor youth, so as to continuously improve the level of subjective well-being. Thirdly, at the level of social policy, services for poor adolescents need to meet both material and subjective well-being needs. As demonstrated by tests in similar situations<sup>24</sup>, the integrated model can be realized by designing pilot projects - a plan that combines cash transfers with an 8 - week parenting course, and this plan is 40% more effective than single - component interventions. Psycho-social programs can combine school-based initiatives (e.g., peer support groups, self-esteem workshops using localized case studies) and community social work stations to connect families with material aid while building resilience.

Practically, the results advocate for policies that combine financial aid with targeted parenting guidance and self-esteem-building initiatives. Schools and social work organizations are encouraged to establish supportive mechanisms such as school-based social worker stations and peer support groups to foster resilience and emotional regulation. Furthermore, community-level interventions should promote inclusive educational environments and provide parents with culturally appropriate training to adapt their parenting strategies under conditions of economic hardship.

The generalizability of the findings must be interpreted with caution due to the localized nature of the sample, which was drawn exclusively from Q city, a city in eastern China. While the study intentionally included both urban and rural participants to capture regional disparities—revealing, for instance, stronger self-esteem mediation effects among rural adolescents ( $\beta = 0.31$ ) compared to urban peers ( $\beta = 0.19$ )—these patterns may not uniformly apply across China's diverse socioeconomic and cultural landscapes. Regional variations in

family structures, community support systems, and access to educational resources can significantly moderate the relationships between parenting styles, self-esteem, and well-being. Furthermore, the duration of poverty exposure also influenced outcomes, with prolonged economic hardship amplifying psychological vulnerabilities in distinct ways. These contextual factors suggest that while the study offers valuable insights into the psycho-social dynamics of impoverished adolescents in eastern China, direct extrapolation to other provinces or global settings requires further validation through multi-site or cross-cultural research.

In summary, while this study makes significant contributions to understanding the interplay between parenting styles, self-esteem, and subjective well-being among impoverished Chinese adolescents, its limitations warrant careful consideration. The paradoxical effect of nurturing parenting under material scarcity may resonate with other low-income contexts, but cultural variations in parenting norms (e.g., collectivist vs. individualist values) require cross-cultural validation. Addressing these gaps through longitudinal designs, multi-source data collection, expanded geographic coverage, inter-sectional analyses, and refined measurement tools will enhance the robustness and applicability of future research. This study highlights the need to contextualize parenting research in poverty, challenging one-size-fits-all interventions and provides evidence that combining material and psychosocial support is more effective than either alone, informing policy in low-income countries. By doing so, scholars can better inform targeted interventions aimed at improving the psycho-social well-being of vulnerable adolescents.

## Limitations

It is important to acknowledge several limitations that may influence the interpretation and generalizability of the findings. These limitations highlight areas for future research and underscore the need for continued exploration of psycho-social dynamics in poverty contexts. One of the limitations of this study is its reliance on a cross-sectional design, which precludes causal inferences. Structural equation modeling (SEM) was employed to test hypothesized relationships; however, the absence of longitudinal data limits the ability to establish temporal precedence or causality. Another limitation lies in the reliance on self-reported data, which may introduce response biases such as social desirability or recall inaccuracies. Adolescents from low-income families may underreport emotional distress or overemphasize positive attributes due to stigma associated with poverty. The study focuses exclusively on adolescents in Q city, a city in eastern China, which may limit the generalizability of the findings to other regions within the country. Regional disparities in socioeconomic conditions, cultural norms, and family structures are well-documented in the literature<sup>23</sup>. A further limitation is the limited consideration of intersectional factors, such as gender, ethnicity, and disability status, which may interact with poverty to shape adolescent well-being. As highlighted, marginalized subgroups within impoverished communities often face compounded vulnerabilities that exacerbate psychological distress<sup>25</sup>. Although the EMBU-C scale was used to assess parenting styles, its focus on warmth, control, and rejection may not fully capture the nuanced behaviors exhibited by parents in poverty-stricken environments.

## Data availability

The data presented in this study are available on request from the corresponding author and the data are not publicly available due to privacy restrictions.

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Conceptualization, C.X. (Congde Xu); Methodology, C.X. (Congde Xu); Software, C.X. (Congde Xu); Validation, C.X. (Congde Xu); Formal analysis, Y. W (Yang Wang); Investigation, C.X. (Congde Xu), Resources, Y. W (Yang Wang); Data curation, Y. W (Yang Wang); Writing-original draft, Y. W (Yang Wang); Writing-review & editing, C.X. (Congde Xu) and Y.B.(Yiwei Bi); Visualization, Y. W (Yang Wang); Supervision, Y. W (Yang Wang); Project administration, C.X. (Congde Xu) and Y.B.(Yiwei Bi); Funding acquisition, C.X. (Congde Xu) and Y.B.(Yiwei Bi). All authors reviewed the manuscript.

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### Additional information

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