



Family SES, positive involvement, negative discipline and Chinese preschooler's approaches to learning

Lina Feng¹ · Linlin Yao²

Accepted: 31 August 2021 / Published online: 11 September 2021

© The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature 2021

Abstract

Approaches to Learning (ATL) is essential for children's learning and development. Prior research examined the role of school-related factors, but little research focused on the impacts of family-related factors on the ATL of children. This study examines how family socioeconomic status (SES) of preschool children affects their ATL. Data was collected from the parents and teachers of 988 preschool children in China. The results uncover that the positive effect of family SES on the ATL of preschoolers is mediated by positive involvement and negative discipline. Interestingly, preschool children's gender moderates the mediating effects of positive involvement and negative discipline: for girls, the mediating roles of positive involvement and negative discipline are both supported. However, for boys, only positive involvement mediates the effect of family SES on ATL. By bridging family investment theory with parenting theory, this study opens the black-box covering the relationship between family SES and preschoolers' ATL. By elucidating the gender-specific mediation process, this study contributes to the literature from a Chinese parenting culture perspective. In practice, these findings suggest that educational government can boost children's ATL by organizing parenting training instructed by education experts to improve parents' parenting skills.

Keywords Family SES · Positive involvement · Negative discipline · Approaches to learning

Introduction

Approaches to Learning (ATL) refers to the motivation and behavior that children demonstrate in learning situations, including competence motivation, attention/persistence, and learning strategies. ATL describes how children initiate, participate in, and complete their learning tasks (McDermott et al., 2016). As a key domain of children's school readiness, ATL predicts their academic achievement and social outcomes (Hyson, 2008). ATL has also been identified as a key factor contributing to children's long-term academic achievement (Schmerse, 2020). More importantly, ATL has a protective role for school-aged children with serious academic failure (McClelland et al., 2000; McClelland et al., 2014). For instance, a Head Start study showed that

the poor academic performance of children is more likely to be associated with their insufficient learning motivation (McDermott et al., 2014). The influence of children's ATL at the age of 5 was significantly correlated with their social outcomes at the age of 9, and children's ATL on their social outcomes may follow the cumulative advantage model (Razza et al., 2015).

Previous studies have explored the roles of several school-related factors in shaping children's ATL, such as teacher-child interaction, classroom teaching quality, preschool social-economic states, early-care and education quality (Domínguez et al., 2010; Hu et al., 2017; Feng & Wu, 2018; Schmerse, 2020). Family investment theory suggests that family socioeconomic status (SES) is a crucial factor in shaping children's ATL, but the existing knowledge about how family SES influences children's ATL is lacking. Therefore, to complement the findings from prior studies examining school-level influence, we focus on the role of family characteristics to advance our understanding of children's ATL. Particularly, the focused family characteristic is family SES, because it has been recognized as a core family feature in relevant education research (Yeung et al., 2014). The research question we aim to address is: how does family SES affect ATL among Chinese preschoolers?

✉ Lina Feng
fenglina@nbu.edu.cn

¹ College of Teacher Education, Ningbo University, Ningbo 315211, China

² Department of Human Development and Family Studies, University of Illinois at Urbana-Champaign, Urbana 61802, USA

Several studies indicate that family SES may impact the development level of the ATL of children (Wang et al., 2010; Buek, 2019). As to the mechanism underlying the influence of family SES, family SES may exert its impact on children's ATL through parenting behaviors. The family investment theory suggests that high family SES can induce positive parenting (i.e., positive involvement) because wealthy parents would invest more resources and create a better environment for children's learning and development than poor parents (Conger & Donnellan, 2007). Positive involvement is one of the most important ways of investment (Bi et al., 2018; Harding et al., 2015). On the other hand, the family stress theory indicates that low family SES can spur negative parenting (i.e., negative discipline) because poor parents are under more stress in maintaining and operating their families (Conger & Conger, 2002). The family pressure, for example, would push poor parents to spend much time making money to improve life quality, resulting in reduced participation in children education (Conger et al., 2012). Moreover, parents from low SES families are inclined to perceive emotional distress or helplessness in balancing work and children's education, which would further provoke negative parenting behaviors such as spanking children (Neppi et al., 2016; Lan, 2019).

