



Parents' Self-Development Socialization Goals and Chinese Adolescents' Academic Motivation: The Mediating Role of Parents' Autonomy Support

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Abstract

The socialization goals parents hold for their adolescents, which reflect the qualities, skills, or behaviors they want their adolescents to acquire, play an important role in shaping adolescents' adjustment via parenting practices. Nevertheless, there is a lack of studies that examine the longitudinal implications of parents' socialization goals for adolescents' academic motivation, especially in non-Western cultures. Moreover, evidence is still scarce regarding the full process from parents' socialization goals to parenting practices and further to adolescents' academic adjustment. To address these gaps, the current two-wave longitudinal study spanning one year examined whether two critical socialization goals endorsed by parents in Chinese culture, namely self-development (i.e., parents wanting adolescents to be unique, autonomous, and self-assertive) and academic achievement socialization goals (i.e., parents wanting adolescents to achieve academic success), predicted Chinese adolescents' academic motivation over time via parents' autonomy support. Two hundred and eighty-five Chinese adolescents (Mean age = 12.29 years, SD = 0.64, range = 11–14, 51% girls) reported on perceived parental socialization goals and autonomy support, as well as different aspects of their own academic motivation (i.e., academic interest, mastery orientation, and persistent responses to academic failure). Results showed that perceived parents' self-development socialization goals positively predicted adolescents' academic motivation one year later, which was mediated by parents' increased autonomy support. The findings highlight the positive role of parents' self-development socialization goals in Chinese adolescents' academic adjustment in the changing society, and identify the underlying socialization processes via parenting practices.

Keywords Adolescents · Parental socialization goals · Autonomy support · Academic motivation

Introduction

Parents' socialization goals for their adolescents include the qualities, skills, or behaviors that parents want their adolescents to gain for competence in certain cultures (Darling & Steinberg, 1993). Specific parents' socialization goals may contribute to related adolescents' developmental outcomes through the cultural socialization process (Chen & French, 2008), and therefore, shape how children navigate their adolescent years. However, most studies to date only examined the implications of parents' socialization goals for adolescents' socioemotional adjustment, such as emotional distress (Ng et al., 2019) and prosocial behaviors (Zhou et al., 2022). Little research investigated how these goals may be related to adolescents' academic motivation, which can have long-lasting impacts in adolescents' later life such as educational attainment (Tuominen-Soini & Salmela-Aro,

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2014) and career pathways (Wiesner et al., 2003). Therefore, more investigations on how culturally shaped parents' socialization goals play a role in adolescents' academic motivation are warranted. Moreover, fewer studies explored the potential mechanisms underlying how parents' socialization goals are associated with adolescents' adjustment (Bornstein et al. 2018). To fill these gaps, the current research employed a two-wave longitudinal design spanning one year to investigate whether Chinese parents' socialization goals may be associated with their adolescents' academic motivation over time. Specifically, this study focused on two parents' socialization goals that are critical in contemporary Chinese society—self-development socialization goals (i.e., parents wanting their adolescents to be unique, autonomous, and self-assertive) and academic achievement socialization goals (i.e., parents wanting adolescents to achieve academic success). Furthermore, this study investigated whether parents' autonomy support may play a mediating role in the links between Chinese parents' socialization goals and adolescents' academic motivation.

Chinese Parents' Socialization Goals and Adolescents' Academic Motivation

Parents' socialization goals are greatly shaped by cultural beliefs, values, and norms (e.g., Qu et al., 2016). In contemporary Chinese society, self-development socialization goals and academic achievement socialization goals are two critical socialization goals endorsed by Chinese parents and may play a positive role in Chinese adolescents' academic motivation (Zhou et al., 2021). Parents' self-development socialization goals refer to parental expectations of their adolescents to develop uniqueness, autonomy, and self-assertiveness, whereas parents' academic achievement socialization goals refer to parental expectations that their adolescents acquire academic success (Luebbe et al., 2018).

Although Chinese parenting was traditionally portrayed as not valuing children's self-expression and autonomy (Chao, 2000), recent studies suggest that contemporary Chinese parents also want to raise adolescents who can make their own choices, take initiative, develop independence, and become self-assertive (Way et al., 2013), reflecting their increasing endorsement of such self-development socialization goals. This may be because contemporary Chinese societies (especially in urban cities) have undergone a full-scale reform toward a market economy since the 1980s, which led to rapid and extensive cultural and societal changes in families (e.g., nuclear families with only one child), economic systems (e.g., more fierce market competition), school systems (e.g., more learner autonomy emphasized in schools; Halstead & Zhu, 2009), as well as sociocultural values (e.g., more integration of Westernized values such as independence; Chen & Chen,

2010). In such a changing society, Chinese adolescents who have parents emphasizing and valuing children's self-development needs may show more adaptive developmental outcomes including better academic functioning. Indeed, empirical research found that Chinese adolescents whose parents were in favor of adolescents' initiative taking (e.g., expressing their own opinions in schools and solving problems by themselves) showed higher school-related competence and fewer learning problems (Chen & Li, 2012). Similarly, scholars identified a positive and concurrent association between perceived parental self-development socialization goals and Chinese college students' academic self-efficacy (Li et al., 2010). Given that these studies only used a concurrent design or focused on emerging adults, it is important to investigate the longitudinal implications of Chinese parents' self-development socialization goals for adolescents' academic motivation over time.

Given the long-held emphasis of academic success in Chinese culture, academic achievement socialization goals are also one of the most important socialization goals endorsed by contemporary Chinese parents (Qu et al., 2016). This is not only because children's academic achievement could bring honor to the family and demonstrate the virtue of diligence that are valued in Chinese culture (Li, 2005); it also allows the children to outperform others in highly competitive gaokao (i.e., China's college entrance examination) and increase their upward mobility in the market-oriented society (Ng & Wei, 2020). Chinese parents who have greater endorsement of academic achievement socialization goals may convey to their adolescents the importance of school performance and their high expectations of the adolescents' educational attainment, and therefore, enhance adolescents' academic motivation (e.g., perceived competence), engagement (e.g., persistence), and achievement (e.g., Pinquart & Ebeling, 2020). Empirical evidence indeed suggests that Chinese parents' expectations of adolescents' educational attainment (Fang et al., 2020) and academic performance (Ma et al. 2018), which may reflect their academic achievement socialization goals, were concurrently related to better academic adjustment (e.g., performance and value of academic success) among their school-aged children. Yet, no studies to date have directly investigated the longitudinal associations between Chinese parents' academic achievement socialization goals and adolescents' academic motivation. Taken together, although some indirect evidence suggests that Chinese parents' endorsement of self-development and academic achievement socialization goals plays a positive role in adolescents' academic motivation, no empirical research has directly tested these associations over time. Therefore, employing a longitudinal approach to investigate the positive implications of these

two specific parental socialization goals for adolescents' academic motivation over time in contemporary Chinese society will advance this line of research.

