Left-behind youth are not always bad! Relations between teacher autonomy support, narcissism, and prosocial behavior

Xiaoyu Lan[1] ✆

© The Author(s) 2022

Abstract
Prior research has widely demonstrated that children who remain in their original communities after one or both biological parents migrated (i.e., left-behind children) confront salient emotional and behavioral difficulties; however, an insufficient amount of research has been devoted to understanding their prosocial behavior. The current study extended prior research by comparing the prosocial behavior between left-behind children and their non-left-behind peers. Subsequently, this study examined the individual variations (i.e., narcissism and left-behind status) of the correlation between teacher autonomy support and prosocial behavior in a combined sample of left-behind and non-left-behind children. 738 youth ($N_{\text{left-behind}} = 246$, $Mean_{\text{age}} = 15.77$, 53.6% girls; $N_{\text{non-left-behind}} = 492$, $Mean_{\text{age}} = 15.91$, 55.1% girls) participated in the present research and completed a packet of well-established questionnaires. The results, after adjusting for sociodemographic characteristics, showed that the prosocial behavior of left-behind children did not significantly differ from that of non-left-behind children. Furthermore, the results based on linear regression analysis exhibited teacher autonomy support was positively related to prosocial behavior, and high narcissism buffered against the adverse effect of low teacher autonomy support on left-behind children's prosocial behavior. The current study indicates that creating an autonomy-supportive atmosphere at school and facilitating left-behind children's narcissism are paramount to promoting their prosocial tendencies.

Keywords Prosocial behavior · Teacher autonomy support · Narcissism · Parental migration

Prosocial behavior is defined as voluntary acts that are intended to benefit others, such as caring for, helping, comforting, and cooperating (Batson, 1998; Eisenberg et al., 2006). Previous research has demonstrated that prosocial behavior, as socially adjusted and adaptive behavior, has been associated with a few positive psychological and social functions in adolescence, such as greater well-being and social competence (e.g., Memmott-Elison et al., 2020; Wentzel, 2014). Indeed, prosocial behavior becomes increasingly essential for youth as their social world expands, and behaving prosocially is a hallmark of their socioemotional competence (Padilla-Walker & Carlo, 2014; Yu et al., 2018). Therefore, greater research is needed to examine the situational and personal correlates of prosocial behavior to provide vital insights into designing targeted intervention or prevention programs aimed at facilitating prosocial behavior.

Among possible correlates of prosocial behavior, accumulating evidence has shown that parental migration has a detrimental effect on youth's broad social functions, including prosocial behavior (Konrad-Ristau & Burghardt, 2021; Lan & Wang, 2020). This is because children whose parents migrated are short of opportunities to learn a set of social skills and to experience the reciprocal nature of social interactions with their parents. Moreover, children are less psychologically confident in exploring social networks and behave prosocially due to parental absence (Rubin et al., 2004; Seibert & Kerns, 2015). This vulnerability has become particularly striking, as global labor migration has significantly increased. Of the massive population migrations globally, the current study selected China, a representative developing country with an enormous volume of internal labor migration, as the study context.

In the last several decades, spectacular economic growth in China has provided greater freedom and extraordinary opportunities for individuals to select suitable and

✉ Xiaoyu Lan
  xiaoyu.lan@psykologi.uio.no

1 Promenta Research Center, Department of Psychology, University of Oslo, Oslo, Norway

satisfactory jobs, allowing them to experience different work climates and styles (Lan et al., 2020; Lu et al., 2021; Zhu & Qian, 2021). Meanwhile, consumption and investment potential have triggered an unprecedented amount of internal labor migration, which contributes critically to maintaining the long-term economic growth of cities (Su et al., 2018; Zhao et al., 2018). Nevertheless, this dramatic economic growth has been paralleled by emerging health concerns for those children left in their original communities (Wang & Xie, 2020; Zhao et al., 2020). This left-behind phenomenon occurs because many migrated parents cannot bring their children into the host cities due to strict household registration barriers across different regions in China and high living costs in the metropolis. Those costs contradict parents' motivation to earn more money and improve their living conditions, resulting in many left-behind children (LBC) who remain in their original communities after one or both biological parents migrate to work (Lan & Wang, 2020; Wang & Mesman 2015). In this context, LBC are usually cared for by surrogate caregivers—such as grandparents or close relatives (e.g., uncles, aunts, elder siblings)—or sent to live in a boarding school (Chen et al., 2019; Zhao et al., 2019). A myriad of empirical studies have illustrated the psychosocial adversities of LBC (Gao et al., 2022; Wang & Liu, 2022; Wang et al., 2022). Surprisingly, limited research attention has been paid to studying their prosocial behavior. As children emancipate from their parents, interactions with unknown members or peers may potentially increase, which is particularly important for school-aged youth who regularly engage in peer interactions. An evidence-based investigation on correlates of prosocial behavior would glue LBC and non-LBC together, and facilitate social cohesion in diverse societies (Baldassarri & Abascal, 2020).

I employed a socioecological framework to identify situational and personal correlates of prosocial behavior (Bronfenbrenner & Morris, 2006). The socioecological framework posits that factors across different situational and personal layers directly and interactively shape the uniqueness of human development. Given that prosocial behavior exhibits considerable individual differences (Knafo-Noam et al., 2018), I sought to leverage this framework to identify the situational and personal elements that could be effective in developing a sophisticated intervention or prevention program aimed at fostering LBC's prosocial behavior. Specifically, in this study, I focused on teacher autonomy support (situational level) and narcissism (personal level).

Teacher autonomy support

Teacher autonomy support (TAS) reflects interpersonal styles in which teachers take students' perspectives into account, present rationales for demands, acknowledge students' feelings, and provide opportunities for choice (Deci & Ryan, 2011). Cultural values concerning autonomy are traditionally considered part of individualism (Oyserman et al., 2002). In line with this, some scholars have proposed that the positive effect of autonomy support on an individual's growth may not be pronounced in collectivistic societies emphasizing compliance and respect for authority (Chen & French, 2008; Seong et al., 2022). Notwithstanding, under the market-oriented economic reform, China has experienced accelerated economic growth, and sociocultural values are quickly evolving. For instance, research has noted that Chinese culture has become more individualistic in nature with socioeconomic pressure (Parker et al., 2009). Under these circumstances, facilitating initiative-taking and autonomy in social interactions is increasingly valued by significant figures such as teachers in modern Chinese society, as those capacities can enhance youths' potential competitiveness (Chen et al., 2000). From this perspective, it is important to conduct an updated examination of the association of TAS with prosocial behavior in Chinese youth.