Positive involvement includes positive reinforcement and parental involvement when participating in children's activities (Esposito et al., 2016). Previous studies have obtained inconsistent results regarding the relationship between positive involvement and ATL. For example, some research found that parental involvement significantly predicts children's learning motivation, attention, and perseverance, which are important components of ATL (Fantuzzo et al., 2004), while other studies indicated that simple or relaxed parental involvement is generally not influential to children's ATL (Nakamuro et al., 2013). Moreover, other research does not support the relationship between parental involvement and ATL (Dewar, 2012; Feng & Wu, 2018). This inconsistency may be explained by the fact that, although generally considered as a positive element in parenting, parental involvement can sometimes involve negative attitudes or behaviors that are not favorable for children's development. For example, mothers' intensive and time-consuming involvement with children may lead to more negative discipline (Essau et al., 2006). Parental involvement alone is inadequate when examining positive parenting. The positive reinforcement of parents has also been identified as a vital predictor of the level of children's ATL (Feng & Wu, 2018). Therefore, these two positive sides of parenting should be concurrently considered to better understand the relationship between parental behavior and ATL.

Negative discipline is a risk factor for children's learning and development. For preschool children, low-quality parenting (negative parenting) has a severe impact on their ability to

self-regulate learning-related behaviors (Morgan et al., 2009). Negative discipline is related to children's self-regulation, attention, executive function, and classroom adaptive behaviors (Choe et al., 2013; Pederson & Fite, 2014). In previous studies, researchers focused on inconsistent discipline in negative discipline (Osa et al., 2014). However, in this study, we include corporal punishment besides negative discipline because Chinese parents are deeply influenced by traditional cultural values in parenting, which means that some parents still believe that spanking and corporal punishment are effective in children's education. Another reason for this inclusion is that previous studies revealed the negative influence of corporal punishment on children's academic performance and outer behaviors. It is necessary to investigate these two negative sides of parenting to better understand risky parental behaviors associated with the development of ATL.

Accounting for the influence of Chinese family culture on the educational attainments of boys and girls, girls' educational opportunities are more likely to be limited by family background. Girls in poor family environment have fewer education opportunities than those from rich families (Li, 2009; Wu et al., 2020). In Chinese family culture, girls are more likely to receive negative discipline from their parents than boys, and even girls from high SES families still cannot receive equal positive involvement with their brothers. In this sense, high family SES can improve girls' ATL mainly because of the reduced negative parenting they received. Instead, boys are more likely to receive positive involvement in Chinese families, because of the traditional notion of "prefer sons to daughters" in parents' mindsets (Lin & Zhao, 2015; Liao & Zhang, 2020). In the process of individual socialization, boys and girls develop behaviors that are compatible with gender norms and are affected by gender stereotypes or gender role expectations. Boys are encouraged to be independent and self-exploring while girls are taught to be obedient, sensitive, and to establish close and dependent relationships with others (Milfont & Sibley, 2016). For girls, gender role expectations make them pay more attention to relational and emotional experience than they do for boys. Prior studies have found that parental punishment and conflict between children can predict problematic behaviors of girls, but not of boys (Xing et al., 2011). Compared with boys, girls' ATL may be more strongly impacted by negative discipline.

In general, boys and girls are treated differently in Chinese family culture. Based on this difference, we predict that family SES will affect the ATL of children via different parenting behaviors between girls and boys (girls: negative discipline, boys: positive involvement). Overall, the uniqueness of Chinese parenting culture (treating boys and girls unequally) gives us an opportunity to contribute new insights to parenting theory and its relationship with ATL development.

The Current Study

The purpose of this study was to investigate whether positive involvement and negative discipline mediate the relationship between family SES and the ATL of preschool children, and whether the mediation effects are moderated by children's gender. Based on the family investment model and parenting theory, we predict that family SES will positively affect parents' positive involvement but negatively affect negative discipline, and accordingly, parents' positive involvement can improve children's ATL but negative discipline will harm children's ATL. In this sense, positive involvement and negative discipline mediate the relationship between family SES and the ATL of preschool children. Drawing on Chinese parenting culture, we further propose that children's gender will moderate the mediating effects of parenting behaviors among Chinese preschoolers. These three hypotheses are presented below:

H1: Positive involvement mediates the relationship between family SES and the ATL of preschool children.

H2: Negative discipline mediates the relationship between family SES and the ATL of preschool children.