The Mediating Role of Parenting Practices

Guided by the integrative model of parenting (Darling & Steinberg, 1993), parenting practices may serve as a pathway through which parents' socialization goals can ultimately influence children's development (Bornstein, 2006). Autonomy support is a type of parenting practices involving taking children's perspectives, allowing them to make choices or solve the problems on their own, encouraging them to take initiative, and minimizing the use of controls (Pomerantz et al., 2005). Parents who endorse more self-development socialization goals may show greater autonomy support to facilitate their children's sense of self-initiation so that they can make their own choices and be confident about themselves (Grolnick, 2003). Indeed, several cross-sectional studies found that parental self-development socialization goals were positively related to parent's use of autonomy support in China (Wang et al., 2012), Korea (Chang & Lee, 2017), and the United States (Richman & Mandara, 2013). However, the relations between parents' academic achievement socialization goals and autonomy support seem to have mixed results. For example, prior research showed that greater parental endorsement of academic achievement socialization goals was related to either increased (e.g., Chang & Lee, 2017) or decreased autonomy support (e.g., Zhou et al., 2021) among East Asian parents in different studies. One of the potential reasons is that Chinese parents' academic achievement socialization goals may guide them to be highly involved in adolescents' academic life (Spera, 2006; see also Yamamoto & Holloway, 2010 for a review). During their involvement, Chinese parents may try to use multiple practices (e.g., either by intruding adolescents' autonomy so that they will not fall behind or by promoting adolescents to be self-reliant learners) to ensure that their adolescents perform well in school (Cheung & Pomerantz, 2011).

The benefits of parents' autonomy support to children's and adolescents' academic motivation have been well-documented in the literature, both theoretically and empirically. For instance, the Self-Determination Theory (Ryan & Deci, 2017) postulates that parents' autonomy support could satisfy their children's basic psychological needs (e.g., need for autonomy), thus making them feel intrinsically motivated and more likely to internalize the attitudes and values conveyed by their parents (Grolnick, 2003). In the academic domain, many empirical findings support that parents' autonomy support is positively associated with a wide range of children and adolescents' academic motivation, including increased autonomous

motivation, perceived competence, and engagement (Pomerantz et al., 2007; Vasquez et al., 2016). Moreover, increased parental autonomy support is associated with enhanced academic motivation among school-aged students in China, such as increased autonomous motivation in schoolwork (Zhou et al., 2019), value on doing well in school (Wang et al., 2007), effort in homework (Feng et al., 2019), engagement in class (Zhou et al., 2019), and self-regulated learning strategies (Wang et al., 2007).

Taken together, both theoretical models (Darling & Steinberg, 1993; Grolnick, 2003) and empirical evidence (e.g., Wang et al., 2007, 2012) suggest a possible mediated pathway from Chinese parents' socialization goals to adolescents' enhanced academic motivation through parents' increased autonomy support. Although rich literature has studied the links between parents' socialization goals and their parenting practices (e.g., Wang et al., 2012) as well as the relations between parenting practices and adolescents' academic motivation (e.g., Vasquez et al., 2016), evidence is still scarce regarding the holistic process from parents' socialization goals to parenting practices and then to adolescents' academic motivation (Bornstein et al., 2018), which warrants further investigations.

Current Study

The socialization goals that parents hold for their adolescents may shape parenting practices and ultimately influence adolescents' developmental outcomes, including adolescents' academic motivation that is critical to their future success (e.g., career pathways). Therefore, it is important to examine how parental socialization goals play a role in adolescents' academic motivation, with attention to the mediating role of parenting practices. Moreover, as parents' socialization goals are culturally shaped, research is needed to investigate this socialization process from a cultural perspective. No studies to date have directly investigated the role of parents' socialization goals in adolescents' academic motivation over time, especially in non-Western cultures. Moreover, evidence is still limited regarding the full process from parents' socialization goals to parenting practices and further to adolescents' academic motivation. To fill these research gaps, the current study employed a two-wave longitudinal design focusing on Chinese adolescents and aimed to answer the following research questions: (a) whether parents' self-development socialization goals and academic achievement socialization goals, two socialization goals that are critical to Chinese parents, may play a role in adolescents' academic motivation over time, and (b) whether such longitudinal relations may be mediated by parents' autonomy support. To this end, Chinese adolescents completed questionnaires at two waves spanning one

year. At Wave 1, adolescents reported on parental self-development and academic achievement socialization goals. At both waves, they reported on parental autonomy support and three different indicators of academic motivation, including two motivational beliefs (i.e., academic interest and mastery orientation), and one motivational behavior (i.e., persistent responses to academic failure). It was hypothesized that Chinese parents' self-development and academic achievement socialization goals would both play a positive role in adolescents' academic motivation over time. Moreover, the longitudinal association between Chinese parents' self-development socialization goals and adolescents' academic motivation would be mediated by parents' increased use of autonomy support. However, given the mixed effects of Chinese parents' academic achievement socialization goals on autonomy support based on prior literature, no specific hypothesis was made regarding the mediating role of Chinese parents' autonomy support in the pathways from parents' academic achievement socialization goals to adolescents' academic motivation over time.

Methods

Participants

The sample included 285 Chinese adolescents (51% girls; Mean age = 12.29 years, SD = 0.64, range = 11–14) recruited from a middle school serving working and middle-class families in Shanghai, China. Participants were predominantly of ethnic Han (99%). The majority of participants were from single-child families (89%) and two-parent families (95%). Of all parents, 35% mothers and 30% fathers had a high school education or below, and 65% mothers and 70% fathers had a college degree or above. With regard to the family monthly income, 5% reported less than 10,000 RMB, 37% reported between 10,000 and 20,000 RMB, 26% reported between 20,000 and 30,000 RMB, and 32% reported above 30,000 RMB. The sample was representative of Chinese families residing in Shanghai in terms of their ethnic status, parents' marital status, and the number of children, but had more families with higher socioeconomic status (SES; National Bureau of Statistics of China, 2022). For example, around 41% of adults aged 35 to 49 in Shanghai had a college degree or higher, and the estimated mean household monthly income was 14,000 RMB.

