



# Direct and indirect effects of authoritative parenting and self-esteem on adolescent life satisfaction: A comparative study across varied migration statuses

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## Abstract

Although prior research has exponentially investigated the robust linkage between authoritative parenting and adolescents' developmental outcomes, relatively scarce efforts have nevertheless been devoted to youth with different migration statuses particularly regarding their positive outcomes. In closing those gaps, the current study leveraged positive youth development perspective and simultaneously investigated the association between two conceptually distinct but empirically related authoritative parenting dimensions (autonomy support and warmth) and life satisfaction among adolescents with different migration statuses. Self-esteem was deliberately selected to deepen its conceptual understanding, and multi-group analysis was adopted to dismantle the commonality and specificity of those associations. We analyzed the unique data based on 1002 adolescents ( $M_{age} = 13.06$ , 50.4% girls), categorized into three groups: migrants (17.8%), left-behinds (23.2%), and non-migrants (59.0%). The results indicated that self-esteem partially mediated the positive relationship between authoritative parenting and life satisfaction. However, this mediation varied depending on the parenting dimension and migration status: significant for migrants and left-behinds in the context of parental autonomy support, and only for left-behinds regarding parental warmth. These findings offer a nuanced understanding of how different dimensions of authoritative parenting correlate with adolescents' positive developmental outcome in various migration contexts, providing valuable insights for designing supportive strategies and targeted interventions.

**Keywords** Life satisfaction · Parental autonomy support · Parental warmth · Self-esteem · Migration · Positive youth development

## Introduction

Population migration—both international and internal—has increased dramatically over the last decennia, reaching an unprecedented scale. As of 2020, the international organization for migration estimated that there were approximately 281 million international migrants, representing 3.6% of the world's population (International Organization for Migration, 2022). In one of the fastest economic entities, China, for instance, millions of working-aged adults have migrated internally to

industrialized and developed regions for better employment opportunities (Hu et al., 2022; Wang et al., 2023). Within those unprecedented “floated” populations, some parents move together with their children to keep their family intact and render their children direct supervision, but those migrated children might have difficulties with adapting to a new community and are potentially exposed to social exclusion and discrimination (Wang & Mesman, 2015; Zhang et al., 2019). In contrast, others choose to leave their children behind in original communities and provide sufficient remittances to support better educational and healthcare resources, but unfortunately creates parent-child separation (Zhang et al., 2018). Successive studies have demonstrated that, compared to non-migrant adolescents, migrant and left-behind adolescents have suffered from a variety of impassable obstacles and heightened psychosocial difficulties (Wang et al., 2022; Wang and Mesman, 2015). Yet limited scholarship has been devoted to delineating

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a comprehensive picture of how those costs and benefits of different migration statuses, comparing with non-migrants from the same communities, are related to adolescents' psychosocial development (Xu et al., 2018), particularly focusing on their positive outcomes, such as life satisfaction.

Life satisfaction, as the constituent component of subjective well-being, refers to a cognitive and global evaluation of the quality of one's life (Diener et al., 2002). Prior research has also shown that life satisfaction is more responsive than emotional aspects of subjective well-being to life changes, such as parental migration (Lönnqvist et al., 2015). Adolescents' life satisfaction is related to various functional domains, including their academic achievement, interpersonal connections, and emotional-behavioral adjustment (Daly, 2022; Proctor et al., 2009; Ng et al., 2015). Focusing on adolescents' life satisfaction is not only important given those various associated advantages, but also aligns well with the recent movement within the migrant youth adaptation literature centering on their strengths and potentials (Motti-Stefanidi, 2023). Unlike traditional deficit-oriented approaches that predominantly concentrate on weaknesses and psychological symptoms, the positive youth development perspective emphasizes the cultivation of strengths and the provision of supportive environments and opportunities (Lerner et al., 2012). This is exemplified by the integration of external assets, such as authoritative parenting, and internal assets, like self-esteem (Lerner et al., 2012). Specifically, when applied to the context of migrant youth, this framework aims to create a nurturing environment that not only capitalizes on their unique strengths but also addresses the specific challenges they encounter (Motti-Stefanidi, 2023). The present strength-based study thus advanced past scholarship and particularly focused on the association of two dimensions of authoritative parenting (autonomy support and warmth) and adolescents' life satisfaction, with a further consideration of the mediating role of self-esteem. In addition, this study tested the potential differences of those direct and indirect associations using a unique three-group comparison approach.

### Authoritative parenting and life satisfaction

Parents are principal socializers who play a critical role in facilitating adolescents' life satisfaction (Baumrind, 2013; Bronfenbrenner & Morris, 2006). During adolescence, youth are particularly attuned to the messages occurring within the family context, which is particularly pronounced in Chinese culture highlighting familism (Shek, 2007; Yeh and Bedford, 2003). According to seminal studies of Baumrind's typological archetypes (Baumrind, 1971, 2013), parenting styles can be classified based on two-dimensional framework: demandingness (also known as behavioral control) and responsiveness

(also referred to warmth and acceptance). Among those classified parenting styles, the authoritative style is a syncretic coalition of high demandingness and responsiveness. Specifically, authoritative parenting entails proper control and high expectations for children while also maintaining autonomy and warmth (Baumrind, 1971, 2013). Although authoritative and permissive parents are both responsive, in contrast to permissive parents who are unconditionally loving, authoritative parents keep proper control over acts of which they disapprove. While authoritarian and authoritative parents are both power assertive, by contrast to authoritarian parents who are coercive, authoritative parents are caring and responsive. Such dialectic dualities of parenting not only emphasize the ability to balance control and autonomy, but also ensures provisions of warmth and acceptance (Baumrind, 1971, 2013; Maccoby and Martin, 1983). Thus, both parental autonomy support and warmth are important dimensions of authoritative parenting (Maccoby and Martin, 1983; Zhou et al., 2022).

A considerable body of research has accumulated on the positive relation between authoritative parenting, conceptualized as autonomy support and warmth (Bülow et al., 2022; Zhou et al., 2022), and adolescents' life satisfaction, but less is understood in terms of specific roles played by each dimension and how those associations unfold under different migration statuses. This gap is salient because migration might introduce unique family dynamics and challenges, potentially affecting how parental autonomy support and warmth are related to adolescents' life satisfaction in migrant families compared to non-migrant families (Lan, 2023a, b). For example, migrant adolescents, facing the stress of adapting to new communities (Wang and Mesman, 2015), often find solace and direction in the autonomy-supportive and warm parenting practices, which aids in their adjustment to unfamiliar surroundings. Conversely, left-behind adolescents, grappling with separation and increased responsibilities, benefit from the emotional support and independence that authoritative parenting provides, helping to offset the adverse effects of parental absence (Ma et al., 2022a, b, c). In the case of non-migrants, the consistency and familiarity of their environment mean that the supportive and autonomy-encouraging elements of authoritative parenting reinforce their development, assisting them in managing typical developmental hurdles (Khaleque, 2013; Pinquar and Gerke, 2019). Thus, while authoritative parenting is beneficial across all groups, the specific ways it influences life satisfaction can differ based on the distinct experiences of each group. Delving into these nuances allows researchers to understand how these dimensions function in various migration contexts and to provide more tailored support based on adolescents' migration status.

Parental autonomy support, defined as parenting practices that encourage and support children's independence through offering choices and explanations and fostering

personal volition (Mageau et al., 2015), plays a pivotal role during adolescence. This developmental stage is characterized by a heightened need for autonomy (McCurdy et al., 2020). Consistent with self-determination theory (Ryan and Deci, 2017; Ryan, 2023), research has established a positive correlation between parental autonomy support and adolescents' life satisfaction (Soenens et al., 2007; Tan et al., 2018; Grolnick et al., 2023). According to this theory (Ryan, 2023), when adolescents perceive that their parents understand and support their personal interests and goals, they experience a greater sense of volition and an enhanced capacity for decision-making. This aligns with the theory's emphasis on autonomy as a fundamental psychological need, suggesting that autonomy-supportive parenting practices directly contribute to fulfilling this need, thereby promoting higher life satisfaction in adolescents. Such parental support not only fosters independence but also facilitates intrinsic motivation and self-regulation, key elements of self-determined behavior. Despite this theoretical support, most of empirical studies have focused on Western societies; in contrast, less studies have focused on Eastern societies traditionally emphasizing interdependence and parental authority (Chao, 1994; Chao & Tseng, 2002). Recent shifts in Chinese society, however, indicate a movement towards valuing independence and competitiveness, with a corresponding change in parenting styles towards more autonomy-supportive practices (Bi et al., 2020). This cultural evolution, marked by a decrease in parental strictness and vertical collectivism, points towards more egalitarian adolescent-parent relationships (Zhang et al., 2017). These shifts underscore the importance of further examining parental autonomy support within the contemporary Chinese context.

Parental warmth, encompassing supportive, responsive, and affectionate parenting (Maccoby & Martin, 1983), is widely recognized as a crucial factor in fostering children's emotional security and secure attachments (Khaleque & Rohner, 2002). This dimension of parenting is universally beneficial across cultures, promoting adolescents' emotional well-being and psychological health (Deater-Deckard et al., 2011). Numerous studies, including a meta-analysis by Khaleque (2013) and research in Chinese contexts (Lan, 2022), have highlighted the positive impact of parental warmth on various psychosocial outcomes in adolescents, including life satisfaction. These findings align with the parental acceptance-rejection theory (Rohner, 1986), which posits that parental acceptance — characterized by warmth, support, and positive regard — is universally linked to better psychosocial adjustment in adolescents. Despite those solid empirical and theoretical evidence, limited knowledge on this association has been generated under different migration contexts. In addition, the association between authoritative parenting and adolescents' life satisfaction may appear

straightforward, but other factors, such as self-esteem, also play a role, warranting further examination.