H3: For boys, family SES positively affects ATL via increased positive involvement; for girls, family SES positively affects ATL via decreased negative discipline.

Method

Construct Measurement

To measure the two parenting behaviors, the preschool-version APQ (Alabama Parenting Questionnaire Preschool Revision) scale (Shelton et al., 1996; Esposito et al., 2016) was used. The APQ is a parent-reported scale measuring positive involvement and negative discipline. Having been validated in the Chinese context (Zhao et al., 2017; Feng & Wu, 2018), the APQ scale contains 19 items, with 12 items measuring positive involvement (e.g., "You play games or do other fun things with your child") and 7 items measuring negative discipline (e.g., "You spank your child with your hands when he or she does something wrong"). The items are rated on a 5-point Likert scale (never, rarely, sometimes, often, and always). High scores on positive involvement indicate parents manifest much positive parenting practice, while high scores on negative discipline indicate parents manifest a high level of negative parenting. In the original scale-development study, Cronbach's α for the APQ was 0.80 (Esposito et al., 2016), which is 0.80 in this study.

To measure children's approaches to learning, the PLBS scale (Preschool Learning Behavior Scale; McDermott et al.,

2012) was used. The PLBS is a teacher-reported scale measuring preschoolers' observable learning behaviors related to learning process. The Chinese version of the PLBS has been validated (Wu et al., 2019; Feng, 2020). The PLBS contains 21 items (contains four positively worded items and seventeen negatively worded items), which are grouped into three dimensions: competence motivation (10 items, e.g., "Too unenergetic for interest/effort"); attention/persistence (5 items, e.g., "Pays attention to what the teacher says"); and learning strategy (6 items, e.g., "Performs in own not accepted way"). Each item is scored on a 3-point Likert scale (1 = does not apply, 2 = sometimes applies, and 3 = often applies). In this study, the responses for all negatively worded items were reversed so that higher scores on the scale indicate better performance in preschooler's ATL. In the original scale-development study, Cronbach's α for the PLBS was 0.83 (McDermott et al., 2012), which is 0.88 in our study.

Family SES was measured based on two family background indices, i.e., parental education level, and disposable income per capita. The parental education level indicates the highest educational level parents received (1 = primary school and below; 2 = junior middle school; 3 = high school or vocational high school; 4 = junior college degree; 5 = undergraduate; 6 = master's degree or above). We used the average education level of father and mother to calculate the parental education level. Disposable income per capita was determined by asking the parents to report their disposable income for 2019. The following scores were used to measure disposable income: 1 = $\leq 10,000$ CNY; 2 = 10,001–20,000 CNY; 3 = 20,001–30,000 CNY; 4 = 30,001–50,000 CNY; 5 = 50,001–100,000 CNY; 6 = $\geq 100,001$ CNY. Finally, parental education level and disposable income per capita were standardized and added into a total score to represent family SES (Perry & McConney, 2010), with a higher score indicating a higher family SES. In this study, family SES scores range from 4.26 to 3.52.

Data Collection Procedure

Data collection was executed after approved by the ethics review committee of the authors' school. Also, data was collected from the teachers and parents of sampled children after obtaining the informed consent of participants. Samples were randomly recruited from the preschools in Ningbo City, in China. The sampling process was supported and assisted by the local education department. To recruit representative samples, stratified random sampling was deployed. The sampling process includes 3 layers. First, we randomly selected preschools from the list of preschools in Ningbo City. Second, we randomly selected grades from the selected preschools. Third, we randomly selected children from the selected grades. Finally, we invited the parents and teachers of the selected children to respond to our questionnaire. Parents were

required to report the basic information of family and children, and evaluate their parenting practice on APQ scale. Teachers were required to evaluate the ATL of the selected children on PLBS scale. We did not collect any information that indicates the identification of participants. Instead, we used an identical ID number to label the parent and teacher of each child, such that we can obtain matched data for data analysis, and meanwhile, participants can maintain anonymity throughout the collection process. Data collection starts in 2019.12.08 and ends in 2019.12.29. Figure 1 displays the sampling process of this study.