According to the self-determination theory (Deci & Ryan, 2011; Ryan & Deci, 2020), individuals are inherently active, and motivational resources such as self-determination and autonomy can facilitate optimal adolescent functioning in various life domains. In the youth social sphere, teachers are considered significant figures, contributing to their adaptive psychosocial functions (Pianta, 1999; Peng et al., 2020). The beneficial role of TAS in Chinese youths' optimal psychosocial functioning has also been acknowledged in recent empirical studies (e.g., Feng & Lan, 2020; Lan & Mastrotheodoros, 2022; Nalipay et al., 2020). Due to these theoretical and empirical findings, I expected that TAS would be positively correlated with prosocial behavior in Chinese youth.

Furthermore, in line with the socioecological framework (Bronfenbrenner & Morris, 2006), I examined whether the correlation between TAS and prosocial behavior would vary depending on individuals' personality traits, such as narcissism.

Narcissism

Narcissism, as one of the dark triad of personalities, is characterized by feelings of grandiosity, dominance, superiority, and entitlement (Book et al., 2015; Paulhus & Williams, 2002). Youth with narcissism try to regulate their behavior to gain positive feedback from their social contexts, which, in turn, maintains their positive self-view and enhances their self-worth (Grijalva & Zhang, 2016; Zhou et al., 2012). According to prior research (Konrath et al., 2016), youth who score high in narcissism tend to frequently engage in prosocial behavior.

In addition to this direct effect, narcissism may moderate the correlation between TAS and prosocial behavior. From a theoretical point of view, the self-regulatory processing model posits that individuals are more likely to use different self-regulatory strategies, depending on distinctive contexts, to attain desired states and social positions (Morf & Rhodewalt, 2001; Ouyang et al., 2020). Given this, youth with different levels of narcissism may exhibit distinctive levels of prosocial behavior, depending on the relationships they have established with their teachers. From an empirical perspective, past research has shown that youth with greater narcissism often have a heightened self-view and tend to focus on self-related information; thus, they may attach more importance to independence and autonomy (Bang et al., 2019; Beattie et al., 2017). In this context, youth with high narcissism may thrive with high TAS and subsequently report high prosocial tendencies.

Despite these plausible theoretical and empirical justifications, the moderating role of narcissism in the association under investigation is inadequately understood. This knowledge gap is highly conspicuous for LBC, as they usually exhibit low self-worth and self-evaluations due to migration-related stressors (Ma et al., 2022a, 2022b, 2022c; Tang et al., 2018). In this regard, great narcissism may compensate for these vulnerabilities and facilitate them to regulate their self-esteem and behaviors positively. Highly relevant to this assumption, Lyons et al. (2019) found that great narcissism buffered against the negative impact of stressful life events on psychosis and depression. The authors explained that narcissism was related to increased mental toughness and reduced emotional reactivity to stress, which could act as a buffer between cumulative life stress and mental distress. Therefore, I assumed that the moderating role of narcissism in the associations under investigation would be varied depending on their left-behind status. It is possible that the moderating role of narcissism in the association might be heightened for LBC, as they are potentially vulnerable due to parental absence.

The present study

The present study aimed to compare the prosocial behavior between LBC and non-LBC. Furthermore, this study investigated the association of TAS with prosocial behavior in a sample of Chinese LBC and non-LBC, and subsequently, assessed the common or specific features of this correlation by examining the moderating role of narcissism and left-behind status therein. Capitalizing on the socioecological framework (Bronfenbrenner & Morris, 2006) and empirical studies reviewed above, I generated the following hypotheses:

Hypothesis 1: LBC would report lower levels of prosocial behavior than non-LBC.

Hypothesis 2: TAS would be positively related to prosocial behavior in a combined sample of LBC and non-LBC (**2a; main effect**); high narcissism might augment the positive correlation of TAS with prosocial behavior (**2b; two-way interaction**), and this moderating role might be more pronounced for LBC than non-LBC (**2c; three-way interaction**).

Methods

Participants and procedures

Before the present investigation, all study materials were ethically reviewed by the relevant school authorities, and informed consent was received from all participants and their parents or guardians. The author with the help of research assistants contacted public schools mixed with LBC and non-LBC in mainland China. The survey was initially administered to more than 2000 participants during school hours, as a larger research project aimed at facilitating students' mental health. Each youth was de-identified by a unique ID, ensuring that the participation was anonymous and confidential. At the same time, youth were informed that they could withdraw from the current study anytime they wanted, and that the data obtained from them can be eliminated from the final data set during all research processes. Additionally, youth were instructed that this investigation was not a test, so that their responses would not be distinguished by "right" or "wrong". I used this instruction to potentially decrease the effect of social desirability on research findings. Overall, youth took a regular public class hour to complete this package of questionnaires, and returned immediately to trained research assistants or head teachers in each classroom.

After data collection, 246 children were identified as LBC (M_{age} = 15.77; 53.6% girls). Of these participants, 167 (67.9%) became LBC due to father-only migration, 57 (23.2%) due to both-parent migration, and 22 (8.9%) due to mother-only migration. In accordance with prior research (Chen et al., 2019; Lu et al., 2019; Xu et al., 2019), father-only migration represents a typical migration situation in China, whereas mother-only migration is less common and represents only a small proportion of total migration.[1] Of

---

[1] This imbalance existed in the number of LBC per migration status partially stems from China being a patriarchal society; although sociocultural features are swiftly evolving, the traditional gender labor division form still emphasizes an adult man's capacity to achieve career success and establish a family (Guo, 2021). Consequently, adult men have commonly migrated from their original communities to work diligently in economically flourishing regions.

the primary non-parent caregivers for LBC, 87.4% were grandparents, 11.8% were relatives (e.g., uncles, aunts, or elder siblings), and 0.8% were others (e.g., teachers). The mean length of parental migration was 5.6 years ($SD = 2.34$), and the mean child age when parents initially migrated was 8.78 years ($SD = 3.83$).[2] These characteristics resemble prior research on LBC (Chen et al., 2019), indicating that the current sample was at least somewhat representative of the LBC population in China.

A post hoc propensity score matching analysis was further conducted, based on similar socio-demographic features, to derive a comparison group from the original data pool. In concert with previous research on LBC (e.g., Lan and Radin, 2020; Ma et al., 2022a, 2022b, 2022c; Sun et al., 2015), a one-to-two sampling ratio was adopted. This sampling ratio was also in consideration of statistical power to obtain meaningful findings. Given these considerations, 492 non-LBC ($Mean_{age} = 15.91$; 55.1% girls) were randomly derived and included in the current study.