### Self-esteem as a mediator

Self-esteem is the subjective evaluation of one's own worth (Rosenberg, 1965). Studying self-esteem in adolescence is important because it significantly impacts individuals' identity formation, academic and social success, and long-term well-being (Orth & Robins, 2014; Sowislo & Orth, 2013; Steiger et al., 2014). High self-esteem can also bolster resilience, enabling adolescents to better cope with stress and adversity, which is essential for adolescents with migration experiences (Ma et al., 2022a; Ying et al., 2023). In terms of its mediating role, self-esteem is an internal gauge of social acceptance, as outlined in the sociometer theory (Leary & Baumeister, 2000). When adolescents perceive that their parents support their autonomy and treat them warmly, they feel more socially accepted and valued (Ma et al., 2022b; Pinquart & Gerke, 2019). This perception boosts their self-esteem, which in turn enhances their overall life satisfaction (Moksnes & Espnes, 2013). The sociometer theory thus provides a foundational basis for examining the mediating role of self-esteem in the relationship between authoritative parenting and life satisfaction.

Empirical studies have also indicated that self-esteem may mediate this relationship. Kong et al. (2013) showed a positive link between social support and self-esteem, which in turn correlated with improved subjective well-being. Similarly, Peng et al. (2021) found that self-esteem partially mediated the positive relationship between parental warmth and adolescent mental health. However, direct exploration of self-esteem's mediating role in the connections between parental autonomy support, warmth, and adolescents' life satisfaction is still limited. Furthermore, understanding how these parenting dimensions are related to life satisfaction via self-esteem in the context of different migration statuses is crucial because the specific characteristics of each migration status and its social context may lead to variations in these relationships.

### Adolescents with different migration statuses

The extensive internal migration in China presents a unique opportunity to study adolescents under different migration statuses: migrants, left-behinds, and non-migrants. These categories are defined based on their parents' migration patterns. 'Migrants' are school-aged adolescents who relocate to cities with their parents, lack urban household registration, and reside there for over six months (Wang & Mesman, 2015; Zhang et al., 2019). 'Left-behinds' are those whose one or more parents work away from home for over six months, leaving them in their

urban hometowns (Lan & Moscardino, 2019; Zhang et al., 2018). ‘Non-migrant’ adolescents live in the city with their parents. This classification allows for specific comparisons: between migrants and non-migrants to explore the effects of child migration; between left-behinds and non-migrants to understand the impact of parental migration; and between left-behinds and migrants to assess the relative benefits and costs of these two migration experiences. This analytical framework, developed by Xu et al. (2018), helps elucidate the changes in family structure and how different migration strategies affect adolescents’ well-being. Our study focused on these three groups, who, despite living in similar socioenvironmental contexts, offer distinct insights on how those migration statuses characterize the association between authoritative parenting and life satisfaction via self-esteem.

Migrant adolescents, who relocate from rural to urban areas with their parents, encounter a mix of opportunities and challenges (Lu, 2020). While the urban setting offers improved learning and living conditions, they often face restrictions in accessing educational resources and healthcare services due to the household registration system (Lan et al., 2019). These adolescents may struggle with psychosocial adaptation, influenced by factors like their temporary residency, the mobility of their living environment, and potential experiences of exclusion and discrimination (Jiang et al., 2020; Lan et al., 2019). Although they live with their parents, the provision of parental warmth and support might be limited, as parents often work long hours in labor-intensive jobs (Wang & Mesman, 2015). These parents may also resort to stricter and more controlling parenting styles under increased pressure (Liu & Wang, 2015). On a positive note, living in urban areas can broaden parents’ horizons, altering their worldviews and aspirations (Wen & Lin, 2012), which may lead to more beneficial parenting styles and, in turn, enhance their children’s life satisfaction. The unique experiences of migrant adolescents, distinct from non-migrants and left-behinds, potentially influence the study’s findings in different ways.

Adolescents with urban left-behind status form another distinctive group. While out-migrated parents may improve left-behinds’ living standards and access to social services and education, different from both migrants and non-migrants, these adolescents face significant shifts in family structure and function (Lan & Moscardino, 2019; Lan & Radin, 2020). Often, their out-migrated parents are away for extended periods, sometimes returning only once a year during the Spring Festival, and even then, for less than a month (Wang & Mesman, 2015). Consequently, left-behind adolescents usually reside with one parent or other caregivers, like grandparents or siblings, who might have limited time and resources for them (Lan & Moscardino, 2019; Shu,

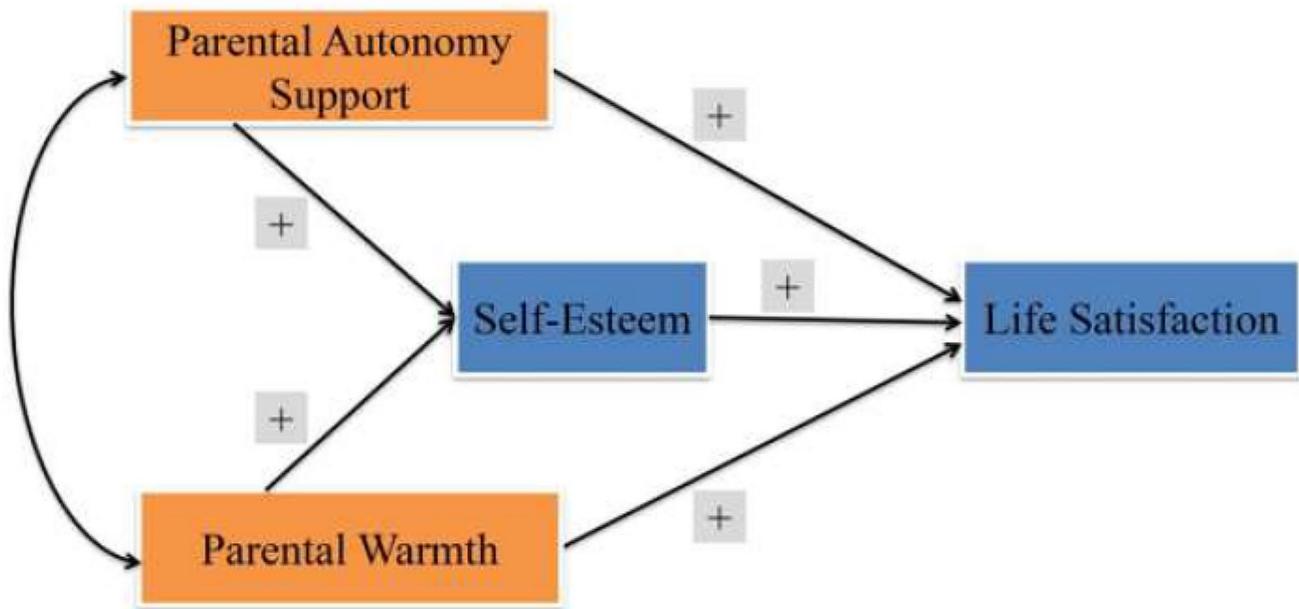
2020). The prolonged absence of parents can lead to a lack of direct supervision and support, leading to increased loneliness and emotional difficulties for left-behinds (Jia & Tian, 2010). However, life satisfaction might also retain at a proper level if left-behind adolescents maintain frequent and effective communication with their parents (Su & Lin, 2012). Similar to out-migrated parents, those of left-behind adolescents may adapt their parenting styles influenced by new values acquired in different environments. Therefore, those features might post a unique influence on the study associations.

## The present study

The current study leveraged positive youth development perspective to examine the associations of two key dimensions of authoritative parenting and life satisfaction. This study also investigated the mediating role of self-esteem in those associations (see Fig. 1). Additionally, this study tested for potential differences in the direct and indirect associations among adolescents with two different migration experiences, as compared with their non-migrant peers in the same socioenvironmental contexts. This three-group comparison approach, informed by Xu et al. s (2018) conceptual framework, is crucial for dissecting the commonalities and specificities of the direct and indirect associations among adolescents (Malti & Cheah, 2021). While our study is grounded in established theoretical perspectives, the key innovation of this study lies in applying these established theories to the unique context of adolescents experiencing different migration statuses. This application to a specific, and perhaps under-researched, demographic provides new insights into how these theoretical constructs operate under the unique pressures and circumstances associated with migration. Another innovative aspect is the synthesis of multiple theoretical frameworks to analyze a complex social phenomenon. This integration allows for a more comprehensive understanding of how authoritative parenting, self-esteem, and life satisfaction interrelate in the context of migration, a perspective that might be overlooked when these theories are considered in isolation.

Based on relevant theoretical and empirical research, we posited the following hypotheses:

- Hypothesis 1 (direct effect): Parental autonomy support and warmth are each positively associated with life satisfaction;
- Hypothesis 2 (indirect effect): Self-esteem (partially or fully) mediates those positive associations, including the relations between parental autonomy support and



**Fig. 1** Hypothesized model. Note. The plus signs in the model represent positive associations between the variables

life satisfaction (Hypothesis 2a) and between parental warmth and life satisfaction (Hypothesis 2b);

- Hypothesis 3 (multi-group comparisons on direct and indirect effects): Those direct and indirect associations might differ among migrants, left-behinds, and non-migrants.

Notably, the first and second hypotheses of our study, rooted in robust conceptual and empirical evidence, were confirmatory, while the third hypothesis was more exploratory. Given the limited literature, specific predictions for the third hypothesis are challenging, yet some general expectations can be drawn from Xu et al.'s framework (2018) and related studies (Shuang et al., 2022; Zheng et al., 2023). We anticipated that the positive link between authoritative parenting and life satisfaction would be more straightforward and stronger for non-migrants than for migrants and left-behinds. This is because migrant parents often face challenges in new environments, and left-behind parents have the added complexity of physical separation from their children (Wang & Mesman, 2015). For indirect effects, we hypothesized a more pronounced mediating role of self-esteem in migrants and left-behinds than in non-migrants, owing to the importance of self-esteem in building resilience and counterbalancing challenges (Ma et al., 2022a; Ying et al., 2023). However, owing to the scarcity of research in this area, we did not establish specific expectations about the distinct roles played by each parenting dimension or about the differences between the migrant and left-behind groups.