Mentally retarded children are excluded in our sampling because the ATL of children with intellectual disability mainly depends on genetic and hereditary factors, beyond the scope of this paper. The sample size is 988 (48.7% girls) and the age range of children is 32–89 months ($M = 63.21$, $SD = 10.60$). 14.9% of the questionnaires were filled in by father, 84.4% were filled in by mother, and 0.7% were filled in by other family members. Approximately 48.28% of the families had an annual income higher than the average for Ningbo in 2019 (CNY50411; Ningbo Statistics Bureau, 2020). 63.2% of the parents held a junior college degree or above. All participated teachers are female, had been preschool teachers for at least one year, and had taught the children in their classes for at least two months. A total of 98.6% of the teachers had a junior college degree or above. Table 1 shows the demographic information of the participants.

Data Analysis

In this study, confirmatory factor analysis was conducted for APQ and PLBS to determine the goodness of fit of the measurement model. SPSS (version 24) was used to perform the descriptive and correlation analysis. Structural equation modeling (SEM) was performed using Mplus (version 7.4) to examine the mediating effects of positive involvement and negative discipline on the relationship between family SES and the ATL of preschool children. Finally, multi-

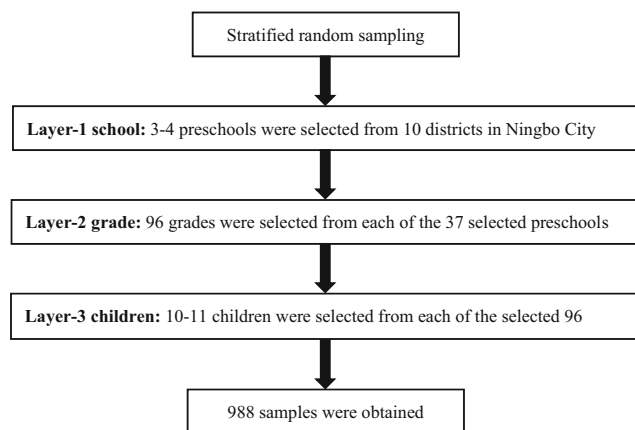


Fig. 1 The sampling procedure

Table 1 Demographic information of the participants

Demographic variable	Percentage
<i>Education level of parents</i>	
primary school and below	0.1
junior middle school	16.7
high school or vocational high school	20.0
junior college degree	38.8
undergraduate	22.5
master's degree or above	1.9
<i>Family annual income</i>	
≤10,000 (CNY)	7
10,001–20,000 (CNY)	8.5
20,001–30,000 (CNY)	12.2
30,001–50,000 (CNY)	24.0
50,001–100,000 (CNY)	33.6
≥100,001 (CNY)	14.7
<i>Education level of teachers</i>	
primary school and below	0
junior middle school	0
high school or vocational high school	1.5
junior college degree	67.7
undergraduate	30.6
master's degree or above	0.3
<i>Teaching experience^a</i>	8.41(5.96)

^a teaching experience is presented by the form of “Mean (SD)”, which means the years that preschool teachers had been teaching

group analysis was performed to test whether the mediating effects of positive involvement and negative discipline on the relationship between family SES and the ATL of preschool children differ in children's gender. The mediation variables of positive involvement and negative discipline were collected from the parents of selected children. The outcome variable of approaches to learning was collected from the teachers of selected children. Therefore, we need to use matched data (parents-teachers) in data analysis. If a sampled child has missing data in mediation variables or outcome variable, s/he will be deleted and does not enter the stage of data analysis.

Results

Before testing our hypotheses, we first performed confirmatory factor analysis (CFA) to validate the measurement scales used in this study. Table 2 displays the fit indexes of the CFA models for APQ and PLBS. The results showed that the CFA model for APQ reaches acceptable fit goodness. Also, the fit indexes of the CFA model for PLBS are in an acceptable range. Moreover, all the factor loadings of items of APQ

Table 2 The fit indexes of CFA models for APQ and PLBS

Measures	χ^2	df	χ^2/df	CFI	TLI	RMSEA [90% CI]
APQ	502.454	142	3.538	0.926	0.911	0.051 [0.046, 0.056]
PLBS	639.704	186	3.439	0.925	0.908	0.053 [0.048, 0.057]

and PLBS are above 0.70. These pieces of evidence indicate that the used scales have adequate construct validity (Marsh & Hocevar, 1985).