Measures

Prosocial behavior

Youths' prosocial behavior was assessed by the 21-item Prosocial Behavior Scale designed by Zhang and Kou (2012) for Chinese students. The scale demonstrated good psychometric properties in Chinese children, comprising four latent dimensions: altruism (5 items), commonweal rule (6 items), interpersonal relationship (5 items), and personal trait (5 items). One sample item is, "I am glad to donate money and materials to a disaster area (altruism)." Youth rated each item on a seven-point scale ranging from 1 (*strongly disagree)* to 7 (*strongly agree*). The mean score of all items was taken with higher scores indicating greater prosocial behavior (Zhang & Kou, 2012). Cronbach's alpha was 0.93 for both LBC and non-LBC in the present study.

Teacher autonomy support

Youths' TAS was measured with the Chinese version of the 9-item Learning Climate Questionnaire, which was originally developed by Black and Deci (2000). One sample item is, "my teachers listen to how I would like to do things." All items were rated on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). I calculated the mean score

of these items, with higher scores indicating a higher level of TAS (Ma et al., 2020). Cronbach's alpha was 0.91 and 0.92 for LBC and non-LBC in the current study.

Narcissism

Youths' narcissism was measured with the Chinese version of the 9-item Short Dark Triad (Zhang et al., 2019), which was initially developed by Jones and Paulhus (2014). One sample item is, "I insist on getting the respect I deserve." All items were rated on a 5-point scale ranging from 1 (*completely disagree*) to 5 (*completely agree*). The mean scores of all items were taken with higher scores representing great narcissism (Lan, 2021). Cronbach's alpha was 0.67 and 0.74 for LBC and non-LBC in the present research.

Covariates

Previous research has suggested that youth's prosocial behavior is related to age, gender, and family socioeconomic status (e.g., Wu et al., 2020; Yu et al., 2020). Thus, these sociodemographic variables were statistically controlled for in the current study. More specifically, family socioeconomic status (SES) was measured with a few items related to the education, occupation, and income of the mothers and the fathers. The final composite scores of these items were taken with higher values indicating higher family SES (Lan, 2020).

Analytical plan

All the statistical analyses were conducted with SPSS 28.0 (IBM Corp., 2021) and Mplus 8.3 (Muthén & Muthén, 2017). I first calculated means and standard deviations, skewness, and kurtosis for each variable, separated by LBC and non-LBC. Meanwhile, bivariate correlations were carried out to have an initial overview of study associations. In terms of the first hypothesis, an Analysis of Covariance (ANCOVA) was conducted to compare the levels of prosocial behavior between LBC and non-LBC, after accounting for the potential influence of sociodemographic variables (i.e., age, gender, and family SES).

Subsequently, I assessed the second hypothesis using a hierarchical linear regression. The hierarchical linear regression is a special form of multivariate linear regression, in which observed predictors are entered inside the model following separate steps. This is conducted to statistically account for certain variables to detect whether introducing additional variables/interaction terms significantly improves the performance of a model (Aiken et al., 2003). In this hierarchical linear regression, categorical variables (i.e., gender and left-behind status) were dummy-coded, and continuous variables were standardized before creating the interaction terms and entering into the regression model.

---

[2] In accordance with recent findings on LBC (e.g., Zhao et al., 2019), the current study shows non-significant correlations between prosocial behavior and timing of parental absence ($r = 0.01$, $p = 0.75$), and between prosocial behavior and separation duration ($r = 0.002$, $p = 0.96$). I initially excluded these variables from further analysis to obtain a more statistically powerful estimate of study associations.

More specifically, all control variables were entered on the first step to account for the confounding effects. Second, three independent variables (i.e., TAS, narcissism, and left-behind status) were added to evaluate their unique roles in the prediction of prosocial behavior. Third, three two-way interactions were included (i.e., TAS x narcissism; TAS x left-behind status; narcissism x left-behind status) to test the moderating effect of narcissism or left-behind status on the association between TAS and prosocial behavior. Finally, a three-way interaction among three independent variables was established to investigate the high-order interaction effect. The conditional effects (i.e., interactive associations) were further assessed by simple slope analyses and corresponding figures in accordance with conventional standards (Aiken & West, 1991; Preacher et al., 2006).

Results

Descriptive statistics and correlations

Table 1 displays the descriptive statistics and interrelations with regard to the study variables, separately for LBC and non-LBC. The skewness and kurtosis values indicated that the key variables were normally distributed, supporting the assumptions of performing linear regression. For both LBC and non-LBC, TAS and narcissism were positively related to prosocial behavior.

Prosocial behavior between left-behind and non-left-behind youth

The results of ANCOVA showed that LBC's prosocial behavior did not significantly differ from that of non-LBC, after controlling for sociodemographic variables, $F = 0.21$, $p = 0.65$. As shown in Fig. 1, the mean, data distribution, and confidence interval of prosocial behavior in both samples were similar.[3]

Relations between teacher autonomy support, narcissism, left-behind status, and prosocial behavior

Table 2 summarizes the results of the hierarchical linear regression with the combined samples. In total, the

---

[3] The number of LBC per migration status (i.e., father-only migration, mother-only migration, both-parent migration, and non-left-behind youth) was imbalanced, preventing me from performing further analyses to understand whether prosocial behavior would be significantly different based on migration status. For a descriptive overview, I nevertheless supplemented this information in the supplementary materials (see Figure S1).

Table 1 Descriptive statistics and bivariate correlations of study variables for left-behind and non-left-behind youth

	Left-behind (n = 246)				Non-left-behind (n = 492)										
	M	SD	Skewness	Kurtosis	M	SD	Skewness	Kurtosis	t/χ²	1	2	3	4	5	6
1. Teacher autonomy support	3.65	0.81	-0.63	0.69	3.69	0.82	-0.67	0.66	-0.42	-	.16***	.37***	-.03	.01	.05
2. Narcissism	2.77	0.53	0.26	0.93	2.81	0.55	0.38	0.55	2.48	.07	-	.27***	-.04	-.11*	.02
3. Prosocial behavior	5.55	0.88	-0.71	1.10	5.57	0.87	-0.63	0.58	-1.25	.33***	.30***	-	-.08	.05	.06
4. Age	15.77	1.50	-	-	15.91	1.43	-	-	0.33	.03	.01	.06	-	-.01	-.09*
5. Gender[a]	-	-	-	-	-	-	-	-	0.23	-.01	-.01	.14*	.07	-	-.09*
6. Socioeconomic status	16.18	1.96	-	-	15.95	1.95	-	-	0.13	-.13*	.01	.02	.01	.09	-

[a] coded as 1 = male and 2 = female. Correlation coefficients displayed above the diagonal are for non-left-behind, below for left-behind youth

* $p < .05$, *** $p < .001$
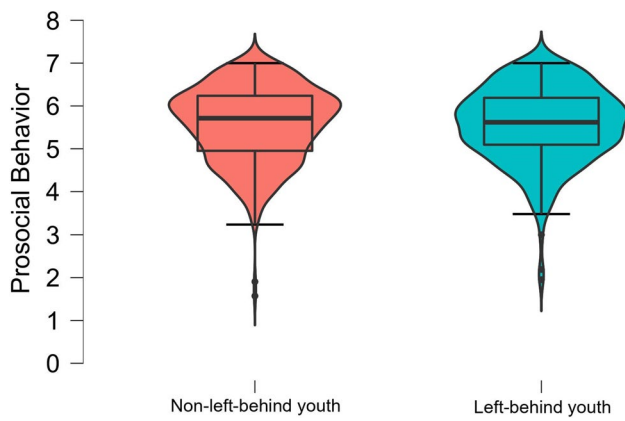
Fig. 1 Prosocial behavior between left-behind youth and non-left-behind youth. *Note.* $N=738$. Bar / Line – Mean, Bean—Data distribution, Band—Confidence interval

regression model accounted for 22.0% of the variance of prosocial behavior.