## Method

### Participants and procedure

After obtaining approval from the ethics committee at the first author's university, our team engaged with principals of two public schools in Linxia City, Gansu Province. These schools, one primary and one secondary, were chosen for their diverse student populations, including migrant, left-behind, and non-migrant adolescents. This diversity made them representative of the broader adolescent demographic in China. Before initiating the study, we thoroughly explained its objectives and secured informed consent from parents or legal guardians<sup>1</sup>. Participants received detailed information about the study's purpose, the confidentiality of their responses, and the voluntary nature of their participation. With adolescents' assent, we administered questionnaires in group settings during regular school hours. This investigation process lasted approximately 15 to 20 min.

The present study initially included 1020 adolescents from grades four to eight. After the exclusion of participants

<sup>1</sup> For this study, following prior research (Ma et al., 2023), informed consent was obtained from a parent or legal guardian for all participating minors, including left-behind adolescents whose one or both parents were absent. We facilitated this process by collaborating with the head teachers in each classroom, who distributed an online informed consent form through the parent-teacher WeChat group. This platform, enabling communication regardless of physical location, is extensively utilized in China for communication between parents and teachers about student-related matters. The consent form clearly stated that participation in the study was anonymous and voluntary, and that participants could withdraw at any time.

with incomplete information on crucial variables like migration status and gender, our final sample comprised 1002 adolescents, of which 505 were girls (50.4%). This group consisted of 17.8% migrant, 23.2% left-behind, and 59.0% non-migrant adolescents. The age range of the participants was from 10 to 18 years ( $M_{\text{age}} = 13.06$ ,  $SD = 1.69$ ), and they typically came from families with a moderate socioeconomic status ( $M_{\text{SES}} = 3.80$ ,  $SD = 2.01$ , on a total scale ranging from 0 to 9). Detailed sociodemographic characteristics, segmented by migration statuses, are outlined in Table 1.

## Measures

### Life satisfaction

Life satisfaction was assessed using the Satisfaction with Life Scale developed by Diener et al. (1985). This instrument comprises five statements, such as ‘I am satisfied with my life,’ and responses are captured on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). We computed average scores, with higher scores indicating greater life satisfaction. The scale has demonstrated reliable internal consistency in previous studies involving Chinese adolescents (e.g., Lan et al., 2021). In our study, the Cronbach’s alpha values were 0.88 for migrants, 0.82 for left-behinds, and 0.83 for non-migrants, indicating good reliability in each group.

### Parental autonomy support

Parental autonomy support was assessed using the parental autonomy support questionnaire compiled by Wang et al. (2007). This questionnaire consists of eight items, such as “My parents allow me to plan what I want to do.” Participants rated these items on a 5-point Likert scale, where 1 represents ‘*strongly disagree*’ and 5 ‘*strongly agree*.’ We calculated average scores, with higher scores indicating greater parental autonomy support. Previous research, including Lan et al. (2019), has confirmed the questionnaire’s good internal consistency among Chinese adolescents. In our sample, Cronbach’s alpha for the questionnaire was 0.92 for

migrants, 0.90 for left-behinds, and 0.90 for non-migrants, demonstrating good reliability across all groups.

### Parental warmth

Parental warmth was assessed using a subscale from the revised parenting inventory by Gao et al. (2015). This particular subscale is composed of six items, and respondents rated these on a 6-point Likert scale, ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). We calculated average scores, with higher scores indicating increased levels of parental warmth. Previous studies, such as those by Lan (2023a, b), have demonstrated this inventory’s good internal consistency among Chinese adolescents. In our study, the Cronbach’s alpha values for this subscale were 0.66 for migrants, 0.60 for left-behinds, and 0.65 for non-migrants, indicating acceptable reliability in each group.

### Self-esteem

Self-esteem was gauged using Rosenberg’s Self-Esteem Scale from 1965. This scale comprises ten items, for example, ‘I feel that I have a number of good qualities.’ Participants rated these items on a 4-point Likert scale, where 1 means ‘*strongly disagree*’ and 4 ‘*strongly agree*.’ We computed average scores, with higher scores indicating greater self-esteem. This scale is known for its good psychometric properties in research with Chinese adolescents, as evidenced by Dong et al. (2023). In our current sample, the Cronbach’s alpha for the scale was 0.60 for migrants, 0.70 for left-behinds, and 0.69 for non-migrants, reflecting an acceptable level of reliability.

### Migration status

Adolescents were first asked to indicate their current migration status employing a singular item that was categorized into four distinct classifications. This item assessed whether either or both parents had engaged in prolonged occupational relocation to other cities, defined as a duration of no less than six months. The

**Table 1** Basic socio-demographic characteristics of the samples in the study

Variables	Total sample ( $N = 1002$ )	Migrants ( $N = 178$ )	Left-behinds ( $N = 233$ )	Non-migrants ( $N = 591$ )
<b>Age (years; <math>M \pm SD</math>)</b>	13.06 $\pm$ 1.69	13.07 $\pm$ 1.70	13.01 $\pm$ 1.78	13.07 $\pm$ 1.65
<b>Gender (%)</b>				
Girls	505 (50.4%)	73 (41%)	118 (50.6%)	314 (53.1%)
Boys	497 (49.6%)	105 (59%)	115 (49.4%)	277 (46.9%)
<b>Family socioeconomic status (<math>M \pm SD</math>)</b>	3.80 $\pm$ 2.01	3.56 $\pm$ 1.99	3.76 $\pm$ 2.02	3.90 $\pm$ 2.02

Family socioeconomic status was assessed by the Family Affluence Scale (Boyce et al., 2006), with a total score ranging from 0 to 9

classifications comprised: (a) exclusive paternal migration for work purposes, (b) exclusive maternal migration for work purposes, (c) joint parental migration for work purposes, and (d) cohabitation with both parents in the original community setting. Subsequently, adolescents were presented with a dichotomous query (*yes* or *no* response) probing whether they had relocated from their original communities to pursue educational endeavors in other cities, accompanied by either or both parents, for a substantial period, stipulated as a minimum of six months. Those items were adapted from prior research (Lan, 2023b).

Based on the conceptualization introduced earlier in the study, adolescents affirming categories (a), (b), or (c), and concurrently providing an affirmative response to the additional educational relocation question, were classified as ‘migrants’. Conversely, those selecting the same categories but negating the educational relocation question were categorized as ‘left-behinds’. Adolescents selecting category (d) were designated as ‘non-migrants’.

### Covariates

Existing research, such as the work by Liu et al. (2016), indicates that life satisfaction varies by age and gender, with girls generally reporting higher levels than boys. Additionally, studies like Yan et al. (2021) have found that adolescents from families with higher family socioeconomic status (SES) tend to have greater life satisfaction. In light of these findings, our study incorporated age, gender, and family SES as covariates. To assess family SES, we employed the Family Affluence Scale developed by Boyce et al. (2006), which includes four questions, for example, ‘How many computers are in your home?’ Responses were scored on a scale from 0 (*none*) to 3 (*more than two*). Previous research, including Ma et al. (2022a, b, c), has employed this scale as an effective measure of family SES in the context of Chinese adolescents.

### Data analytical plan

For data analysis, we utilized IBM SPSS 25.0 and Amos 24.0 software. The process began with testing for common method bias using Harman’s single-factor analysis. Next, we calculated descriptive statistics, Pearson correlations, and the skewness and kurtosis of each variable.

With regard to examining three hypotheses, we followed prior research using a three-step structural equation model with observed scores (Behnke et al., 2011)

<sup>2</sup>. We first applied a direct effect model to examine the relationships among autonomy support, warmth, and life satisfaction. In the second step, we incorporated self-esteem into the structural equation model to explore its mediating role in these relationships. We used maximum likelihood estimation for the mediation model and assessed the model’s fit through various indices. Since the  $\chi^2$  test is sensitive to sample size, we also considered absolute fit indices like TLI (Tucker-Lewis Index) and CFI (Comparative Fit Index). According to Hu and Bentler (1999), a TLI and CFI greater than 0.90 and an RMSEA (Root Mean Square Error of Approximation) less than 0.08 indicate a good model fit. We then determined the significance of indirect effects using the 95% bias-corrected bootstrap confidence intervals with 5000 resamples; an effect was deemed significant if the 95% confidence intervals did not include zero. In the third step, we employed multiple-group analysis to compare two nested models—unconstrained and constrained—to determine if the direct and indirect associations varied based on group memberships. We used the Chi-square difference test and changes in CFI to identify significant differences between these models. Where significant differences were found, we conducted pairwise comparisons to detect specific paths within the model.

## Results

### Common method bias test

Harman’s single-factor analysis revealed that eight factors with eigenvalues greater than 1 were obtained without rotation, with the first factor explaining 26.5% of the variance (< 40%). Therefore, there was no serious common method bias in the current study.

### Descriptive statistics and bivariate correlations

Table 2 presents the descriptive statistics and Pearson’s correlations for the study variables in the total sample. Table 3 provides the same information but broken down by each specific group. The skewness and kurtosis values were within acceptable limits (skewness  $< \pm 2$  and kurtosis  $< \pm 7$ ), confirming the normal distribution of the variables. The correlational analysis revealed positive relationships between

<sup>2</sup> Statistically, using a latent approach was not ideal due to two concerns: the scale of parental warmth showing only marginally acceptable internal consistency, and the relatively smaller sample size of migrant and left-behind groups. To overcome these constraints, we opted for a more parsimonious analysis with observed scores. This approach, without the complexity of latent variables and additional parameters, maintains sufficient statistical power to detect meaningful effects.

**Table 2** Descriptive statistics and bivariate correlations between study variables for the total sample

Variable	M	SD	Range	Skewness	Kurtosis	1	2	3	4	5	6	7
1. PAS	3.39	0.80	1–5	-0.27	-0.16	-						
2. PW	3.88	0.96	1–6	-0.18	-0.17	0.58**	-					
3. SE	2.75	0.48	1–4	0.30	0.28	0.39**	0.41**	-				
4. LS	4.27	1.33	1–7	0.13	0.02	0.41**	0.33**	0.29**	-			
5. Age	13.06	1.69	10–18	-0.17	-0.81	-0.10**	-0.22**	-0.10**	-0.11**	-		
6. Gender <sup>a</sup>	-	-	1–2	-	-	0.08*	0.08*	0.03	-0.02	-0.10**	-	
7. SES	3.80	2.02	0–9	0.08	-0.71	0.21**	0.13**	0.12**	0.12**	0.08*	0.03	-

N = 1002

PAS Parental autonomy support, PW Parental warmth, SE Self-esteem, LS Life satisfaction, SES Socioeconomic status

\*  $p < .05$ , \*\*  $p < .01$

<sup>a</sup> coded as 1 = male, 2 => female

parental autonomy support and parental warmth with self-esteem and life satisfaction. This pattern held true both for the entire sample and for the separated groups analyzed.