Procedure

Data were collected from adolescents and their primary caregivers at two waves with a one-year interval. First, the information of the study was introduced to all 6th and 7th graders from eight classrooms and their parents at school

via student-parent-teacher meetings. Passive consent was then obtained during the data collection from the students and parents who registered to participate. Participation was completely voluntary with withdrawal from the study allowed anytime throughout the whole process. At both waves, adolescents completed online questionnaires at school under instructions of trained research assistants. At Wave 1, the primary caregivers of the adolescents reported on the parents' educational attainment, marital status, family monthly income, and the number of children. The research procedure was approved by the Institutional Review Board of the School of Social Development and Public Policy at Fudan University.

Sample attrition from Wave 1 to Wave 2 was 11%. Little's (1988) test rejected the assumption of missing completely at random (MCAR), $\chi^2(44) = 68.32, p = 0.01$. Compared to adolescents who completed both the two waves of surveys, those who dropped out were more likely to be boys, $t = 4.23, p < 0.001$. No significant differences between these two groups of participants were found regarding other variables. The proportion of missing values was 4% in total, ranging from 0% to 11% across all variables. Full information maximum likelihood (FIML) estimation was used to deal with missing data in the subsequent analyses with gender (i.e., the missingness correlate) included in all models as a covariate.

Measures

Parents' self-development socialization goals

At Wave 1, the four items developed by Chao (2000) were used to assess adolescent perceived parents' self-development socialization goals for them. The scale has been used in Chinese samples and showed acceptable reliability (Chao, 2000; Li et al., 2010). On a five-point Likert scale from 1 (*not at all desire*) to 5 (*very much desire*), adolescents rated how much their parents expected them to achieve the goals described in each item (e.g., "My parents want me to be very unique and be my own individual" and "My parents want me to have a strong sense of self-respect"). The mean score of the items was calculated so that higher values indicated adolescents' perceived parents' greater endorsement of self-development socialization goals ($\alpha = 0.79$).

Parents' academic achievement socialization goals

At Wave 1, adolescents reported on parents' academic achievement socialization goals for them, which were assessed with a three-item measure adapted from prior research (Chao, 2000; Pearson & Rao, 2003). The items have been used to reflect parents' socialization goals

emphasizing children's achievement in the academic arena in the Chinese context (Luebbe et al., 2018; Zhou et al., 2021). Adolescents indicated the extent to which their parents wanted them to achieve each goal (e.g., "My parents want me to be the top student" and "My parents want me to achieve academic success") on a five-point Likert scale ranging from 1 (*not at all desire*) to 5 (*very much desire*). The mean score was taken with higher values representing perceived parents' stronger endorsement of academic achievement socialization goals ($\alpha = 0.82$).

Parents' autonomy support

At both Wave 1 and Wave 2, parents' autonomy support was reported by adolescents using eight items revised by Wang (2007) based on prior studies (McPartland and Epstein 1977; Steinberg et al., 1992). The measure has shown good psychometric properties in Chinese samples (Cheung et al., 2016; Wang et al., 2012). On a five-point Likert scale ranging from 1 (*not at all true*) to 5 (*very true*), adolescents indicated how true each item was of their parents (e.g., "My parents encourage me to give my ideas and opinions when it comes to decisions about me" and "My parents allow me to make choice whenever possible"). The item scores were averaged with higher values reflecting greater levels of adolescent's perceived autonomy support granted by their parents ($\alpha = 0.96$ at both Wave 1 and Wave 2).

Adolescents' academic interest

At both Wave 1 and 2, two items from prior studies (Hulleman et al., 2010; Tanaka & Murayama, 2014) were used to assess adolescents' academic interest in each of the three main subjects (i.e., Chinese, Mathematics, English) in Chinese middle school. Adolescents responded to each item (i.e., "I like studying Chinese/Mathematics/English" and "I think Chinese/Mathematics/English is interesting") on a seven-point Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The items were averaged with higher mean scores indicating adolescents' greater academic interest in main subjects at school ($\alpha = 0.85$ at Wave 1 and $\alpha = 0.87$ at Wave 2).

Adolescents' mastery orientation

At both Wave 1 and 2, adolescents' mastery orientation was measured using two items from previous studies by Pomerantz et al. (2005) regarding each of the three main subjects (i.e., Chinese, Mathematics, English) in Chinese middle school. Adolescents rated how much they agreed with each item (i.e., "It is important to me to learn a lot in Chinese/Mathematics/English" and "I like difficult work in

Chinese/Mathematics/English") on a seven-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The mean score was calculated with higher values reflecting adolescents' greater mastery orientation in main subjects at school ($\alpha = 0.81$ at Wave 1 and $\alpha = 0.85$ at Wave 2).

Adolescents' persistent responses to academic failure

Following prior research (Blackwell et al., 2007; Wang et al., 2012), four items were developed to assess adolescents' persistent responses to academic failure (e.g., "I will be willing to work harder on this subject" and "I will check my wrong answers so that I can understand the mistakes that I made"). At both waves, adolescents rated how much they agreed with each item on a five-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). The four items were averaged with higher values indicating adolescents' more persistent responses to academic failure ($\alpha = 0.93$ at both Wave 1 and Wave 2).

Results

Overview of Analyses

Descriptive analyses and bivariate correlations were first examined using SPSS 25. Then, two sets of main analyses were used to examine the key hypotheses using Mplus 8.1. The first set of analyses tested the longitudinal effects of parents' self-development socialization goals and academic achievement socialization goals on three adolescents' academic motivation outcomes (i.e., academic interest, mastery orientation, and persistent responses to academic failure) in separate models, controlling for their initial level of each academic motivation variable and demographic covariates (i.e., adolescents' age, gender, parents' education, family income). Drawing on the results of the first set of analyses, the second set of analyses examined whether parents' autonomy support mediated the significant links between parents' goals and adolescents' academic outcomes. Specifically, the mediating roles of parents' autonomy support at Wave 1 and Wave 2 were both tested by adding each of them into the significant main effect models separately as a mediator. The distribution-of-product approach was adopted to determine the significance of indirect effects using the RMediation online tool due to the relatively small sample size in this study (Tofighi & MacKinnon, 2011). This approach can provide unbiased and robust confidence intervals for indirect effects based on the estimates of parameters and their standard errors, and have better performances over bootstrap techniques when the sample size is small (Tofighi & MacKinnon, 2011). In addition, the

Fixed Effect Model (FEM) approach was utilized to account for the clustered structure of the data (i.e., participants nested within eight classrooms) by including the cluster affiliation indicators (i.e., dummy variables for the classroom membership) as predictors in all models (Allison, 2005). FEM was demonstrated to outperform other methods (e.g., multilevel modeling, Bayesian methods, generalized estimating equations) in parameter estimation and statistical power when the number of clusters is very low (e.g., fewer than 20) and the cluster-level effects are not of interest (McNeish & Stapleton, 2016a, 2016b).