On the first step, the results showed that gender was a significant predictor of prosocial behavior. The positive coefficient indicated higher levels of prosocial behavior for girls compared to boys. Nevertheless, the links between age and prosocial behavior, and between family SES and prosocial behavior were insignificant. Together, control variables entered on the first step explained 1% of the variance of prosocial behavior. On the second step, the significantly positive correlation between TAS and prosocial behavior was detected, supporting the main effect hypothesis. In addition, narcissism was positively related to prosocial behavior. The variables entered on the second step explained an additional 20% of the variance of prosocial behavior. On the third step, three two-way interactions were entered simultaneously; however, none of them were statistically significant,

Table 2 Hierarchical regression analysis predicting prosocial behavior from teacher autonomy support, narcissism, and left-behind status

	b	$b\ SE$	t	p	R^2	ΔR^2	ΔF
The first step							
Age	-0.02	0.02	-0.73	0.467			
Gender [a]	0.16	0.06	2.50	0.013			
Socioeconomic status	0.02	0.02	1.39	0.164	0.01	0.01	2.86
The second step							
Age	-0.01	0.02	-0.51	0.612			
Gender	0.19	0.06	3.33	<.001			
Socioeconomic status	0.02	0.01	1.53	0.126			
Teacher autonomy support	0.36	0.04	10.04	<.001			
Narcissism	0.40	0.05	7.52	<.001			
Left-behind status	-0.00	0.06	-0.05	0.958	0.21	0.20	60.14***
The third step							
Age	-0.01	0.02	-0.54	0.590			
Gender	0.19	0.06	3.27	0.001			
Socioeconomic status	0.02	0.01	1.54	0.124			
Teacher autonomy support (TAS)	0.36	0.18	2.05	0.041			
Narcissism	0.37	0.24	1.55	0.122			
Left-behind status	-0.43	0.41	-1.06	0.289			
TAS x Narcissism	-0.00	0.06	-0.05	0.958			
TAS x Left-behind status	0.01	0.08	0.17	0.864			
Narcissism x Left-behind status	0.14	0.11	1.20	0.229	0.21	<0.01	0.52
The fourth step							
Age	-0.01	0.02	-0.71	0.475			
Gender	0.19	0.06	3.29	0.001			
Socioeconomic status	0.02	0.01	1.58	0.116			
Teacher autonomy support	0.01	0.21	0.04	0.966			
Narcissism	-0.10	0.28	-0.37	0.709			
Left-behind status	-4.92	1.44	-3.42	<.001			
TAS x Narcissism	0.12	0.07	1.71	0.088			
TAS x Left-behind status	1.22	0.38	3.22	0.001			
Narcissism x Left-behind status	1.72	0.50	3.44	<.001			
TAS x Narcissism x Left-behind status	-0.42	0.13	-3.25	0.001	0.22	0.01	10.56***

$N=738$. [a] coded as 1 = male and 2 = female. * $p<.05$, *** $p<.001$
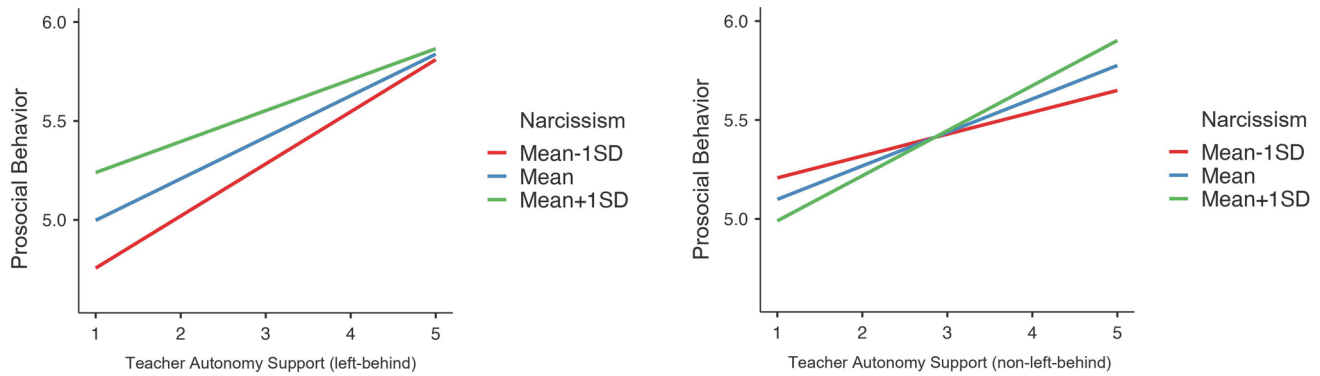
Fig. 2 *Interaction effect of teacher autonomy support, narcissism, and left-behind status on prosocial behavior. Note. N* = 738. Narcissism was divided into three levels based on mean and standard deviation

indicating that these interaction terms did not significantly account for the variance of prosocial behavior. Such a finding did not support the two-way interaction hypothesis. On the fourth step, a higher order of interaction effect (i.e., three-way interaction) was finally entered, and a negative coefficient was discovered. This interactive term explained an additional 1% of the variance of prosocial behavior, and supported the three-way interaction hypothesis.

Simple slope analysis and relevant graphs were employed to characterize this significant three-way interaction. As shown in Fig. 2, for LBC, the regression lines for both lower levels of narcissism ($b = 0.30$, $SE = 0.08$, $p < 0.001$) and higher levels of narcissism ($b = 0.14$, $SE = 0.07$, $p = 0.04$) were significant, indicating the positive correlation between TAS and prosocial behavior at different levels of narcissism. From a descriptive point of view, higher levels of narcissism buffered against the adverse effect of low TAS on prosocial behavior; by contrast, in the context of high TAS, the levels of prosocial behavior were similar across different levels of narcissism.