Descriptive and Correlation Analysis

Table 3 summarizes the descriptive statistics of the variables. Correlation analysis was conducted to probe the relationships among these variables. As shown in Table 3, the results indicate that family SES is positively correlated with positive involvement and children’s ATL and negatively correlated with negative discipline; positive involvement is positively correlated with children’s ATL; negative discipline is negatively correlated with children’s ATL. Overall, the results of correlation analysis provide preliminary support for our theoretical predictions. Next, we formally test our hypotheses using mediation analysis and multi-group analysis.

Mediation Analysis

Before testing the mediating effects of positive involvement and negative discipline on the relationship between family SES and the ATL of preschool children, we first ran a total-effect model to examine the total effect of family SES on children’s ATL. We found that family SES has a positive effect on children’s ATL without considering the roles of the two parenting behaviors, $\beta = 0.139, p < 0.001$. This indicates that those children in high-SES families tend to have higher levels of ATL relative to those in low-SES families. Figure 2 displays the mediation model analyzed using Mplus. The model demonstrates an acceptable goodness of fit: $\chi^2 =$

157.481, $df = 23$, CFI = 0.930, TLI = 0.893, RMSEA = 0.077.

Table 4 shows the detailed parameter estimates of the mediation model. The results show that family SES has a positive effect on positive involvement ($\beta = 0.341, p < 0.001$) and a negative effect on negative discipline ($\beta = -0.147, p < 0.01$). Moreover, positive involvement has a positive impact on ATL ($\beta = 0.155, p < 0.001$), whereas negative discipline has a negative impact on ATL ($\beta = -0.281, p < 0.001$). After adding the two mediators, the direct effect of family SES on ATL becomes non-significant ($\beta = 0.045, p > 0.05$), which implies that parenting behaviors are the main mechanisms by which family SES influences ATL. Moreover, we found that monthly age has a positive effect on ATL ($\beta = 0.237, p < 0.001$), indicating that children’s ATL increases with age.

We used the bootstrapping method to test the mediating effects of positive involvement and negative discipline on the relationship between family SES and the ATL of preschool children (Preacher & Hayes, 2008). This method has been widely used in mediation analysis because it does not require the normality of the sampling distribution of the mediating effect. Specifically, bias-corrected confidence intervals (CIs) generated from bootstrapping resamples ($k = 1000$) were used to determine the significance of mediating effects. If the bootstrapped 95% CI of a mediating effect does not include zero, then the mediating effect can be concluded to be significant (Preacher & Hayes, 2008). The results show that the bootstrapped 95% CI of the mediating effect of positive involvement is [0.004, 0.016], excluding zero. Therefore, positive involvement significantly mediates the relationship between family SES and ATL, supporting H1. Meanwhile, the bootstrapped 95% CI of the mediating effect of negative discipline is [0.003, 0.015], excluding zero. Therefore, negative discipline also significantly mediates the relationship between family SES and ATL, supporting H2. Overall, these results suggest that family SES can improve children’s ATL via two concurrent routes, namely,

Table 3 Means, standard deviations, and correlation coefficients among studied variables

	M	SD	1	2	3	4	5
1. Family SES	0.042	1.643					
2. Positive Involvement	4.019	0.582	0.308**				
3. Negative Discipline	2.086	0.481	-0.094**	-0.020			
4. Approaches to Learning	2.566	0.312	0.099**	0.180**	-0.204**		
5. Age	63.210	10.597	-0.052	-0.078*	-0.023	0.178**	
6. Gender	1.490	.500	0.020	0.081*	-0.097**	0.109**	-0.067*

SES - socioeconomic status; Age of preschoolers is counted by the number of months; Gender: 1 = male, 2 = female; ** $p < 0.01$, * $p < 0.05$