Finally, three sets of sensitivity tests were conducted to establish the robustness of the findings. First, all the models were re-run by using listwise deletion as the approach to handle missing data. Second, all the models were re-run by excluding the demographic covariates in the analyses. Third, self-development socialization goals and academic achievement socialization goals were examined separately in different models rather than being entered into the same models simultaneously.

Descriptive Statistics

Results of descriptive statistics and correlation analyses are presented in Table 1. The two types of parents' socialization goals for their adolescents (i.e., self-development socialization goals and academic achievement socialization goals) were positively correlated, $r = 0.39$, $p < 0.001$. Parents' self-development socialization goals were positively correlated with parents' autonomy support, adolescents' academic interest, mastery orientation, and persistent responses to academic failure at both Wave 1 and Wave 2, $0.26 < rs < 0.43$, $ps < 0.001$. Parents' academic achievement socialization goals were positively related to adolescents' academic interest and mastery orientation at Wave 1, as well as persistent responses to academic failure at Wave 1 and Wave 2, $0.14 < rs < 0.21$, $ps < 0.03$. There were pairwise positive correlations between adolescents' academic interest, mastery orientation, and persistent responses to academic failure at both Wave 1 and Wave 2, $0.31 < rs < 0.91$, $ps < 0.001$. The levels of adolescents' perceived parents' autonomy support, academic interest, mastery orientation, and persistent responses to academic failure remained relatively stable across waves, $ts < 1.26$, $ps > 0.21$.

Parents' Socialization Goals and Adolescents' Academic Motivation

The main effects of parents' socialization goals on adolescents' academic motivation over time were examined using three saturated path analysis models with perfect model fits. In each model, each of the three academic motivation variables at Wave 2 (i.e., academic interest, mastery

orientation, and persistent responses to academic failure) was predicted by parents' self-development socialization goals and academic achievement socialization goals at Wave 1, adjusting for adolescents' initial level of each academic motivation variable, adolescents' age, gender ($0 = boy$, $1 = girl$), the average score of maternal and paternal education ($0 = high\ school\ education\ or\ below$, $1 = college\ degree\ or\ above$), and family income ($1 = below\ 10,000\ RMB$, $2 = 10,000–20,000\ RMB$, $3 = 20,000–30,000\ RMB$, $4 = above\ 30,000\ RMB$). As shown in Table 2, results indicated that parents' stronger endorsement of self-development socialization goals significantly predicted adolescents' increased academic motivation, including more academic interest ($\beta = 0.16$, $p = 0.01$), mastery orientation ($\beta = 0.15$, $p = 0.01$), and persistent responses to academic failure ($\beta = 0.24$, $p < 0.001$), one year later over and above their initial academic motivation and the other covariates. In contrast, parents' academic achievement socialization goals were not associated with all three academic outcomes over time.

The Mediating Effect of Parents' Autonomy Support

Drawing on the three significant main effects of parents' self-development socialization goals on adolescents' academic interest, mastery orientation, and persistent responses to academic failure, the mediating role of Wave 1 parents' autonomy support in their associations was examined in three mediation models. Specifically, Wave 1 parents' autonomy support was added to each of the three models as the mediator. In each model, Wave 1 parents' self-development socialization goals and academic achievement socialization goals predicted Wave 1 parents' autonomy support, which further predicted Wave 2 adolescents' academic motivation. Moreover, parents' autonomy support was allowed to covary with adolescents' academic motivation at Wave 1. The model fits were perfect due to the saturated models tested. As shown in Fig. 1, results suggested that Wave 1 parents' self-development socialization goals were positively related to Wave 1 parents' autonomy support, which in turn positively predicted Wave 2 adolescents' academic interest (Panel A) and mastery orientation (Panel B). The indirect path for academic interest was significant, $\beta = 0.06$, 95% CI = [0.003, 0.121], with a 35% reduction in the total effect. The indirect path for mastery orientation was also significant, $\beta = 0.06$, 95% CI = [0.004, 0.120], with a 38% reduction in the total effect. However, the indirect effect of parents' self-development socialization goals on adolescents' persistent responses to academic failure through Wave 1 parents' autonomy support was not significant, $\beta = 0.03$, 95% CI = [−0.028, 0.094]. Moreover, there were no significant indirect effects from parents' academic achievement socialization goals to adolescents'

Table 1 Correlations, means, and standard deviations of all variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<i>Parents' socialization goals for adolescents</i>														
1. Parents' self-development socialization goals (W1)	–													
2. Parents' academic achievement socialization goals (W1)	0.39***	–												
<i>Parenting practices</i>														
3. Parents' autonomy support (W1)	0.43***	0.05	–											
4. Parents' autonomy support (W2)	0.30***	0.03	0.47***	–										
<i>Adolescents' academic motivation</i>														
5. Academic interest (W1)	0.37***	0.21**	0.35***	0.19***	–									
6. Academic interest (W2)	0.29***	0.10	0.30***	0.42***	0.52***	–								
7. Mastery orientation (W1)	0.34***	0.16**	0.33***	0.18**	0.82***	0.52***	–							
8. Mastery orientation (W2)	0.26***	0.05	0.30***	0.42***	0.50***	0.91***	0.54***	–						
9. Persistent responses (W1)	0.28***	0.19**	0.30***	0.21**	0.47***	0.31***	0.47***	0.33***	–					
10. Persistent responses (W2)	0.27***	0.14*	0.23***	0.36***	0.36***	0.58***	0.43***	0.65***	0.35***	–				
<i>Demographic variables</i>														
11. Adolescents' gender	–0.05	0.07	–0.01	–0.09	0.05	–0.01	0.03	0.00	0.06	0.08	–			
12. Adolescents' age	0.06	–0.07	0.05	0.06	0.05	–0.02	0.02	–0.04	0.05	–0.12	–0.02	–		
13. Parents' education	–0.03	–0.05	0.06	–0.02	–0.10	–0.01	–0.11	–0.01	0.01	–0.01	–0.03	–0.12	–	
14. Family income	0.06	–0.10	0.08	–0.03	–0.01	–0.03	0.00	–0.01	–0.06	–0.13*	–0.04	–0.12*	0.26***	–
<i>M</i>	4.12	4.23	3.67	3.74	5.59	5.53	5.40	5.37	4.02	4.02	0.51	12.29	0.67	2.84
<i>SD</i>	0.85	0.89	1.16	1.06	1.29	1.30	1.30	1.33	1.11	1.04	0.50	0.64	0.38	0.94
<i>Range</i>	1–5	1–5	1–5	1–5	1–7	1–7	1–7	1–7	1–5	1–5	0, 1	11–14	0, 1	1–4