For non-LBC, the positive correlation between TAS and prosocial behavior remained significant at both lower levels of narcissism ($b = 0.13$, $SE = 0.05$, $p = 0.01$), and higher levels of narcissism ($b = 0.22$, $SE = 0.05$, $p < .001$). From a descriptive point of view, the strength of the positive correlation between TAS and prosocial behavior was similar across lower and higher levels of narcissism.

Sensitivity analyses

Previous research has suggested that earlier separation from parents, particularly during developmentally sensitive periods, is associated with adverse outcomes (Humphreys, 2019). In addition, prolonged separation duration, as documented by attachment theory (Bowlby, 1969), often leads adolescents to experience negative development. These two variables (i.e., the timing of parental absence and separation

duration), at a conceptual level, are expected to be negatively associated with prosocial behavior. To address this issue, I performed sensitivity analyses by incorporating the variables inside the linear regression model. Given that the variables were highly correlated ($r = 0.50$, $p < 0.001$), I additionally conducted two separate regression models, with each variable entered independently, to account for the influence of multicollinearity. The pattern exhibited in the findings (see supplementary materials Tables S1 and S2) remained the same as that found in the original analyses. One possible explanation is that, during different periods of life, resources and risks are intertwined to somehow counteract the adverse effect of these variables on prosocial behavior (Zhao et al., 2019). I therefore retained the original analyses, as presented in the current version of the manuscript, and interpreted them thereafter.

Discussion

Although the study of prosocial behavior has received remarkable research in the past decades (Eisenberg et al., 2015; Pfattheicher et al., 2022), less has been focused on children after parental migration. With the dramatic economic growth and the unprecedented amount of labor migration globally, the current study compared the prosocial behavior of LBC with non-LBC. Furthermore, this study investigated the association of TAS with prosocial behavior, and examined whether this association would be varied depending on the levels of narcissism and left-behind status. Below, I discuss how these aims were met via a discussion of the findings.

The first objective of this study is to compare the prosocial behavior of LBC with non-LBC. Unlike the first hypothesis, the current findings showed that LBC were not significantly different from non-LBC in the same schools in terms of prosocial behavior. One possible explanation is that

behaving in a prosocial manner is highly emphasized in Chinese society (Ma et al., 2022a, 2022b, 2022c), regardless of their left-behind status. East Asian societies, such as China, are depicted as emphasizing collectivistic norms and group orientation, which may have different implications for prosocial behavior (Chen, 2000; de Guzman et al., 2014). In this cultural context, youth are socialized to develop prosocial virtues and cooperative skills conducive to group harmony and social integration (Ngai et al., 2018). Another interpretation could be in line with recent findings on LBC, indicating that they are not always psychologically disadvantaged, particularly in terms of positive outcomes (Ma et al., 2022a, 2022b, 2022c). Although the absence of parents may bring a short-term adaptation difficulty to their children's daily lives, parental migration and residence in big cities have also improved the whole family's economic conditions, broadened parents' horizons, and brought some novel life perspectives on parents, which, in turn, may have a beneficial effect on their children's prosocial behavior.

The second objective of this study is to examine the association between TAS and prosocial behavior, and the moderating role of narcissism and left-behind status therein. First, the current findings support the second hypothesis (2a), showing that TAS was positively related to youths' prosocial behavior. This finding further enriches the existing literature (Feng & Lan, 2020; Ma et al., 2022a, 2022b, 2022c; Nalipay et al., 2020) and the self-determination theory (Deci & Ryan, 2011), highlighting the beneficial role of autonomy support in youths' adaptive psychosocial functions in a collectivistic cultural context. One possible explanation is ascribed to the salient role of teachers in disciplining youths' adaptive behavior. Under the Confucian heritage, teachers are often portrayed as "life coaches" and "the keeper of moral values" (Peng et al., 2014). Teachers who present an autonomy-supportive motivating style in the classroom can enhance the engagement-fostering motivations of students, which, in turn, facilitates their prosocial tendencies.

Further, in line with the second hypothesis (2c), the current findings exhibited that great narcissism buffered against the adverse effect of low TAS on LBC's prosocial behavior. Such a finding is in congruence with prior research highlighting the buffering role of narcissism in front of adversities (Lan, 2021; Lyons et al., 2019). One possible explanation is that LBC with great narcissism show positive self-awareness and tend to employ self-enhancement strategies to maintain their positive self-views. From this perspective, youth are likely to actively adjust the adverse effect of the environment. They can exploit resources and opportunities to overcome setbacks and difficulties by transferring these stressors toward others rather than themselves (Talmon & Ginzburg, 2018). This is particularly relevant for LBC, as they lack parental supervision and are more hypervigilant to stress and pressure (Lan & Moscardino, 2020).

Likewise, great narcissism may help LBC maximize their potential, achieve their interpersonal goals, and behave in a prosocial manner. This is because behaving prosocially may let them receive more attention, praise, or a returned favor (Konrath et al., 2016), compensating for their unfavorable social resources, such as the absence of parental and teacher support.

In addition to these significant findings, some caveats should be acknowledged when interpreting the current findings. First, the current study is limited by a cross-sectional design and self-reported measurements, possibly inflating the strength of the associations. Future investigations should consider employing a longitudinal design and a multi-method or mixed-method approach to re-examine the associations under investigation. Second, the present study treats narcissism as a global construct. Considering that narcissism is multidimensional and might be distinctively linked to prosocial behavior (Maples et al., 2014; Pincus and Lukowitsky, 2010), future studies should extend the current findings by involving different forms of narcissism in one single investigation. Third, the current study is based on a single cultural context, which delimits the generalizability of research findings. A cross-cultural investigation would help delineate these findings from a more holistic perspective. Finally, in accordance with prior research on LBC (e.g., Zhao et al., 2019), an imbalance existed in the number of LBC per migration status (i.e., father-only migration, mother-only migration, and both-parent migration), with father-only migration being the most prevalent form. These unequal sample sizes may affect the robustness of the equal variance assumption in equivalence tests, such as ANCOVA, leading to invalid statistical inferences (Rusticus & Lovato, 2014). Consequently, the current study could not investigate how prosocial behavior and study associations may vary based on migration status. To more thoroughly investigate this issue, future initiatives with larger and balanced sample sizes should further extend the current findings.

To conclude, the present research indicates that LBC may not be disadvantaged in prosocial behavior, compared with non-LBC. Moreover, the current findings emphasize the importance of creating an autonomy-supportive atmosphere at school to facilitate youths' prosocial behavior. As the motivating style is malleable, health professionals or educators should help teachers optimize their interactions with students using autonomy-supportive behaviors and strategies. In addition, the present study highlights the protective role of narcissism in the link between TAS and LBC's prosocial behavior. From an applied perspective, LBC may benefit from targeted school activities or interventions to boost narcissism, which may compensate for their low self-worth and elicit more prosocial behavior.