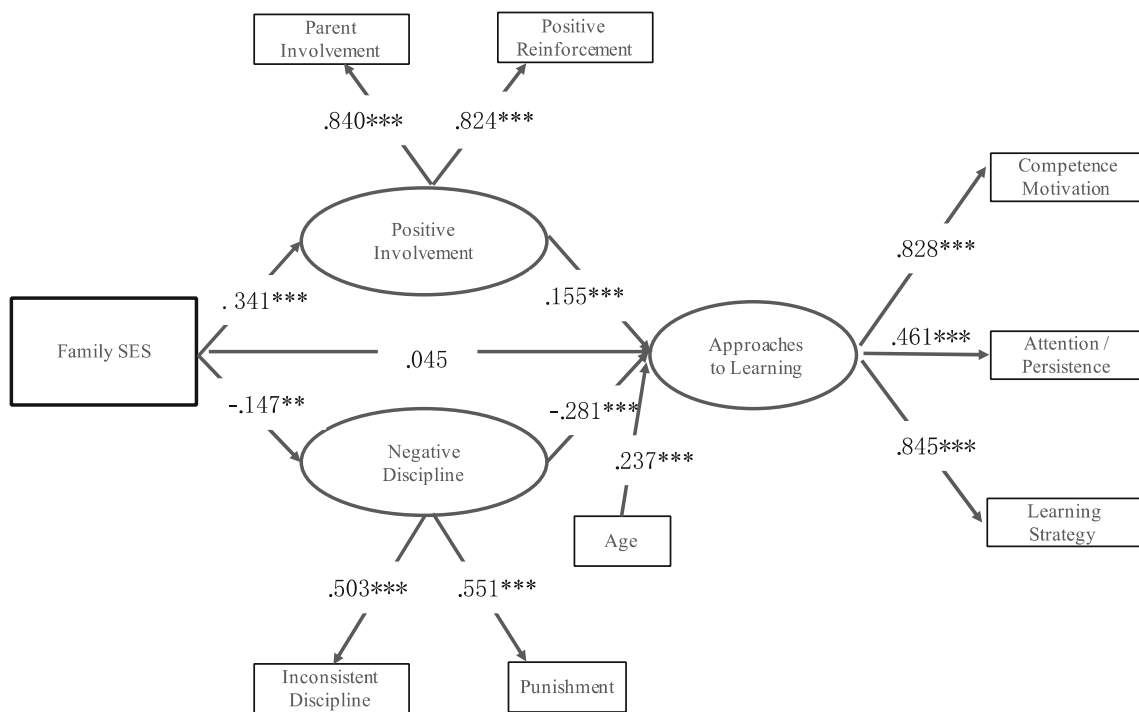


Fig. 2 The mediation model with standardized estimates

increasing positive involvement and decreasing negative discipline.

Multi-Group Analysis

We also proposed that the children’s gender moderates the mediating effects of positive involvement and negative discipline on the relationship between family SES and the ATL of preschool children because of the uniqueness of parenting culture in China. Here, we test the moderating effect of gender using multi-group analysis as gender is a dichotomous variable (Chou & Sun, 2017). The multi-group model reached an acceptable goodness of fit: $\chi^2 = 211.940$, $df = 57$, $CFI = 0.918$, $TLI = 0.899$, $RMSEA = 0.074$. Figure 3 displays the standardized coefficient estimates for the male group, and Fig. 4 displays the standardized coefficient estimates for the

female group. Table 5 summarizes the results of the multi-group mediation analysis.

For the male group, the results show that positive involvement significantly mediates the effect of family SES on the children’s ATL because the bootstrapped 95% CI ([0.014, 0.090]) does not include zero, but the negative discipline has no significant mediating effect on the relationship between family SES and the children’s ATL since the bootstrapped 95% CI ([-0.008, 0.069]) includes zero. For the female group, we found that the bootstrapped 95% CIs of the mediating effects of positive involvement ([0.009, 0.102]) and negative discipline ([0.022, 0.159]) both exclude zero. Hence, the relationship between family SES and ATL is mediated by the two parenting behaviors simultaneously for girls. Overall, the results of the multi-group mediation analysis show that the internal mechanisms by which family SES influences ATL are

Table 4 The estimated path coefficients of the mediation model

Path	Non-standardized coefficient	Standardized coefficient	S.E.	P value
Family SES → positive involvement	0.112	0.341	0.012	***
Family SES → negative discipline	-0.030	-0.147	0.010	0.003
Positive involvement → ATL	0.089	0.155	0.025	***
Negative discipline → ATL	-0.262	-0.281	0.059	***
Family SES → ATL	0.009	0.045	0.007	0.232
Month → ATL	0.007	0.237	0.001	***

*** p < 0.001; S.E. denotes standard error

Table 5 The gender-specific mediating effects of parenting behaviors

Gender	Mediating effect	Point estimates	Interval estimates (bootstrapped 95% CI)
Male	Family SES → positive involvement → ATL	0.048	[0.014, 0.090]
	Family SES → negative discipline → ATL	0.021	[-0.008, 0.069]
Female	Family SES → positive involvement → ATL	0.053	[0.009, 0.102]
	Family SES → negative discipline → ATL	0.064	[0.022, 0.159]

different for girls and boys in China, thus partially supporting H3. Interestingly, the mediating role of negative discipline is lacking for boys. We will elucidate these findings in the following section from the perspective of Chinese parenting culture.