W1 = Wave 1, W2 = Wave 2. Adolescents' gender was coded as 0 (boy) and 1 (girl). Parents' education was the average score of maternal and paternal education which was coded as 0 (high school education or below) and 1 (college degree or above). Family income was coded from 1 (below 10,000 RMB) to 4 (above 30,000 RMB)

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2 Main Effects of Parents' Self-development Socialization Goals and Academic Achievement Socialization Goals Predicting Adolescents' Academic Motivation One Year Later

	Academic interest			Mastery orientation			Persistent responses to academic failure		
	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β
Parents' self-development socialization goals	0.25	0.10	0.16*	0.24	0.10	0.15*	0.30	0.08	0.24***
Parents' academic achievement socialization goals	-0.04	0.09	-0.03	-0.05	0.09	-0.03	0.01	0.07	0.01
Adolescents' academic interest (Wave 1)	0.50	0.06	0.49***	–	–	–	–	–	–
Adolescents' mastery orientation (Wave 1)	–	–	–	0.54	0.06	0.52***	–	–	–
Adolescents' persistent responses (Wave 1)	–	–	–	–	–	–	0.25	0.06	0.27***
<i>Covariates</i>									
Adolescents' gender	0.01	0.07	0.01	0.03	0.07	0.03	0.09	0.06	0.09
Adolescents' age	0.10	0.18	0.05	0.05	0.18	0.03	-0.16	0.15	-0.10
Parents' education	0.08	0.09	0.05	0.11	0.10	0.06	0.03	0.08	0.02
Family income	-0.08	0.08	-0.06	-0.07	0.08	-0.05	-0.13	0.07	-0.12*

Adolescents' gender was coded as 0 (*boy*) and 1 (*girl*). Parents' education was the average score of maternal and paternal education which was coded as 0 (*high school education or below*) and 1 (*college degree or above*). Family income was coded from 1 (*below 10,000 RMB*) to 4 (*above 30,000 RMB*)

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

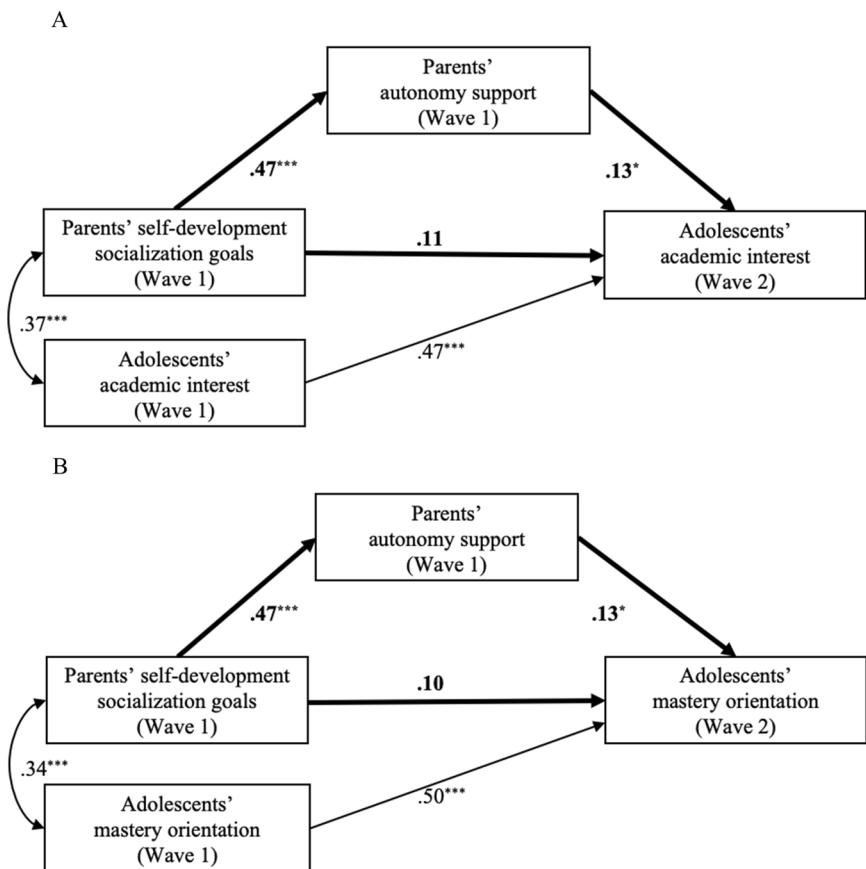
academic motivation via Wave 1 parents' autonomy support.

Similar analyses were conducted to examine the mediating role of Wave 2 parents' autonomy support. Based on each of the three significant main effect models, Wave 2 parents' autonomy support was added to predict Wave 2 adolescents' academic motivation and to be predicted by Wave 1 parents' self-development socialization goals and academic achievement socialization goals, adjusting for Wave 1 parents' autonomy support. Moreover, the variables at Wave 1 were allowed to covary with each other (i.e., the two parents' socialization goals, parents' autonomy support, and adolescents' academic motivation at Wave 1). The model fits were adequate with CFIs = 1.000, RMSEAs = 0.000, SRMRs < 0.004. As shown in Fig. 2, Wave 1 parents' self-development socialization goals positively predicted Wave 2 parents' autonomy support, which subsequently, was positively associated with Wave 2 adolescents' academic interest (Panel A) and mastery orientation (Panel B). The indirect effects for academic interest, $\beta = 0.05$, 95% CI = [0.009, 0.104], 49% total effect reduction, and mastery orientation, $\beta = 0.06$, 95% CI = [0.009, 0.108], 58% total effect reduction, were both significant. In addition, the indirect effect of parents' self-development socialization goals on adolescents' persistent responses to academic failure via Wave 2 parents' autonomy support was also significant, $\beta = 0.04$, 95% CI = [0.006, 0.083], with a 20% reduction in the total effect. Again, there were no significant indirect effects from parents' academic achievement socialization goals to adolescents' academic motivation via Wave 2 parents' autonomy support.