**Direct effect model**

The results of the direct effect model, after controlling for age, gender, and family SES, showed good fit indices ( $\chi^2 / df = 5.89, p < .001$ ; TLI = 0.90; CFI = 0.96; RMSEA = 0.07). We found positive associations between both parental autonomy support and life satisfaction ( $\beta = 0.55, p < .001$ ), and between parental warmth and life satisfaction ( $\beta = 0.18, p < .01$ ). The first hypothesis was thus supported.

**Indirect effect model**

The results of the indirect effect mode showed good fit indices ( $\chi^2 / df = 5.89, p < .001$ ; TLI = 0.90; CFI = 0.97; RMSEA = 0.07). As shown in Table 4, the indirect effect estimation in the association between parental autonomy support and life satisfaction showed that 95% CI did not contain zero ( $\beta = 0.05$  and 95% CI = [0.02–0.08]). Specifically, as visualized by Fig. 2, we found positive associations between parental autonomy support and self-esteem ( $\beta = 0.13, p < .001$ ), and between self-esteem and life satisfaction ( $\beta = 0.35, p < .01$ ). Thus, we concluded that self-esteem partially mediated the positive association between parental autonomy support and life satisfaction. The hypothesis 2a was hence supported.

Similarly, the indirect effect of self-esteem was also significant in the association between parental warmth and life satisfaction ( $\beta = 0.05$  and 95% CI = [0.02–0.08]). Specifically, as shown in Fig. 2, positive correlations emerged between parental warmth and self-esteem ( $\beta = 0.14, p < .001$ ), and between self-esteem and life satisfaction ( $\beta = 0.35, p < .01$ ). Thus, similar to what found in parental autonomy support, self-esteem partially mediated the positive association between parental warmth and life satisfaction. The hypothesis 2b was hence supported.

**Multi-group comparisons on direct and indirect effects**

The analysis began with the unconstrained model, which exhibited good fit indices ( $\chi^2 / df = 2.34, p < .01$ ; TLI = 0.91; CFI = 0.98; RMSEA = 0.04). Next, the constrained model was evaluated and similarly showed good fit ( $\chi^2 / df = 2.04, p < .001$ ; TLI = 0.93; CFI = 0.96; RMSEA = 0.03). A comparative assessment of the fit indices between the unconstrained and constrained models revealed a notable Chi-square difference ( $\Delta\chi^2 = 39.34, p < .05$ ) and a change in CFI ( $\Delta CFI$ )

**Table 3** Descriptive statistics and bivariate correlations between study variables for migrants, left-behinds, and non-migrants

Variable	M	SD	Range	Skewness	Kurtosis	1	2	3	4	5	6	7
<b>Migrant adolescents (N = 178)</b>												
1. PAS	3.34	0.88	1–5	-0.41	-0.24	-	-	-	-	-	-	-
2. PW	3.76	1.08	1–6	-0.21	-0.28	0.60**	-	-	-	-	-	-
3. SE	2.76	0.43	1–4	0.05	0.68	0.39**	0.37**	-	-	-	-	-
4. LS	4.20	1.49	1–7	0.04	-0.30	0.41**	0.19*	0.31**	-	-	-	-
5. Age	13.07	1.70	10–17	-0.10	-0.64	-0.18*	-0.23**	-0.10	-0.03	-	-	-
6. Gender <sup>a</sup>	-	-	1–2	-	-	0.11	0.07	-0.10	-0.10	-0.05	-	-
7. SES	3.56	1.99	0–9	0.24	-0.47	0.28**	0.18*	0.11	0.14	0.04	0.08	-
<b>Left-behind adolescents (N = 233)</b>												
1. PAS	3.41	0.77	1–5	-0.12	-0.37	-	-	-	-	-	-	-
2. PW	3.91	0.92	1–6	-0.05	-0.04	0.63**	-	-	-	-	-	-
3. SE	2.74	0.51	1–4	0.30	-0.01	0.46**	0.51**	-	-	-	-	-
4. LS	4.19	1.34	1–7	0.12	0.17	0.42**	0.46**	0.41**	-	-	-	-
5. Age	13.01	1.78	10–18	-0.11	-0.97	-0.02	-0.22**	-0.08	-0.19**	-	-	-
6. Gender <sup>a</sup>	-	-	1–2	-	-	0.06	0.08	0.04	0.07	-0.10	-	-
7. SES	3.76	2.02	0–9	-0.11	-0.79	0.24**	0.16*	0.12	0.11	0.05	0.12	-
<b>Non-migrant adolescents (N = 591)</b>												
1. PAS	3.40	0.79	1–5	-0.25	-0.13	-	-	-	-	-	-	-
2. PW	3.90	0.96	1–6	-0.20	-0.19	0.55**	-	-	-	-	-	-
3. SE	2.75	0.48	1–4	0.36	0.32	0.37**	0.39**	-	-	-	-	-
4. LS	4.32	1.28	1–7	0.20	0.05	0.41**	0.33**	0.24**	-	-	-	-
5. Age	13.07	1.65	10–18	-0.22	-0.79	-0.10*	-0.21**	-0.11*	-0.10*	-	-	-
6. Gender <sup>a</sup>	-	-	1–2	-	-	0.08*	0.07	0.07	-0.03	-0.11**	-	-
7. SES	3.90	2.02	0–9	0.11	-0.73	0.17**	0.10*	0.12	0.12	0.09*	-0.02	-

PAS Parental autonomy support, PW Parental warmth, SE Self-esteem, LS Life satisfaction, SES Family socioeconomic status

\*  $p < .05$ , \*\*  $p < .01$

<sup>a</sup> coded as 1 = male, 2 = female

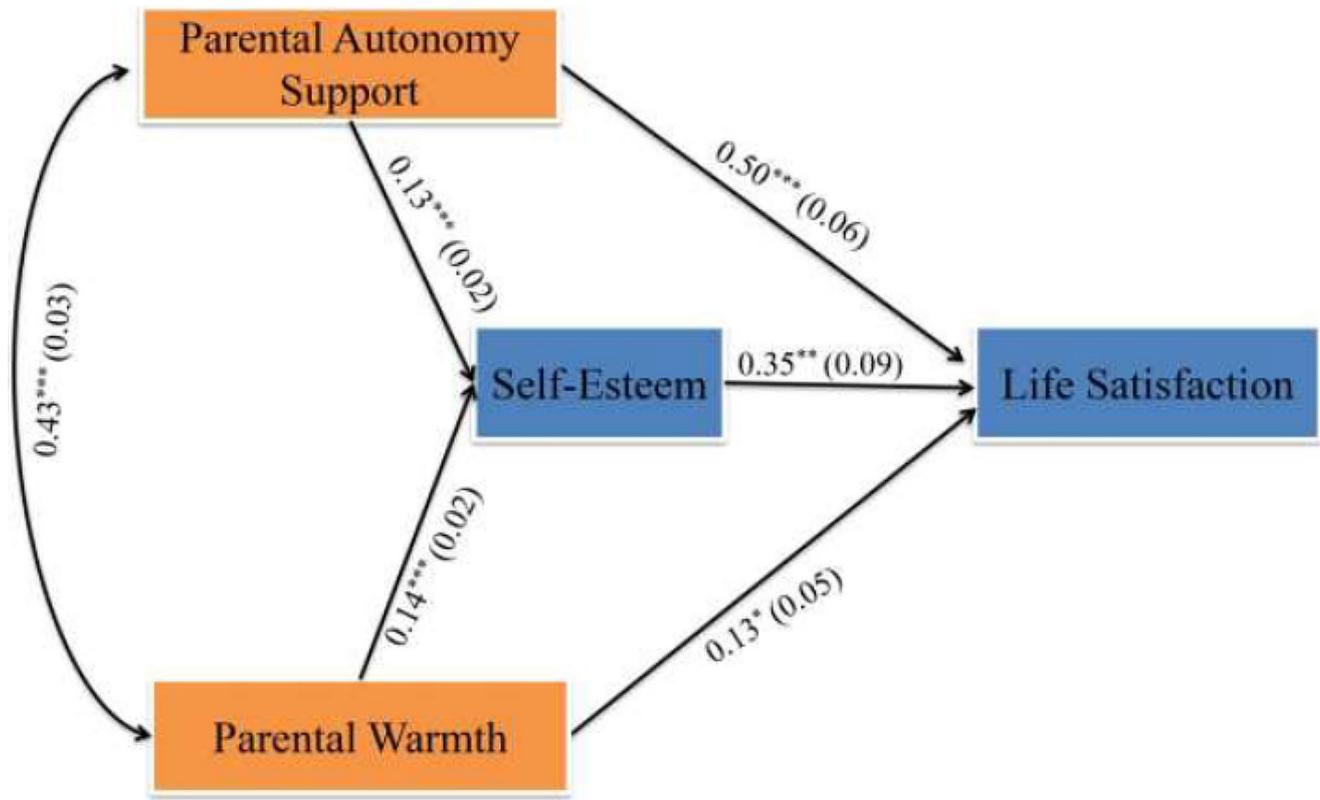
**Table 4** Results of the direct and indirect models for the total sample

Path	Indirect Effect (SE)	Direct Effect (SE)	95% CI for Indirect Effect	
			Lower	Upper
PAS → SE → LS	0.05*** (0.02)	0.50*** (0.06)	0.02	0.08
PW → SE → LS	0.05*** (0.02)	0.13* (0.05)	0.02	0.08