Declarations

Conflict of interest The author has no conflicts of interest to declare.

Informed consent All procedures performed in studies involving human participants were by the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all participants included in the present study.

References

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Sage Publications.

Aiken, L. S., West, S. G., & Pitts, S. C. (2003). Multiple linear regression. In J. A. Schinka & W. F. Velicer (Eds.), *Handbook of psychology: Research methods in psychology* (Vol. 2, pp. 483–587). Wiley.

Baldassarri, D., & Abascal, M. (2020). Diversity and prosocial behavior. *Science, 369*, 1183–1187. https://doi.org/10.1126/science.abb2432

Beattie, S., Dempsey, C., Roberts, R., Woodman, T., & Cooke, A. (2017). The moderating role of narcissism on the reciprocal relationship between self-efficacy and performance. *Sport, Exercise, and Performance Psychology, 6*, 199–214. https://doi.org/10.1037/spy0000092

Bang, H., Choi, D., Wojdynski, B. W., & Lee, Y. I. (2019). How the level of personalization affects the effectiveness of personalized ad messages: The moderating role of narcissism. *International Journal of Advertising, 38*, 1116–1138. https://doi.org/10.1080/02650487.2019.1590069

Batson, C. D. (1998). Altruism and prosocial behavior. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The Handbook of social psychology*, 4th ed., Vol. 2, pp. 282–316). McGraw-Hill.

Black, A. E., & Deci, E. L. (2000). The effects of instructors' autonomy support and students' autonomous motivation on learning organic chemistry: A self-determination theory perspective. *Science Education, 84*, 740–756. https://doi.org/10.1002/1098-237X(200011)84:6<740::AID-SCE4>3.0.CO;2-3

Book, A., Visser, B. A., & Volk, A. A. (2015). Unpacking "evil": Claiming the core of the Dark Triad. *Personality and Individual Differences, 73*, 29–38. https://doi.org/10.1016/j.paid.2014.09.016

Bowlby, J. (1969). Attachment and loss, volume 1: Attachment. Basic Books.

Bradley, R. H., & Corwyn, R. F. (2002). Socioeconomic status and child development. *Annual Review of Psychology, 53*, 371–399.

Bronfenbrenner, U., & Morris, P. A. (2006). The bioecological model of human development. In R. M. Lerner (Ed.), *Handbook of Child Psychology Vol 1: Theoretical models of human development* (6th ed., pp. 793–828). Wiley.

Carlo, G., & Randall, B. A. (2002). The development of a measure of prosocial behaviors for late adolescents. *Journal of Youth and Adolescence, 31*, 31–44. https://doi.org/10.1023/A:1014033032440

Chen, X. (2000). Growing up in a collectivistic culture: Socialization and socio-emotional development in Chinese children. In A. L. Comunian & U. P. Gielen (Eds.), *International perspectives on human development* (pp. 331–353). Pabst Science.

Chen, X., Chen, H., Kaspar, V., & Noh, S. (2000). Adolescent social, emotional, and school adjustment in mainland China. *International Journal of Group Tensions, 29*, 51–78. https://doi.org/10.1023/A:1005178713623

Chen, X., & French, D. C. (2008). Children's social competence in cultural context. *Annual Review of Psychology, 59*, 591–616. https://doi.org/10.1146/annurev.psych.59.103006.093606

Chen, X., Li, D., Liu, J., Fu, R., & Liu, S. (2019). Father migration and mother migration: Different implications for social, school, and psychological adjustment of left-behind children in rural China. *Journal of Contemporary China, 28*, 849–863. https://doi.org/10.1080/10670564.2019.1594100

Deci, E. L., & Ryan, R. M. (2011). Self-determination theory. In P. A. M. V. Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of Theories of Social Psychology* (Vol. 1, pp. 416–433). Sage.

de Guzman, M. R. T., Do, K. A., & Kok, C. M. (2014). The cultural contexts of children's prosocial behaviors. *Prosocial development: A multidimensional approach*, 221–241.

Eisenberg, N., Eggum-Wilkens, N. D., & Spinrad, T. L. (2015). The development of prosocial behavior. In D. A. Schroeder & W. G. Graziano (Eds.), *Oxford library of psychology The Oxford handbook of prosocial behavior* (pp. 114–136). Oxford University Press.

Eisenberg, N., & Spinrad, T. L. (2014). Multidimensionality of prosocial behavior: Rethinking the conceptualization and development of prosocial behavior. In L. M. Padilla-Walker & G. Carlo (Eds.), *Prosocial development: A multidimensional approach* (pp. 17–39). Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199964772.003.0002

Feng, L., & Lan, X. (2020). The moderating role of autonomy support profiles in the association between grit and externalizing problem behavior among family-bereaved adolescents. *Frontiers in Psychology, 11*, 1578. https://doi.org/10.3389/fpsyg.2020.01578

Gao, B., Zhao, M., Feng, Z., & Xu, C. (2022). The chain mediating role of cognitive styles and alienation between life events and depression among rural left-behind children in poor areas in Southwest

China. *Journal of Affective Disorders*. https://doi.org/10.1016/j.jad.2022.03.040

Gao, F., Yao, Y., Yao, C., Xiong, Y., Ma, H., & Liu, H. (2019). The status of prosocial tendency of left-behind adolescents in China: How family function and self-esteem affect prosocial tendencies. *Frontiers in Psychology, 10*, 1202. https://doi.org/10.3389/fpsyg.2019.01202

Grijalva, E., & Zhang, L. (2016). Narcissism and self-insight: A review and meta-analysis of narcissists' self-enhancement tendencies. *Personality and Social Psychology Bulletin, 42*, 3–24. https://doi.org/10.1177/0146167215611636

Guo, R. (2021). More than just breadwinners: How Chinese male migrant workers' family relationships shape their factory labour process. *Community, Work & Family, 24*, 415–434. https://doi.org/10.1080/13668803.2019.1700919

Humphreys, K. L. (2019). Future directions in the study and treatment of parent–child separation. *Journal of Clinical Child & Adolescent Psychology, 48*, 166–178. https://doi.org/10.1080/15374416.2018.1534209

IBM Corp. (2021). *IBM SPSS Statistics for Windows, Version 28.0*. IBM Corp.