Sensitivity Analyses

Three sets of sensitivity analyses were conducted. First, all models were rerun by using listwise deletion, rather than FIML, to handle missing data. No changes were found regarding all findings. Second, all models were rerun without controlling for the demographic covariates (i.e., adolescents' age, gender, parents' education, and family income). Again, the results showed the same pattern as the models including the covariates. Finally, analyses were conducted by treating parents' self-development socialization goals or academic achievement socialization goals as a single predictor rather than entering both goals simultaneously into the models. Again, the results revealed the same pattern of findings as the main analyses. Specifically, parents' self-development socialization goals positively predicted adolescents' academic interest ($\beta = 0.15$, $p = 0.01$), mastery orientation ($\beta = 0.14$, $p = 0.02$), and persistent responses to academic failure ($\beta = 0.25$, $p < 0.001$) over time. The indirect effects of parents' self-development socialization goals on adolescents' academic motivation via Wave 1 parents' autonomy support were all significant (for academic interest: $\beta = 0.05$, 95% CI = [0.003, 0.109], 34% total effect reduction; for mastery orientation: $\beta = 0.05$, 95% CI = [0.004, 0.108], 37% total effect reduction), except for persistent responses to academic failure ($\beta = 0.03$, 95% CI = [-0.025, 0.081]). The indirect pathways from parents' self-development socialization goals to adolescents' academic motivation via Wave 2 parents' autonomy support were all significant (for academic interest: $\beta = 0.05$, 95% CI = [0.009, 0.097], 47% total effect reduction; for mastery orientation: $\beta = 0.05$, 95%

Fig. 1 Significant indirect effects of parents' self-development socialization goals on adolescents' academic interest (A) and mastery orientation (B) over time through Wave 1 parents' autonomy support. Adolescents' gender, age, parents' education, family income, and parents' academic achievement socialization goals were included as covariates. Standardized coefficients are presented. Paths in bold represent the direct and indirect effects in the mediation model. * $p < 0.05$, *** $p < 0.001$



CI = [0.009, 0.100], 58% total effect reduction; persistent responses to academic failure: $\beta = 0.04$, 95% CI = [0.006, 0.077], 18% total effect reduction). There were no significant main effects or indirect effects of parents' academic achievement socialization goals on adolescents' academic motivation, which was consistent with the findings from main analyses.

Discussion

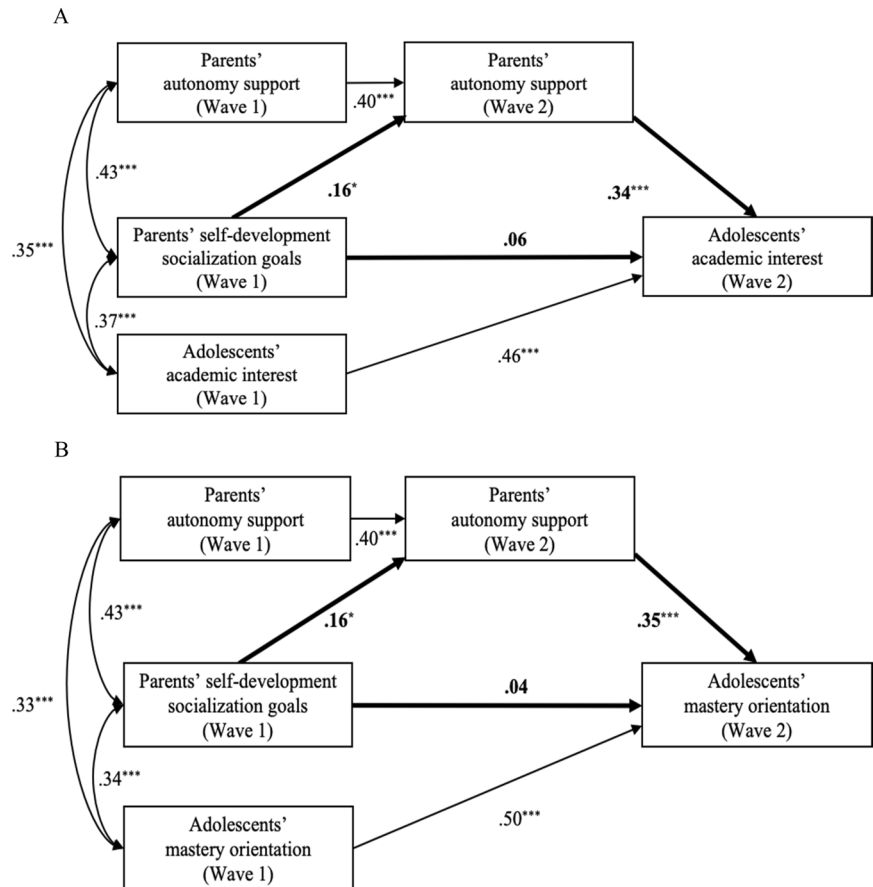
Parents' socialization goals, defined as the qualities, skills, or behaviors that parents want their adolescents to acquire, play a critical role in shaping adolescents' adjustment through parenting practices. However, empirical evidence is still scarce regarding what specific parents' socialization goals might enhance adolescents' academic motivation over time as well as the potential mechanism of parenting practices underlying these longitudinal associations. Moreover, given that parents' socialization goals are culturally shaped, it is also of great value to understand how these socialization goals may make a difference in adolescents' development in non-Western cultures. Using a sample of Chinese adolescents, the current research examined how Chinese parents' self-development and academic achievement

socialization goals may be associated with their adolescents' academic motivation via parents' autonomy support. In line with the integrative model of parenting (Darling & Steinberg, 1993) and the Self-Determination Theory (e.g., Grolnick, 2003), this study found the positive associations between Chinese parents' self-development socialization goals and adolescents' academic motivation (i.e., academic interest, mastery orientation, persistent responses to academic failure) over time, and identified the mediating role of parents' autonomy support in these links. In particular, Chinese parents who hold more self-development socialization goals for their adolescents were more likely to use autonomy support, which in turn, predicted adolescents' enhanced academic motivation one year later. In contrast, Chinese parents' academic achievement socialization goals were not associated with adolescents' academic motivation over time.