$N = 1002$

PAS Parental autonomy support, PW Parental warmth, SE Self-esteem, LS Life satisfaction, Unstandardized path coefficients are presented with standard errors enclosed in brackets

\* $p < .05$ , \*\*\* $p < .001$



**Fig. 2** Path coefficients for the total sample. Note: The sample size is 1002. This figure presents the unstandardized path coefficients along with standard errors (enclosed in brackets) for the direct and indirect

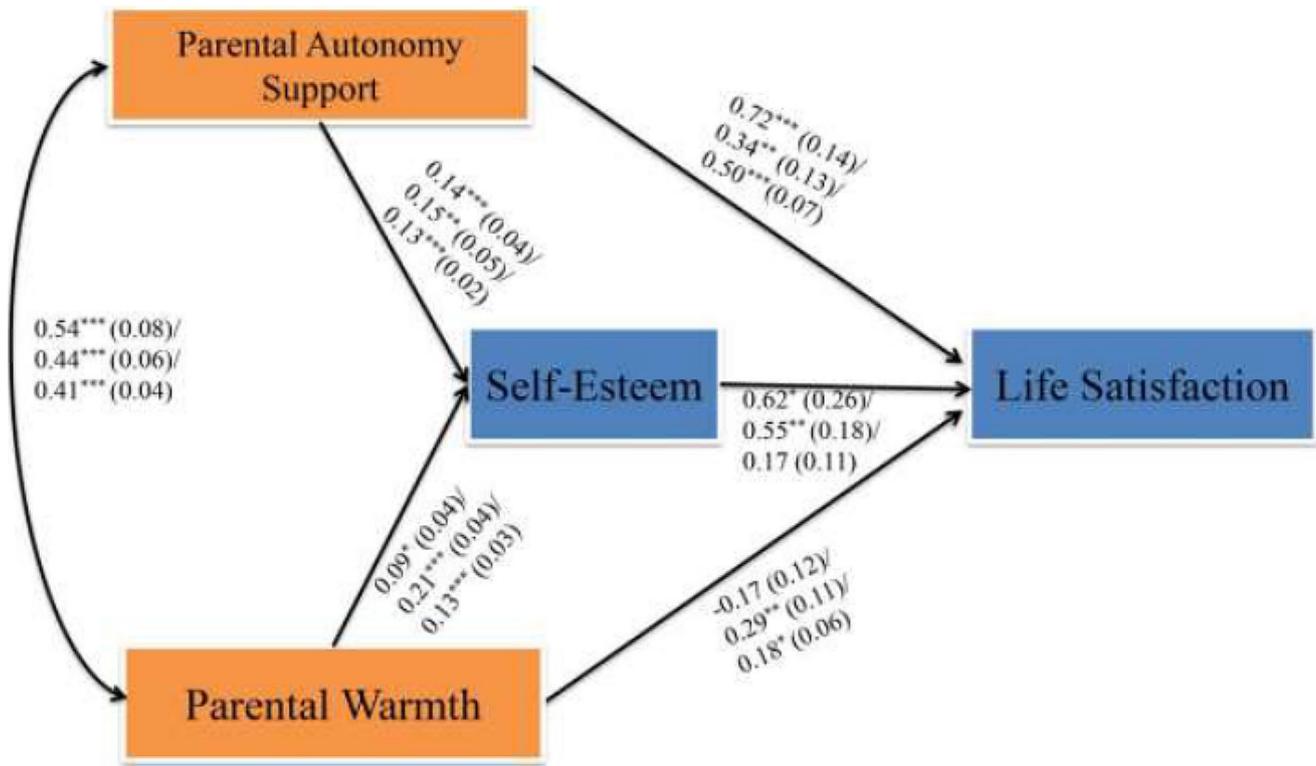
effect models. Paths involving control variables have been omitted for simplicity. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

exceeding 0.01. These results indicate significant variations in the direct and indirect effects among the different groups, thus supporting the third hypothesis of the study.

Figure 3 illustrates the direct and indirect effects across the three groups, with detailed path coefficients provided in Table 5. For direct effects, the positive relationship between autonomy support and life satisfaction was significant across all groups: migrants ( $\beta = 0.72, p < .01$ ), left-behinds ( $\beta = 0.34, p < .05$ ), and non-migrants ( $\beta = 0.50, p < .001$ ), with no significant differences in magnitude. However, the positive link between parental warmth and life satisfaction was significant only for left-behinds ( $\beta = 0.29, p < .05$ ) and non-migrants ( $\beta = 0.18, p < .05$ ), but not for migrants ( $\beta = -0.17, p = .12$ ). Pairwise comparisons indicated this

association was significantly stronger for left-behinds ( $Z = 2.77, p < .01$ ) and non-migrants ( $Z = 2.52, p < .05$ ) compared to migrants. To briefly recap, authoritative parenting was positively related to adolescents' life satisfaction across three groups, except for the association between parental warmth and migrants' life satisfaction.

For the indirect effects of parental autonomy support on life satisfaction via self-esteem, significant findings were observed for migrants ( $\beta = 0.09, p < .05$ ) and left-behinds ( $\beta = 0.08, p < .01$ ). The analysis of the 95% CI indicated that self-esteem partially mediated this positive relationship for both groups. Pairwise comparisons revealed no significant differences between migrants and left-behinds in all three pathways.



**Fig. 3** Path coefficients for migrants, left-behinds, and non-migrants. Note. The sample size is 1002. This figure illustrates the unstandardized path coefficients and standard errors (enclosed in brackets) for the direct and indirect effect models, segmented by three groups: migrants,

left-behinds, and non-migrants. The path coefficients are presented sequentially from top to bottom for each group respectively. Control variables, including age, gender, and family socioeconomic status, are omitted for simplicity. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

**Table 5** Results of the direct and indirect models for migrants, left-behinds, and non-migrants

Path	Sample	Indirect Effect (SE)	Direct Effect (SE)	95% CI for Indirect Effect		
				Lower	Upper	Upper
PAS → SE → LS	Migrants	0.09* (0.05)	0.72** (0.14)	0.01		0.21
	Left-behinds	0.08* (0.03)	0.34** (0.13)	0.01		0.18
	Non-migrants	0.02 (0.02)	0.50*** (0.07)	-0.004		0.06
PW → SE → LS	Migrants	0.06 (0.04)	-0.17 (0.12)	< 0.001		0.16
	Left-behinds	0.11** (0.03)	0.29** (0.11)	0.04		0.22
	Non-migrants	0.02 (0.02)	0.18* (0.06)	-0.005		0.06

$N = 1002$

PAS Parental autonomy support, PW Parental warmth, SE Self-esteem, LS Life satisfaction, Unstandardized path coefficients are presented with standard errors enclosed in brackets

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Furthermore, for the indirect effects of parental warmth on life satisfaction via self-esteem, significant results were found only for left-behinds ( $\beta = 0.11, p < .01$ ). Analysis of the 95% CI confirmed that self-esteem partially mediated this positive relationship in left-behinds. Additionally, pairwise comparisons indicated that the pathway from parental warmth to self-esteem was significantly stronger for left-behinds compared to migrants and non-migrants ( $Z = 2.13, p < .05$ ).

## Discussion

Recent decades have seen numerous studies examining the psychosocial challenges faced by migrant and left-behind adolescents, with less emphasis on positive developmental outcomes. Addressing this gap, our study adopted a positive youth development perspective to investigate the link between authoritative parenting and life satisfaction, considering the mediating role of self-esteem. We also explored differences with regard to those direct and indirect effects

among migrant, left-behind, and non-migrant groups. The findings indicated that self-esteem partially mediated the positive relationship between authoritative parenting and life satisfaction, but this mediation varied depending on specific aspects of authoritative parenting and group membership. Below, we discuss these key findings and their theoretical and practical implications.

The initial aim of our study was to examine the link between two dimensions of authoritative parenting parental autonomy support and warmth and adolescents' life satisfaction. Our findings confirmed this positive relationship, aligning with previous research (Tan et al., 2018). The significant role of parental autonomy support may be attributed to adolescents' growing need for autonomy and independence (McCurdy et al., 2020). Additionally, evolving sociocultural dynamics, marked by a shift towards valuing individualistic traits like initiative-taking and assertiveness, could explain this (Bi et al., 2020). In response, Chinese parents are adapting their approaches, moving from traditional control towards fostering independence, which in turn positively impacts overall life satisfaction. Our study also revealed a positive link between parental warmth and adolescent life satisfaction. Parental warmth, through sensitivity to their children's needs and the provision of time and energy, is key to their emotional security (Ali et al., 2015; Leung et al., 2020). Additionally, in the Chinese cultural context, life satisfaction often stems from harmonious interpersonal relationships and a sense of belonging (Shek, 2007). Parental warmth fosters these feelings, making adolescents feel loved and connected, which in turn enhances their life satisfaction (Zhang et al., 2017).

The second aim of our study was to investigate the mediating role of self-esteem. In line with our second hypothesis and consistent with findings from previous studies (Peng et al., 2021), the results indicated that self-esteem partially mediated the positive associations between authoritative parenting and adolescents' life satisfaction. Authoritative parenting, characterized by autonomy support and warmth, validates an adolescent's sense of self-worth (Pinquart & Gerke, 2019). When parents show warmth, they provide emotional support and acceptance, which makes adolescents feel valued and loved (Khaleque & Rohner, 2002). Similarly, autonomy support, where parents encourage independence and decision-making, reinforces adolescents' feelings of competence and self-efficacy (Lan et al., 2019). These experiences contribute to the development of healthy self-esteem, which is critical to youth due to identity formation and asserting independence during this period of life. This enhanced self-esteem is a key mediator that translates the benefits of authoritative parenting into high life satisfaction in adolescence. Another explanation, according to sociometer theory (Leary & Baumeister, 2000), could be

that self-esteem is an internal gauge of social acceptance. When adolescents perceive that their parents support their autonomy and treat them warmly, they feel more socially accepted and valued (Ma et al., 2022b; Pinquart & Gerke, 2019). This perception boosts their self-esteem, which in turn enhances their overall life satisfaction (Moksnes & Espnes, 2013). This mediating role of self-esteem might be explained by attachment theory, which posits that secure attachments with caregivers form a foundation for healthy psychological development (Bowlby, 2018). Authoritative parenting, characterized by a balanced approach of responsiveness and demandingness, fosters these secure attachments, leading to higher self-esteem in adolescents. This, in turn, may contribute to greater life satisfaction as they feel more secure and valued (Wilkinson, 2004).