Jones, D. N., & Paulhus, D. L. (2014). Introducing the Short Dark Triad (SD3): A brief measure of dark personality traits. *Assessment, 21*, 28–41. https://doi.org/10.1177/1073191113514105

Konrad-Ristau, K., & Burghardt, L. (2021). Differences in Children's social development: How migration background impacts the effect of early institutional childcare upon Children's prosocial behavior and peer problems. *Frontiers in Psychology, 12*,. https://doi.org/10.3389/fpsyg.2021.614844

Knafo-Noam, A., Vertsberger, D., & Israel, S. (2018). Genetic and environmental contributions to children's prosocial behavior: Brief review and new evidence from a reanalysis of experimental twin data. *Current Opinion in Psychology, 20*, 60–65. https://doi.org/10.1016/j.copsyc.2017.08.013

Konrath, S., Ho, M. H., & Zarins, S. (2016). The strategic helper: Narcissism and prosocial motives and behaviors. *Current Psychology, 35*, 182–194. https://doi.org/10.1007/s12144-016-9417-3

Lan, X. (2021). Disengaged and highly harsh? Perceived parenting profiles, narcissism, and loneliness among adolescents from divorced families. *Personality and Individual Differences, 171*, 110466. https://doi.org/10.1016/j.paid.2020.110466

Lan, X. (2020). Grit and peer relationships in early adolescence: A person-centered approach. *Journal of Social and Personal Relationships, 37*, 2250–2269. https://doi.org/10.1177/0265407520921557

Lan, X., & Radin, R. (2020). Direct and interactive effects of peer attachment and grit on mitigating problem behaviors among urban left-behind adolescents. *Journal of Child and Family Studies, 29*, 250–260. https://doi.org/10.1007/s10826-019-01580-9

Lan, X., Scrimin, S., & Moscardino, U. (2020). Emotional awareness moderates the association between discrimination and emotional-behavioral problems: A cross-informant study in Chinese rural-to-urban migrant youth. *The Journal of Early Adolescence, 40*, 857–879. https://doi.org/10.1177/0272431619874399

Lan, X., & Mastrotheodoros, S. (2022). Teacher Autonomy Support and Internalizing Problems of Adolescents from Divorced and Intact Families: Moderation by Personality Typologies. *Child Psychiatry & Human Development, 1–13*,. https://doi.org/10.1007/s10578-022-01392-x

Lan, X., & Wang, W. (2020). Is early left-behind experience harmful to prosocial behavior of emerging adult? The role of parental autonomy support and mindfulness. *Current Psychology, 1–14*,. https://doi.org/10.1007/s12144-020-00706-3

Lyons, M., Evans, K., & Helle, S. (2019). Do "dark" personality features buffer against adversity? The associations between cumulative life stress, the dark triad, and mental distress. *SAGE Open, 9*, 2158244018822383. https://doi.org/10.1177/2158244018822383

Lu, Y., Yeung, J. W. J., Liu, J., & Treiman, D. J. (2019). Migration and children's psychosocial development in China: When and why migration matters. *Social Science Research, 77*, 130–147. https://doi.org/10.1016/j.ssresearch.2018.09.002

Lu, Y., Zhang, R., & Du, H. (2021). Family structure, family instability, and child psychological well-being in the context of migration: Evidence from sequence analysis in China. *Child Development*. https://doi.org/10.1111/cdev.13496

Ma, C., Mastrotheodoros, S., & Lan, X. (2022a). Linking classmate 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, Y., Ma, C., & Lan, X. (2022b). A person-centered analysis of emotional-behavioral functioning profiles in adolescents: Associations with teacher autonomy support and growth mindset. *Current Psychology, 1–15*,. https://doi.org/10.1007/s12144-022-03163-2

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, C., Ma, Y., & Lan, X. (2020). A structural equation model of perceived autonomy support and growth mindset in undergraduate students: The mediating role of sense of coherence. *Frontiers in Psychology, 11*, 2055. https://doi.org/10.3389/fpsyg.2020.02055

Maples, J. L., Lamkin, J., & Miller, J. D. (2014). A test of two brief measures of the dark triad: The dirty dozen and short dark triad. *Psychological Assessment, 26*, 326–331. https://doi.org/10.1037/a0035084

Memmott-Elison, M. K., Holmgren, H. G., Padilla-Walker, L. M., & Hawkins, A. J. (2020). Associations between prosocial behavior, externalizing behaviors, and internalizing symptoms during adolescence: A meta-analysis. *Journal of Adolescence, 80*, 98–114. https://doi.org/10.1016/j.adolescence.2020.01.012

Morf, C. C., & Rhodewalt, F. (2001). Unraveling the paradoxes of narcissism: A dynamic self-regulatory processing model. *Psychological Inquiry, 12*, 177–196. https://doi.org/10.1207/S15327965PLI1204_1

Muthén, L. K., & Muthén, B. O. (2017). *Mplus user's guide* (8th ed.). Muthén & Muthén.

Nalipay, M. J. N., King, R. B., & Cai, Y. (2020). Autonomy is equally important across East and West: Testing the cross-cultural universality of self-determination theory. *Journal of Adolescence, 78*, 67–72. https://doi.org/10.1016/j.adolescence.2019.12.009

Ngai, S. S. Y., Xie, L., Ng, Y. H., & Ngai, H. L. (2018). The effects of parenting behavior on prosocial behavior of Chinese adolescents in Hong Kong. *Children and Youth Services Review, 87*, 154–162. https://doi.org/10.1016/j.childyouth.2018.02.030

Ouyang, M., Cai, X., Yin, Y., Zeng, P., Chen, Y., Wang, X., … & Wang, P. (2020). Student-student relationship and adolescent problematic smartphone use: The mediating role of materialism and the moderating role of narcissism. *Children and Youth Services Review, 110*, 104766. https://doi.org/10.1016/j.childyouth.2020.104766

Oyserman, D., Coon, H. M., & Kemmelmeier, M. (2002). Rethinking individualism and collectivism: Evaluation of theoretical assumptions and meta-analyses. *Psychological Bulletin, 128*, 3–72. https://doi.org/10.1037/0033-2909.128.1.3

Padilla-Walker, L. M., & Carlo, G. (2014). The study of prosocial behavior: Past, present, and future. In L. M. Padilla-Walker & G. Carlo (Eds.), *Prosocial Development: A multidimensional approach* (pp. 3–16). Oxford University Press.

Parker, R. S., Haytko, D. L., & Hermans, C. M. (2009). Individualism and collectivism: Reconsidering old assumptions. *Journal of International Business Research, 8*, 127–138.

Paulhus, D. L., & Williams, K. M. (2002). The dark triad of personality: Narcissism, Machiavellianism, and psychopathy. *Journal of Research in Personality, 36*, 556–563. https://doi.org/10.1016/S0092-6566(02)00505-6

Pfattheicher, S., Nielsen, Y. A., & Thielmann, I. (2022). Prosocial behavior and altruism: A review of concepts and definitions. *Current Opinion in Psychology, 44*, 124–129. https://doi.org/10.1016/j.copsyc.2021.08.021

Pianta, R. C. (1999). *Enhancing relationships between children and teachers*. American Psychological Association.