The Role of Chinese Parents' Socialization Goals in Adolescents' Academic Motivation

One of the research aims was to investigate whether Chinese parents' self-development socialization goals may have longitudinal relations with adolescents' academic motivation. Consistent with the hypothesis, Chinese parents' socialization goals to cultivate qualities such as autonomy,

Fig. 2 Significant indirect effects of parents' self-development socialization goals on adolescents' academic interest (A) and mastery orientation (B) over time through Wave 2 parents' autonomy support. Adolescents' gender, age, parents' education, family income, and parents' academic achievement socialization goals were included as covariates. Standardized coefficients are presented. Paths in bold represent the direct and indirect effects in the mediation model. * $p < 0.05$, *** $p < 0.001$



self-assertiveness, self-reliance, and uniqueness in adolescents (i.e., self-development socialization goals) positively predicted adolescents' motivation in the academic arena (i.e., more academic interest, mastery orientation, and persistent responses to academic failure) one year later. Notably, these predicting effects were over and above adolescents' initial academic motivation and other demographic covariates. Moving beyond prior cross-sectional studies (e.g., Li et al., 2010), the results suggest that Chinese parents' self-development socialization goals play a positive role in adolescents' development over time. Moreover, the findings suggest that the positive implications of parental self-development socialization goals in Chinese adolescents' development could be extended from adolescents' emotional functioning identified in prior research (e.g., Zhou et al., 2021) to different aspects of their academic functioning, including motivational beliefs (i.e., academic interest and mastery orientation) and motivational behaviors (i.e., persistent responses to academic failure).

More importantly, the current findings regarding the positive implications of Chinese parents' self-development socialization goals for adolescents' academic motivations provide a more holistic understanding of Chinese parenting in contemporary societies. Chinese parents are often

portrayed in literature and popular press as overemphasizing children's academic achievement, with less encouragement of their autonomy, uniqueness, and self-expression compared with their Western counterparts, due to relatively less emphasis on children's independence (vs. interdependence) in traditional ideologies (e.g., Chua, 2011; Pomerantz et al., 2014). Thus, when trying to understand Chinese parents' beliefs that foreshadow children's academic success, prior studies mainly focused on parents' high expectations for children's academic achievement or parents' emphasis on their authority in the family (Guo et al., 2020). However, simply focusing on Chinese parents' beliefs that reflect traditional values, without recognizing that culture is a complex and fluid system (Tamis-LeMonda et al., 2008), may be at risk of generating oversimplified depictions of contemporary Chinese parenting and its implications for adolescents' academic adjustment (Liew et al., 2014). By contextualizing Chinese parenting in contemporary societies that have undergone rapid and extensive social change (Chen & Chen, 2010), the current research demonstrates that Chinese parents also embrace changing cultural ideologies (e.g., more integration of autonomy) so that their adolescents can adapt to the society and have better adjustment over time.

Interestingly, although parents' academic achievement socialization goals were concurrently related to Chinese adolescents' academic motivation, which is in line with prior research (e.g., Ma et al., 2018), this relation did not sustain longitudinally. It is possible that parents' socialization goals to promote adolescents' academic achievement may be accompanied with parenting practices that interfere with the warmth adolescents perceive in the family (Pomerantz et al., 2007), thus making adolescents feel less willing to accept and truly internalize the values (e.g., the importance of learning and effort) conveyed by their parents in the long run (Darling & Steinberg, 1993; Wentzel et al., 2016). In other words, the longitudinal relations between Chinese parents' academic achievement socialization goals and adolescents' academic motivation may depend on the emotional climate (e.g., warmth) that adolescents perceived in the family. Indeed, a longitudinal study suggested that the positive relation between Chinese parents' academic expectations for their adolescents and adolescents' own academic expectations was only significant when these adolescents perceived high, but not low, parental warmth (Wu et al., 2018).

The Mediating Role of Autonomy Support

The second aim of the current research was to investigate whether Chinese parents' autonomy support mediates the path from parental self-development socialization goals to adolescents' academic motivation over time. In line with the hypotheses, parental self-development socialization goals positively predicted parental autonomy support both concurrently and one year later, which in turn positively predicted adolescents' increased academic motivation (e.g., academic interest, mastery orientation). It is possible that Chinese parents who aim to promote qualities such as self-assertiveness, autonomy, and uniqueness in their adolescents are more likely to support their adolescents' autonomy in various life domains (e.g., learning) by encouraging them to take initiatives, make their own choices, and solve their own problems (e.g., Wang et al., 2012). Such practices could satisfy adolescents' basic psychological needs for autonomy and allow adolescents to internalize values from parents such as the value of learning and effort (Grolnick, 2003), thus leading to enhanced academic motivation (Wang et al., 2007). The current findings extended prior research on the mediating effect of parenting practices in the associations from parent's socialization goals to adolescents' developmental outcomes that mainly focused on emotional adjustment such as anxiety (Luebbe et al., 2018) or emotional distress (Ng et al., 2019). In addition, by using a longitudinal design, the current research extended prior cross-sectional studies on the socialization process via parenting practice (Luebbe et al., 2018), and generated

valuable information regarding the robust relations between parents' self-development socialization goals, autonomy support, and adolescents' academic motivation (Jose, 2016).

It is important to note that the longitudinal relation between perceived parental self-development socialization goals and adolescents' persistent responses to academic failure was only mediated by parental autonomy at Wave 2, but not at Wave 1. This is likely because parental autonomy support only predicted adolescents' enhanced persistent responses to academic failure concurrently but not longitudinally. Interestingly, although a large number of studies suggested the positive correlation between parental general autonomy support and children's persistence, most of them did not measure the associations longitudinally (e.g., Padilla-Walker et al., 2013; Su-Russell & Russell, 2021). It is possible that the influences of parental autonomy support on adolescents' motivational behaviors (i.e., changes in adolescents' persistent responses to academic failure) may take longer to take effect compared to other motivational beliefs such as academic interest (Ratelle et al., 2005). It is also possible that parents' autonomy support that are more domain-specific (e.g., in children's learning), rather than general autonomy support, may be more predictive of adolescents' persistent responses to academic failure over time (Silinskas & Kikas, 2019). Still, more studies are needed to investigate whether Chinese parents' autonomy support could robustly predict adolescents' persistent responses to academic failure both concurrently and longitudinally.