The third purpose of this study was to test for the differences of those direct and indirect effects among the three groups. With regard to direct effects, authoritative parenting was positively related to adolescents' life satisfaction across three groups, except for the association between parental warmth and migrants' life satisfaction. First, the positive association between parental autonomy support and adolescents' life satisfaction retained, regardless of group membership. This consistent positive pattern may indicate that autonomy is a basic psychological need and is somewhat universal (Ryan, 2023). When parents provide autonomy support, they are essentially nurturing this fundamental need in adolescents. For migrant and left-behind adolescents, who often face significant life changes and uncertainties, parental autonomy support can provide a sense of stability and confidence (Lan, 2023b). It helps them navigate new environments or cope with the absence of one or both parents by fostering a sense of personal efficacy and resilience. Adolescents, particularly those in migrant or left-behind situations, may experience unique stresses such as adapting to new family dynamics or dealing with separation from parents (Wang & Mesman, 2015). Autonomy support from parents can mitigate these stresses by empowering adolescents to make decisions and solve problems independently, contributing to greater life satisfaction.

However, the positive association between parental warmth and adolescents' life satisfaction was not significant for migrants. One possible explanation for this is that migrant adolescents often face significant adjustment challenges in new environments. These challenges include adapting to different social norms, education systems, and possibly language barriers (Zheng et al., 2023). The stress and focus required for these adaptations might overshadow or dilute the perceived benefits of parental warmth, as immediate practical challenges take precedence over emotional support (Wang & Mesman, 2015). Migrant families may experience shifts in cultural and environmental norms

that can influence family dynamics and the expression of warmth. For instance, parents who are navigating their own adaptation processes might inadvertently alter the way they express warmth to their children, impacting its perceived effectiveness (Lan, 2023a). In many cases, migrant parents work long hours or multiple jobs to support their families. This can lead to less time spent with children, thus reducing the impact of parental warmth (Wang & Mesman, 2015).

Finally, the partial mediating role of self-esteem was confirmed for adolescents with migration experiences, as compared with their peers living with both parents. Specifically, the partial mediating role self-esteem played in the positive association between parental autonomy support and adolescents' life satisfaction was confirmed for migrants and left-behinds. For migrant and left-behind adolescents, who often face unique stresses and challenges, self-esteem may serve as a compensatory mechanism (Ma et al., 2022a). The affirmation and support from parents can bolster their self-esteem, which in turn can positively influence their perception of life satisfaction. This process is particularly crucial for these groups as they navigate complex social and emotional landscapes (Ma et al., 2022a). Migrant and left-behind adolescents, due to their circumstances, might have a heightened need for autonomy support. In situations where traditional family structures are altered (due to migration or parental absence), autonomy support from parents can be especially empowering and affirming. This support helps in building self-esteem, which is a critical factor in determining overall life satisfaction. Self-esteem can act as a buffer against the negative experiences and feelings of isolation or exclusion that migrant and left-behind adolescents might encounter (Ying et al., 2023). When parental autonomy support strengthens self-esteem, it can mitigate the impact of these negative experiences on life satisfaction.

Notably, the partial mediating role of self-esteem was confirmed for the positive association between parental warmth and adolescents' life satisfaction only for left-behinds. Left-behind adolescents, due to the physical absence of one or both parents, may have a heightened need for emotional support (Zhao et al., 2021). Parental warmth, even if delivered remotely or during limited periods of presence, can significantly boost their self-esteem. This increased self-esteem, in turn, contributes to their life satisfaction. In the absence of regular parental presence, expressions of warmth from parents might carry more weight for left-behind adolescents. This warmth, when perceived, can be a significant source of emotional security and self-worth, thereby impacting their overall life satisfaction through the enhancement of self-esteem (Leary & Baumeister, 2000). Despite physical separation, parental warmth can help maintain a strong emotional connection between parents and left-behind adolescents. This connection is crucial for the development of

self-esteem, as it reassures the adolescent of their value and belonging, which is integral to life satisfaction.

## Limitations and implications

The present study, while offering insights into life satisfaction among three groups of adolescents in China, has notable limitations. First, the cross-sectional nature limits causal inference. The potential bidirectional influence between parents and adolescents, as highlighted in studies like Saha et al. (2010), suggests that adolescents' life satisfaction might influence parenting styles. Longitudinal studies are needed to clarify these reciprocal effects. Second, despite the self-reported questionnaires being psychometrically valid, they are subject to common method bias. Future research should incorporate diverse data collection methods to overcome limitations related to mono-method reliance. Third, considering that adolescents' well-being is multifaceted, encompassing affective and cognitive elements, future studies should include affective well-being aspects to deepen the understanding of the link between authoritative parenting and adolescents' well-being. Fourth, this study focuses solely on voluntary migration, excluding other migration types like forced or involuntary migration due to economic, political, or environmental factors. These different migration circumstances can uniquely impact family dynamics and adolescents' life satisfaction. Future research should encompass various migration scenarios to comprehensively understand how different migration contexts affect the relationship between parenting, self-esteem, and life satisfaction in adolescents. Finally, the absence of rural left-behind adolescents in the study limits the ability to compare urban and rural contexts. This comparison is vital as these different settings may uniquely influence the associations under study. Future research should include rural left-behind adolescents to provide a more complete picture of how various environmental contexts impact the study relationships.

Despite those limitations, the present study offers significant contributions to both theoretical understanding and practical applications. From a theoretical standpoint, this study enriches the positive youth development framework in the context of migrant youth, with a specific focus on their positive development outcomes and associated external and internal assets. This study also expands upon sociometer theory by substantiating the mediating role of self-esteem in the intricate relationship between authoritative parenting, traditionally regarded as an overall dimension, and adolescents' life satisfaction. Furthermore, this study's examination of both direct and indirect effects adds depth to Xu et al.'s conceptual framework (2018). It offers a more nuanced understanding of how various migration statuses impact the complex associations between authoritative parenting

and adolescents' life satisfaction. Particularly noteworthy is the identification of self-esteem as a resilience factor in this study, especially pertinent to adolescents with migration experiences. This emphasis highlights the crucial role of self-esteem in assisting adolescents to navigate the challenges and stresses associated with migration.

These insights have practical implications for designing supportive strategies and targeted interventions. First, educators and practitioners can emphasize the importance of autonomy support and warmth in enhancing adolescent life satisfaction, perhaps through workshops and educational programs that involve active parent participation. Also, integrating self-esteem-building activities into school curricula and mental health services for adolescents. These activities should be customized for migrant and left-behind families to effectively address their distinct challenges. For migrant adolescents, parental autonomy support is essential to aid their adjustment to new environments and foster resilience. Targeted programs aimed at migrant families can focus on strengthening parental practices that support autonomy, along with school-based interventions tailored to enhance self-esteem in these adolescents. Conversely, for left-behind adolescents, parental warmth is crucial in promoting emotional security and a sense of belonging due to their separation from parents. Support systems designed to facilitate regular and effective communication between these adolescents and their parents are vital. This can include access to counseling services and the use of communication technologies to maintain strong emotional bonds despite physical distance.

## Conclusion

The present strength-based study found that self-esteem partially mediated the positive association between two dimensions of authoritative parenting and life satisfaction among Chinese adolescents. However, this mediation varied depending on the parenting dimension and migration status: significant for migrant and left-behind adolescents in the context of parental autonomy support, and only for left-behind adolescents regarding parental warmth. The overall findings of your study underscore several key points regarding the relationship between authoritative parenting, self-esteem, and adolescents' life satisfaction, especially noting distinct patterns for migrants and left-behind adolescents.

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**Data availability** The data sets analyzed during the current study are available from the corresponding author on reasonable request.

## Declarations

**Ethics approval and consent to participate** The present study was approved by the research ethics committee of the first author's university and the consent of the participants was obtained.

**Competing interests** The authors declares that there is no conflict of interest.

## References

- Ali, S., Khaleque, A., & Rohner, R. P. (2015). Pancultural gender differences in the relation between perceived parental acceptance and psychological adjustment of children and adult offspring: A meta-analytic review of worldwide research. *Journal of Cross-Cultural Psychology, 46*, 1059–1080. <https://doi.org/10.1177/0022022115597754>
- Baumrind, D. (1971). Current patterns of parental authority. *Developmental Psychology, 4*, 1–103. <https://doi.org/10.1037/h0030372>
- Baumrind, D. (2013). Authoritative parenting revisited: History and current status. In R. E. Larzelere, A. S. Morris, & A. W. Harrist (Eds.), *Authoritative parenting: Synthesizing nurturance and discipline for optimal child development* (pp. 11–34). American Psychological Association. <https://doi.org/10.1037/13948-002>
- Behnke, A. O., Plunkett, S. W., Sands, T., & Bámaca-Colbert, M. Y. (2011). The relationship between latino adolescents' perceptions of discrimination, neighborhood risk, and parenting on self-esteem and depressive symptoms. *Journal of Cross-Cultural Psychology, 42*, 1179–1197. <https://doi.org/10.1177/0022022110383424>
- Bi, X., Zhang, L., Yang, Y., & Zhang, W. (2020). Parenting practices, family obligation, and adolescents' academic adjustment: Cohort differences with social change in China. *Journal of Research on Adolescence, 30*, 721–734. <https://doi.org/10.1111/jora.12555>
- Bowlby, R. (2018). Fifty years of attachment theory. *Fifty years of attachment theory* (pp. 11–26). Routledge.
- Boyce, W., Torsheim, T., Currie, C., & Zambon, A. (2006). The family affluence scale as a measure of national wealth: Validation of an adolescent self-report measure. *Social Indicators Research, 78*, 473–487. <https://doi.org/10.1007/s11205-005-1607-6>
- Bronfenbrenner, U., & Morris, P. A. (2006). The bioecological model of human development. In W. Damon, & R. M. Lerner (Vol (Eds.), Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (6th ed., pp. 793–828). Wiley. (Series Ed.).
- Bülow, A., Neubauer, A. B., Soenens, B., Boele, S., Denissen, J. J., & Keijsers, L. (2022). Universal ingredients to parenting teens: Parental warmth and autonomy support promote adolescent well-being in most families. *Scientific Reports, 12*, 16836. <https://doi.org/10.1038/s41598-022-21071-0>
- Chao, R. (1994). Beyond parental control and authoritarian parenting style: Understanding Chinese parenting through the cultural notion of training. *Child Development, 65*, 1111–1119. <https://doi.org/10.1111/j.1467-8624.1994.tb00806.x>
- Chao, R. K., & Tseng, V. (2002). Asian and American parenting. In M. Bornstein (Ed.), *Handbook of parenting* (2nd ed., pp. 59–94). Earlbaum.
- Daly, M. (2022). Cross-national and longitudinal evidence for a rapid decline in life satisfaction in adolescence. *Journal of Adolescence, 94*, 422–434. <https://doi.org/10.1002/jad.12037>
- Deater-Deckard, K., Lansford, J. E., Malone, P. S., Alampay, L. P., Sorbring, E., Bacchini, D., Bombi, A. S., Bornstein, M. H., Chang, L., Di Giunta, L., Dodge, K. A., Oburu, P., Pastorelli, C., Skinner, A. T., Tapanya, S., Tirado, L. M. U., Zelli, A., & Al-Hassan, S. M. (2011). The association between parental warmth and control