Pincus, A. L., & Lukowitsky, M. R. (2010). Pathological narcissism and narcissistic personality disorder. *Annual Review of Clinical Psychology, 6*, 421–446. https://doi.org/10.1146/annurev.clinpsy.121208.131215

Preacher, K. J., Curran, P. J., & Bauer, D. J. (2006). Computational tools for probing interactions in multiple linear regression, multilevel modeling, and latent curve analysis. *Journal of Educational and Behavioral Statistics, 31*, 437–448. https://doi.org/10.3102/10769986031004437

Rubin, K. H., Dwyer, K. M., Booth-LaForce, C., Kim, A. H., Burgess, K. B., & Rose-Krasnor, L. (2004). Attachment, friendship, and psychosocial functioning in early adolescence. *The Journal of Early Adolescence, 24*, 326–356. https://doi.org/10.1177/0272431604268530

Rusticus, S. A., & Lovato, C. Y. (2014). Impact of sample size and variability on the power and type I error rates of equivalence tests: A simulation study. *Practical Assessment, Research, and Evaluation, 19*, 11. https://doi.org/10.7275/4s9m-4e81

Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology, 61*, 101860. https://doi.org/10.1016/j.cedpsych.2020.101860

Seibert, A., & Kerns, K. (2015). Early mother-child attachment: Longitudinal prediction to the quality of peer relationships in middle childhood. *International Journal of Behavioral Development, 39*, 130–138. https://doi.org/10.1177/0165025414542710

Seong, H., Lee, S., & Lee, S. M. (2022). Is autonomy-supportive parenting universally beneficial? Combined effect of socially prescribed perfectionism and parental autonomy support on stress in emerging adults in South Korea. *Current Psychology, 1–10,*. https://doi.org/10.1007/s12144-021-02520-x

Steegen, S., Tuerlinckx, F., Gelman, A., & Vanpaemel, W. (2016). Increasing transparency through a multiverse analysis. *Perspectives on Psychological Science, 11*, 702–712. https://doi.org/10.1177/1745691616658637

Su, Y., Tesfazion, P., & Zhao, Z. (2018). Where are the migrants from? Inter- vs. intra-provincial rural-urban migration in China. *China Economic Review, 47*, 142–155. https://doi.org/10.1016/j.chieco.2017.09.004

Sun, X., Tian, Y., Zhang, Y., Xie, X., Heath, M. A., & Zhou, Z. (2015). Psychological development and educational problems of left-behind children in rural China. *School Psychology International, 36*, 227–252. https://doi.org/10.1177/0143034314566669

Talmon, A., & Ginzburg, K. (2018). The differential role of narcissism in the relations between childhood sexual abuse, dissociation, and self-harm. *Journal of Interpersonal Violence, 0886260518799450,*. https://doi.org/10.1177/0886260518799450

Tang, W., Wang, G., Hu, T., Dai, Q., Xu, J., Yang, Y., & Xu, J. (2018). Mental health and psychosocial problems among Chinese left-behind children: A cross-sectional comparative study. *Journal of Affective Disorders, 241*, 133–141. https://doi.org/10.1016/j.jad.2018.08.017

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, S., & Xie, F. (2020). The impact of perceived personal discrimination on problem behavior of left-behind Children: A moderated mediating effect model. *Child Psychiatry & Human Development, 1–10,*. https://doi.org/10.1007/s10578-020-01054-w

Wang, Q., & Liu, X. (2022). How beliefs about adversity predict depression among Chinese rural left-behind adolescents: The roles of self-esteem and stressful life events. *Children and Youth Services Review, 132*, 106308. https://doi.org/10.1016/j.childyouth.2021.106308

Wentzel, K. R. (2014). Prosocial behavior and peer relations in adolescence. In L. M. Padilla-Walker & G. Carlo (Eds.), *Prosocial development: A multidimensional approach* (pp. 178–200). Oxford University Press.

Wu, J., Yuan, M., & Kou, Y. (2020). Disadvantaged early-life experience negatively predicts prosocial behavior: The roles of Honesty-Humility and dispositional trust among Chinese adolescents. *Personality and Individual Differences, 152*, 109608. https://doi.org/10.1016/j.paid.2019.109608

Xu, Y., Xu, D., Simpkins, S., & Warschauer, M. (2019). Does it matter which parent is absent? Labor migration, parenting, and adolescent development in China. *Journal of Child and Family Studies, 28*, 1635–1649. https://doi.org/10.1007/s10826-019-01382-z

Yu, Z., Hao, J., & Shi, B. (2018). Dispositional envy inhibits prosocial behavior in adolescents with high self-esteem. *Personality and Individual Differences, 122*, 127–133. https://doi.org/10.1016/j.paid.2017.10.022

Yu, G., Li, S., & Zhao, F. (2020). Childhood maltreatment and prosocial behavior among Chinese adolescents: Roles of empathy and gratitude. *Child Abuse & Neglect, 101*, 104319. https://doi.org/10.1016/j.chiabu.2019.104319

Zhang, Q., & Kou, Y. (2012). Self-enhancement oriented prosocial behaviors: Behavioral pathways based on agency and communion. *Journal of Beijing Normal University (social Sciences), 1*, 51–57.

Zhang, J., Ziegler, M., & Paulhus, D. L. (2019). Development and evaluation of the Short Dark Triad – Chinese version (SD3-C). *Current Psychology, 39*, 1161–1171. https://doi.org/10.1007/s12144-019-00272-3

Zhang, 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., Li, Q., Wang, L., Lin, L., & Zhang, W. (2019). Latent profile analysis of left-behind adolescents' psychosocial adaptation in rural China. *Journal of Youth and Adolescence, 48*, 1146–1160. https://doi.org/10.1007/s10964-019-00989-1

Zhao, J., Wang, Q., & Xue, X. (2020). The longitudinal associations among perceived discrimination, social initiative, and depressive symptoms in Chinese rural left-behind adolescents. *Journal of Adolescence, 81*, 114–123. https://doi.org/10.1016/j.adolescence.2020.04.006

Zhao, L., Liu, S., & Zhang, W. (2018). New trends in internal migration in China: Profiles of the new-generation migrants. *China and World Economy, 26*, 18–41. https://doi.org/10.1111/cwe.12227

Zhu, H., & Qian, J. (2021). New theoretical dialogues on migration in China: Introduction to the special issue. *Journal of Ethnic and Migration Studies, 47*, 2685–2705. https://doi.org/10.1080/1369183X.2020.1739372