Theoretical and Practical Implications

Parents' socialization goals are powerful parental beliefs that shape their parenting practices which ultimately contribute to adolescents' competence in a certain culture (Bornstein, 2006; Darling & Steinberg, 1993). Yet, whether these socialization goals could play a positive role in adolescents' academic motivation over time is less known, especially in non-Western cultures. Moreover, the holistic model from socialization goals to parenting practices and further to adolescents' academic functioning has seldom been examined using a longitudinal design. The current research was one of the first to suggest the positive implications of parents' self-development socialization goals for adolescents' academic motivation over time, and elucidate the underlying mechanisms from parents' self-development socialization goals to adolescents' academic motivation via autonomy support. Moreover, when studying Chinese parenting and adolescents' academic success from a cultural perspective, many prior studies focused on traditional ideologies such as Chinese parents' high expectations for children's academic achievement or parents' emphasis on authority in the family (Guo et al., 2020). Moving beyond,

the current research highlighted the critical role of Chinese parents' self-development socialization goals in adolescents' enhanced academic motivation. By contextualizing Chinese parenting in the changing society (Chen & Chen, 2010), where adolescents' qualities such as autonomy, uniqueness, and self-assertiveness are also valued (Way et al., 2013), this current research provides insights into a more comprehensive understanding of Chinese parenting and its implications for Chinese adolescents' development in contemporary China. Practically, the findings are informative to intervention programs that aim to optimize adolescents' academic motivation, which has significant impacts on their future development, including educational attainment (Tuominen-Soini & Salmela-Aro, 2014) and career pathways (Wiesner et al., 2003). In these programs, educating parents on the importance of self-development socialization goals could be the key to enhancing adolescents' academic motivation. Family-school partnership could be built to communicate to parents the importance of autonomy, uniqueness, and self-assertiveness for adolescents' development in contemporary society so as to facilitate parents' endorsement of self-development socialization goals. In this way, self-development socialization goals may guide parents to provide autonomy support to their adolescents, which ultimately benefit adolescents' academic motivation.

Limitations and Future Directions

There are some limitations of this study, which provide directions for future research. First, although the use of longitudinal design to test the mediation model has merits, only two waves of data were collected, and the relations examined were only correlational in nature. Three-wave longitudinal research could be conducted in the future to simultaneously examine how parents' socialization goals predict changes in parenting practices and how parenting practices predict changes in adolescents' academic motivation in the mediation model (Jose, 2016). Moreover, to test the causal effects of parents' socialization goals on parenting practices and adolescents' academic motivation, future research could apply an experimental design (e.g., Ng et al., 2021) by manipulating parents' goals (e.g., reading a brochure that highlights the importance of adolescents' self-development in the contemporary society) and observing their subsequent parenting practices and adolescents' academic motivation in laboratory settings.

Second, all variables were measured using adolescents' self-reports, which may lead to biased results due to common method variance or parent-adolescent perception discrepancies in parents' socialization goals or practices. Notably, although single report by adolescents may lead to inflated correlations, the current research controlled for the temporal stability of the outcome variables in the main analyses to reduce the common method variance. Moreover,

it was found that only parental self-development socialization goals reported by adolescents, but not parents, significantly predicted adolescents' emotional functioning (Zhou et al., 2021). Thus, it would be fruitful to investigate the robustness of the current findings by including multiple informants (e.g., parents and adolescents) in future research.

Finally, the current findings regarding parental socialization goals and adolescents' academic functioning were contextualized in urban China. As rural regions of China may not have undergone many social and economic changes compared to urban areas, rural Chinese parents may not endorse self-development socialization goals to the same extent as the current sample. Moreover, the beneficial effect of parents' self-development socialization goals on adolescents' academic motivation may also be less influential in rural (vs. urban) Chinese areas (Chen & Li, 2012). In addition, parents' academic achievement socialization goals, which reflect their high academic expectations, may still play an important role in helping rural adolescents enhance academic motivation to climb up the social ladder for a better life (e.g., Li & Yeung, 2019). Thus, testing whether and how parents' self-development and academic achievement socialization goals may play a role in rural adolescents' academic development could help investigate the generalizability of the current findings in the heterogeneous Chinese society. Furthermore, it remains unknown whether the current findings can be generalized to other cultural groups (e.g., individualistic culture). Prior research found that parents' self-development socialization goals are more pronounced in individualistic culture (e.g., the United States) that emphasize one's uniqueness, self-expression, and self-assertiveness, in comparison to collectivistic culture (e.g., China; Li et al., 2010). Moreover, parents' autonomy support was found to have more beneficial effects on adolescents' academic motivation (e.g., importance of doing well on school and self-regulated learning) in the United States than in China, probably because American adolescents have stronger needs for autonomy (Wang et al., 2007). Therefore, cross-cultural studies are needed to examine whether parents' self-development socialization goals may have more positive implications for adolescents' academic motivation via enhanced autonomy support in individualistic cultures than in collectivistic cultures.

Conclusion

Parents' socialization goals are influential in shaping their parenting practices, which can ultimately contribute to adolescents' competence in their cultures. Yet, no prior research has directly examined the positive longitudinal associations between parents' socialization goals and adolescents' academic motivation, and whether such relations may be mediated by parenting practices, especially in non-Western

cultures. Using a two-wave longitudinal design with a sample of Chinese adolescents, this research is one of the first to demonstrate the positive role of Chinese parents' self-development socialization goals in adolescents' academic motivation over time in contemporary China. These findings contribute to a better understanding of Chinese parenting and its implications for adolescents' academic development in the changing society that has undergone modernization, globalization, and reform toward a market economy. In addition, this research provides empirical support to the holistic process from parents' self-development socialization goals to parents' increased use of autonomy support and further to adolescents' enhanced academic motivation over time. To promote Chinese adolescents' academic motivation, intervention programs can consider educating parents about the importance of adolescents' self-development, including qualities such as independence, self-assertiveness, and uniqueness that are valued in the current society, so that parents can support their adolescents' autonomy in their everyday life.

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Authors' Contributions Z.Z. performed data collection, developed the hypotheses, performed the statistical analyses, interpreted the results, and drafted the manuscript; Z.S. interpreted the results and drafted the manuscript; X.L. participated in the study design, and performed data collection; Y.Q. participated in the study design, developed the hypotheses, oversaw the data analysis, interpreted the results, and revised the manuscript. All authors read and approved the final manuscript.

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Data Sharing Declaration The datasets generated and/or analyzed during the current study are not publicly available but are available from the corresponding author on reasonable request.

Compliance with Ethical Standards

Conflict of Interest The authors declare no competing interests.

Ethical Approval All procedures performed in studies involving human participants were in accordance with 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 Informed consents were obtained from all participants included in the study.

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