- in thirteen cultural groups. *Journal of Family Psychology*, 25, 790–794. <https://doi.org/10.1037/a0025120>
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, 49, 71–75. [https://doi.org/10.1207/s15327752jpa4901\\_13](https://doi.org/10.1207/s15327752jpa4901_13)
- Diener, E., Lucas, R. E., & Oishi, S. (2002). Subjective well-being: The science of happiness and life satisfaction. *Handbook of Positive Psychology*, 2, 63–73.
- Dong, W., Li, S., & Wang, X. (2023). Parental phubbing and Chinese adolescents' SNSs addiction: Loneliness as a mediator and self-esteem as a moderator. *Current Psychology*, 42, 16560–16572. <https://doi.org/10.1007/s12144-022-04066-y>
- Gao, Y., Zhang, W., & Fung, A. L. C. (2015). The associations between parenting styles and proactive and reactive aggression in Hong Kong children and adolescents. *International Journal of Psychology*, 50, 463–471. <https://doi.org/10.1002/ijop.12104>
- Grolnick, W. S., & Lerner, R. E. (2023). How parental autonomy support, structure, and involvement help children flourish: Considering interactions, context, and diversity. In R. M. Ryan (Ed.), *The Oxford Handbook of Self-Determination Theory* (online ed., pp. 491–C24P107). Oxford Academic. <https://doi.org/10.1093/oxfordhb/9780197600047.013.26>
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6, 1–55. <https://doi.org/10.1080/10705519909540118>
- Hu, Y., Hu, J., & Zhu, Y. (2022). The impact of perceived discrimination on mental health among Chinese migrant and left-behind children: A meta-analysis. *Applied Research in Quality of Life*, 17, 2525–2541. <https://doi.org/10.1007/s11482-021-09988-6>
- International Organization for Migration (2022). *World Migration Report 2022*. Retrieved from <https://publications.iom.int/books/world-migration-report-2022>
- Jia, Z., & Tian, W. (2010). Loneliness of left-behind children: A cross-sectional survey in a sample of rural China. *Child: Care Health & Development*, 36, 812–817. <https://doi.org/10.1111/j.1365-2214.2010.1110.x>
- Jiang, Y., Ming, H., Tian, Y., Huang, S., Sun, L., Li, H., & Zhang, H. (2020). Cumulative risk and subjective well being among rural to urban migrant adolescents in China: Differential moderating roles of stress mindset and resilience. *Journal of Happiness Studies*, 21, 2429–2449. <https://doi.org/10.1007/s10902-019-00187-7>
- Khaleque, A. (2013). Perceived parental warmth, and children's psychological adjustment, and personality dispositions: A meta-analysis. *Journal of Child and Family Studies*, 22, 297–306. <https://doi.org/10.1007/s10826-012-9579-z>
- Khaleque, A., & Rohner, R. P. (2002). Perceived parental acceptance-rejection and psychological adjustment: A meta-analysis of cross-cultural and intracultural studies. *Journal of Marriage and Family*, 64, 54–64. <https://doi.org/10.1111/j.1741-3737.2002.00054.x>
- Kong, F., Zhao, J., & You, X. (2013). Self-esteem as mediator and moderator of the relationship between social support and subjective well-being among Chinese university students. *Social Indicators Research*, 112, 151–161. <https://doi.org/10.1007/s11205-012-0044-6>
- Lan, X. (2022). Perceived parental warmth, emotional awareness, and positive adjustment profiles in Chinese and Italian early adolescents: A person-centered approach. *Journal of Adolescence*, 94(2), 206–223. <https://doi.org/10.1002/jad.12018>
- Lan, X. (2023a). Perceived parenting styles, cognitive flexibility, and prosocial behavior in Chinese Youth with an immigrant background: A three-group comparison. *Current Psychology*, 42, 20718–20736. <https://doi.org/10.1007/s12144-022-03140-9>
- Lan, X. (2023b). Parents are gone: Understanding the unique and interactive impacts of affective and cognitive empathy on left-behind youth's academic engagement. *Current Psychology*, 42, 28674–28688. <https://doi.org/10.1007/s12144-022-03952-9>
- Lan, X., & Moscardino, U. (2019). Direct and interactive effects of perceived teacher-student relationship and grit on student well-being among stay-behind early adolescents in urban China. *Learning and Individual Differences*, 69, 129–137. <https://doi.org/10.1016/j.lindif.2018.12.003>
- Lan, X., & Radin, R. (2020). Direct and interactive effects of peer attachment and grit on mitigating problem behaviors among urban leftbehind adolescents. *Journal of Child and Family Studies*, 29, 250–260. <https://doi.org/10.1007/s10826-019-01580-9>
- Lan, X., Marci, T., & Moscardino, U. (2019). Parental autonomy support, grit, and psychological adjustment in Chinese adolescents from divorced families. *Journal of Family Psychology*, 33, 511–520. <https://doi.org/10.1037/fam0000514>
- Lan, X., Ma, C., & Ma, Y. (2021). A person-centered investigation of adolescent psychosocial and academic adjustment: The role of peer attachment and zhong-yong thinking. *Child Indicators Research*, 14, 1479–1500. <https://doi.org/10.1007/s12187-021-09807-2>
- Leary, M. R., & Baumeister, R. F. (2000). The nature and function of self-esteem: Sociometer theory. *Advances in Experimental Social Psychology*, 32, 1–62. [https://doi.org/10.1016/S0065-2601\(00\)80003-9](https://doi.org/10.1016/S0065-2601(00)80003-9)
- Lerner, R. M., Lerner, J. V., Bowers, E. P., & Lewin-Bizan, S. (2012). Thriving among immigrant youth: Theoretical and empirical bases of positive development. In A. S. Masten, K. Liebkind, & D. Hernandez (Eds.), *Realizing the potential of immigrant youth* (pp. 307–323). Cambridge: Cambridge University Press.
- Leung Ling, M. T. W., Chen, H. F., & Chiu, K. C. N. (2020). Parental warmth and involvement and the self-esteem of Young people in Hong Kong. *Child Indicators Research*, 13, 801–817. <https://doi.org/10.1007/s12187-019-09645-3>
- Liu, L., & Wang, M. (2015). Parenting stress and children's problem behavior in China: The mediating role of parental psychological aggression. *Journal of Family Psychology*, 29, 20–28. <https://doi.org/10.1037/fam00>
- Liu, W., Mei, J., Tian, L., & Huebner, E. S. (2016). Age and gender differences in the relation between school related social support and subjective well-being in school among students. *Social Indicators Research*, 125, 1065–1083. <https://doi.org/10.1007/s11205-015-0873-1>
- Lönnqvist, J. E., Leikas, S., Mähönen, T. A., & Jasinskaja-Lahti, I. (2015). The mixed blessings of migration: Life satisfaction and self-esteem over the course of migration. *European Journal of Social Psychology*, 45, 496–514. <https://doi.org/10.1002/ejsp.2105>
- Lu, S. (2020). Family migration and youth psychosocial development: An ecological perspective. *Children and Youth Services Review*, 113, 104953. <https://doi.org/10.1016/j.childyouth.2020.104953>
- Ma, C., Mastrotheodoros, S., & Lan, X. (2022a). Linking classroom autonomy support with prosocial behavior in Chinese left-behind adolescents: The moderating role of self-esteem and grit. *Personality and Individual Differences*, 195, 111679. <https://doi.org/10.1016/j.paid.2022.111679>
- Ma, C., Ma, Y., & Wang, Y. (2022b). Parental autonomy support and mental health among Chinese adolescents and emerging adults: The mediating role of self-esteem. *International Journal of Environmental Research and Public Health*, 19, 14029. <https://doi.org/10.3390/ijerph192114029>
- Ma, Y., Ma, C., & Lan, X. (2022c). Openness to experience moderates the association of warmth profiles and subjective well-being in left-behind and non-left-behind youth. *International Journal of Environmental Research and Public Health*, 19, 4103. <https://doi.org/10.3390/ijerph19074103>

- Ma, Y., Ma, C., & Lan, X. (2023). A person-centered analysis of emotional-behavioral functioning profiles in adolescents: Associations with teacher autonomy support and growth mindset. *Current Psychology*, *42*, 20591–20605. <https://doi.org/10.1007/s12144-022-03163-2>
- Maccoby, E. E., & Martin, J. A. (1983). Socialization in the context of the family: Parent–child interaction. In M. P. Mussen (Series Ed.) and E. M. Hetherington (Vol. Ed.), *Handbook of child psychology: Socialization, personality, and social development* (4th edn, pp. 1–101). Wiley.
- Mageau, G. A., Ranger, F., Joussemet, M., Koestner, R., Moreau, E., & Forest, J. (2015). Validation of the perceived parental autonomy support scale (P-PASS). *Canadian Journal of Behavioural Science / Revue canadienne des Sciences du Comportement*, *47*, 251–262. <https://doi.org/10.1037/a0039325>
- Malti, T., & Cheah, C. S. (2021). Specificity and commonality: Socio-cultural Generalizability in Social-Emotional Development. *Child Development*, *92*, e1085–e1094. <https://doi.org/10.1111/cdev.13690>
- McCurdy, A. L., Williams, K. N., Lee, G. Y., Benito-Gomez, M., & Fletcher, A. C. (2020). Measurement of parental autonomy support: A review of theoretical concerns and developmental considerations. *Journal of Family Theory & Review*, *12*, 382–397. <https://doi.org/10.1111/jftr.12389>
- Moksnes, U. K., & Espnes, G. A. (2013). Self-esteem and life satisfaction in adolescents—gender and age as potential moderators. *Quality of Life Research*, *22*, 2921–2928. <https://doi.org/10.1007/s11136-013-0427-4>
- Motti-Stefanidi, F. (2023). Immigrant youth resilience in the context of challenging receiving societies. In L. J. Crockett, G. Carlo, & J. E. Schulenberg (Eds.), *APA handbook of adolescent and young adult development* (pp. 407–423). American Psychological Association. <https://doi.org/10.1037/0000298-025>
- Ng, Z. J., Huebner, S. E., & Hills, K. J. (2015). Life satisfaction and academic performance in early adolescents: Evidence for reciprocal association. *Journal of School Psychology*, *53*, 479–491. <https://doi.org/10.1016/j.jsp.2015.09.004>
- Orth, U., & Robins, R. W. (2014). The development of self-esteem. *Current Directions in Psychological Science*, *23*, 381–387. <https://doi.org/10.1177/0963721414547414>
- Peng, B., Hu, N., Hu, H., Xiao, H., & Luo, J. (2021). Parenting style and adolescent Mental Health: The Chain Mediating effects of Self-Esteem and Psychological Inflexibility. *Frontiers in Psychology*, *12*, 738170. <https://doi.org/10.3389/fpsyg.2021.738170>
- Pinquart, M., & Gerke, D. C. (2019). Associations of parenting styles with self-esteem in children and adolescents: A meta-analysis. *Journal of Child and Family Studies*, *28*, 2017–2035. <https://doi.org/10.1007/s10826-019-01417-5>
- Proctor, C. L., Linley, P. A., & Maltby, J. (2009). Youth life satisfaction: A review of the literature. *Journal of Happiness Studies*, *10*, 583–630. <https://doi.org/10.1007/s10902-008-9110-9>
- Rohner, R. P. (1986). *The warmth dimension: Foundations of parental acceptance-rejection theory*. Sage Publications, Inc.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton University Press.
- Ryan, R. M. (Ed.). (2023). *The Oxford handbook of self-determination theory*. Oxford University Press.
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Publishing.
- Saha, R., Huebner, E. S., Suldo, S. M., & Valois, R. F. (2010). A longitudinal study of adolescent life satisfaction and parenting. *Child Indicators Research*, *3*, 149–165. <https://doi.org/10.1007/s12187-009-9050-x>
- Shek, D. (2007). Perceived parental control based on indigenous Chinese parental control concepts in adolescents in Hong Kong. *American Journal of Family Therapy*, *35*, 123–137. <https://doi.org/10.1080/01926180600553480>
- Shu, B. (2020). Parental Migration, parental emotional support, and adolescent children's life satisfaction in Rural China: The roles of parent and child gender. *Journal of Family Issues*, 1–43. <https://doi.org/10.1177/0192513X20946345>
- Shuang, M., Yiqing, W., Ling, J., Guanzhen, O., Jing, G., Zhiyong, Q., & Xiaohua, W. (2022). Relationship between parent–child attachment and depression among migrant children and left-behind children in China. *Public Health*, *204*, 1–8. <https://doi.org/10.1016/j.puhe.2021.12.015>
- Soenens, B., Vansteenkiste, M., Lens, W., Luyckx, K., Goossens, L., Beyers, W., & Ryan, R. M. (2007). Conceptualizing parental autonomy support: Adolescent perceptions of promotion of independence versus promotion of volitional functioning. *Developmental Psychology*, *43*, 633–646. <https://doi.org/10.1037/0012-1649.43.3.633>
- Sowislo, J. F., & Orth, U. (2013). Does low self-esteem predict depression and anxiety? A meta-analysis of longitudinal studies. *Psychological Bulletin*, *139*, 213–240. <https://doi.org/10.1037/a0028931>
- Steiger, A. E., Allemand, M., Robins, R. W., & Fend, H. A. (2014). Low and decreasing self-esteem during adolescence predict adult depression two decades later. *Journal of Personality and Social Psychology*, *106*, 325–338. <https://doi.org/10.1037/a0035133>
- Su, S., & Lin, D. (2012). Psychological adjustment among left-behind children in rural China: The role of parental migration and parent-child communication. *Child Care Health and Development*. <https://doi.org/10.1111/j.1365-2214.2012.01400.x>
- Tan, S. A., Nainee, S., & Tan, C. S. (2018). The mediating role of reciprocal filial piety in the relationship between parental autonomy support and life satisfaction among adolescents in Malaysia. *Current Psychology*, *40*, 804–812. <https://doi.org/10.1007/s12144-018-0004-7>
- Wang, L., & Mesman, J. (2015). Child Development in the face of rural-to-urban migration in China: A meta-analytic review. *Perspectives on Psychological Science*, *10*, 813–831. <https://doi.org/10.1177/1745691615600145>
- Wang, Q., Pomerantz, E. M., & Chen, H. (2007). The role of parents' control in early adolescents' psychological functioning: A longitudinal investigation in the United States and China. *Child Development*, *78*, 1592–1610. <https://doi.org/10.1111/j.1467-8624.2007.01085.x>
- Wang, D., Xie, R., Ding, W., Li, X., & Li, W. (2022). The reciprocal relationship between perceived interparental conflict and internalizing and externalizing problem behaviors among left-behind children in China. *Current Psychology*, 1–10. <https://doi.org/10.1007/s12144-022-02761-4>
- Wang, D., Chen, H., Chen, J., Ye, H., Chen, X., Ye, L., & Fan, F. (2023). A comparative study of mental health status among left-behind, migrant, and local adolescents in China. *Journal of Affective Disorders*, *324*, 521–528. <https://doi.org/10.1016/j.jad.2022.12.134>
- Wen, M., & Lin, D. (2012). Child Development in Rural China: Children left behind by their migrant parents and Children of Non-migrant Families. *Child Development*, *83*, 120–136. <https://doi.org/10.1111/j.1467-8624.2011.01698.x>
- Wilkinson, R. B. (2004). The role of parental and peer attachment in the psychological health and self-esteem of adolescents. *Journal of Youth and Adolescence*, *33*, 479–493. <https://doi.org/10.1023/B:JOYO.0000048063.59425.20>
- Xu, D., Wu, X., Zhang, Z., & Dronkers, J. (2018). Not a zero-sum game: Migration and child well-being in contemporary China. *Demographic Research*, *38*, 691–726. <https://doi.org/10.4054/DemRes.2018.38.26>
- Yan, W., Yang, K., Wang, Q., You, X., & Kong, F. (2021). Subjective family socioeconomic status and life satisfaction in Chinese adolescents: The mediating role of self-esteem and social support.

- Youth & Society*, 53, 1047–1065. <https://doi.org/10.1177/0044118X20941344>
- Yeh, K. H., & Bedford, O. (2003). A test of the dual filial piety model. *Asian Journal of Social Psychology*, 6, 215–228. <https://doi.org/10.1046/j.1467-839X.2003.00122.x>
- Ying, L., Shuang, Z., & Jia, X. (2023). Peer attachment and self-esteem mediate the relationship between family function and social anxiety in migrant children in China. *Child: Care Health and Development*, 49, 563–571. <https://doi.org/10.1111/cch.13072>
- Zhang, W., Wei, X., Ji, L., Chen, L., & Deater-Deckard, K. (2017). Reconsidering parenting in Chinese culture: Subtypes, stability, and change of maternal parenting style during early adolescence. *Journal of Youth and Adolescence*, 46, 1117–1136. <https://doi.org/10.1007/s10964-017-0664-x>
- Zhang, J., Yan, L., Qiu, H., & Dai, B. (2018). Social adaptation of Chinese left-behind children: Systematic review and meta-analysis. *Children and Youth Services Review*, 95, 308–315. <https://doi.org/10.1016/j.childyouth.2018.11.012>
- Zhang, J., Yan, L., & Yuan, Y. (2019). Rural-urban migration and mental health of Chinese migrant children: Systematic review and meta-analysis. *Journal of Affective Disorders*, 257, 684–690. <https://doi.org/10.1016/j.jad.2019.07.069>
- Zhao, J., Sun, X., & Wang, Q. (2021). Emotional neglect and depressive symptoms of left-behind adolescents: The role of friendship quality and gender. *Journal of Affective Disorders*, 295, 377–383. <https://doi.org/10.1016/j.jad.2021.08.073>
- Zheng, X., Zhang, Y., & Jiang, W. (2023). Migrating with parents or left-behind: Associations of internal migration with cognitive and noncognitive outcomes among Chinese children. *Current Psychology*, 42, 19208–19229. <https://doi.org/10.1007/s12144-022-03095-x>
- Zhou, Z., Qu, Y., & Li, X. (2022). Parental collectivism goals and Chinese adolescents' prosocial behaviors: The mediating role of authoritative parenting. *Journal of Youth and Adolescence*, 51, 766–779. <https://doi.org/10.1007/s10964-022-01579-4>

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