Discussion

The current study examines the relationship between family SES and children’s ATL and its underlying mechanisms. On the one hand, we clarify how family SES affects children’s ATL by examining the mediating roles of parents’ positive involvement and negative discipline on the relationship between family SES and the ATL of preschool children; on the other hand, we clarify whether the mediating process differs in gender. We found that for boys, parents’ positive involvement has a mediating effect. But for girls, both parents’ positive involvement and negative discipline have mediating effects.

In sum, the first and second hypotheses are supported, the third hypothesis is partly supported. Our findings have several implications for parenting theory and scientific intervention related to children’s ATL.

The results show that family SES has a positive effect on the ATL of preschool children. This finding is consistent with the family investment theory, which indicates that the educational level of parents and family income both have significant impacts on children’s development (Conger & Donnellan, 2007; Wang et al., 2010). Social class can influence parents’ views on the gains and risks of education investment, leading to different parenting strategies or behaviors (Lan, 2019). The education investment of working-class families (i.e., those with lower SES) mainly focuses on intellectual education and the outcomes of learning. Most working-class families showed a stronger desire for children’s academic achievement and fewer concerns on children’s development in other areas such as ATL than middle-class families (families with higher SES) (Shih, 2010). Therefore, this finding contributes to the

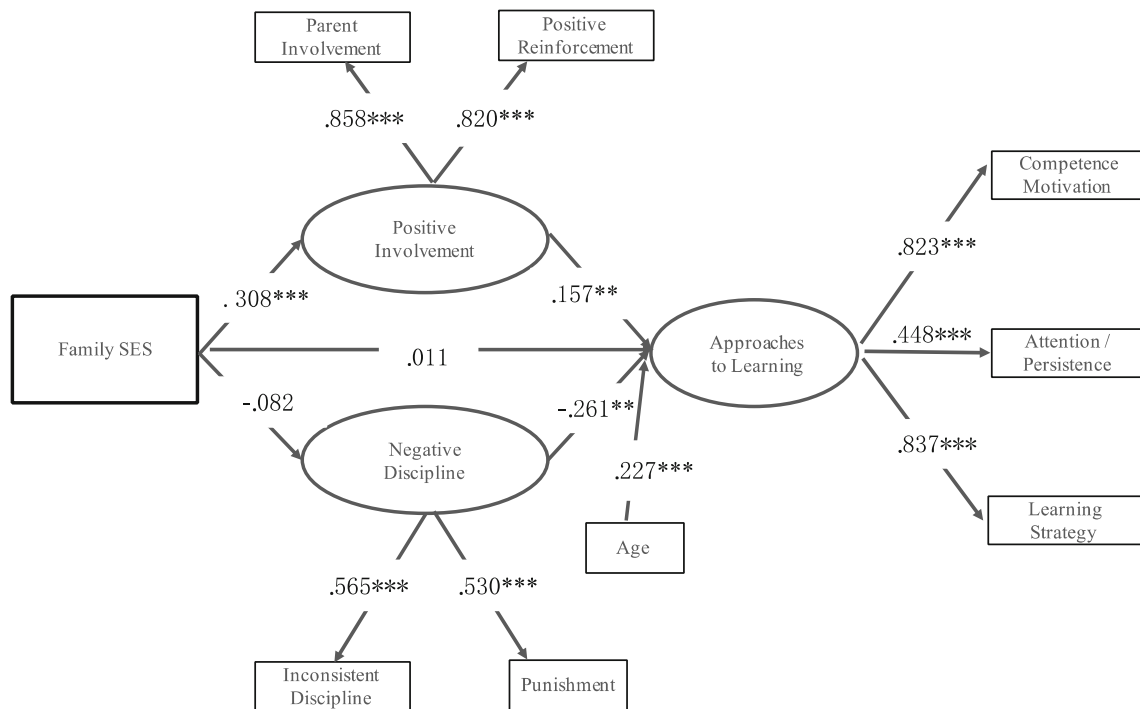


Fig. 3 The mediation model with standardized estimates for the male group (N = 507)

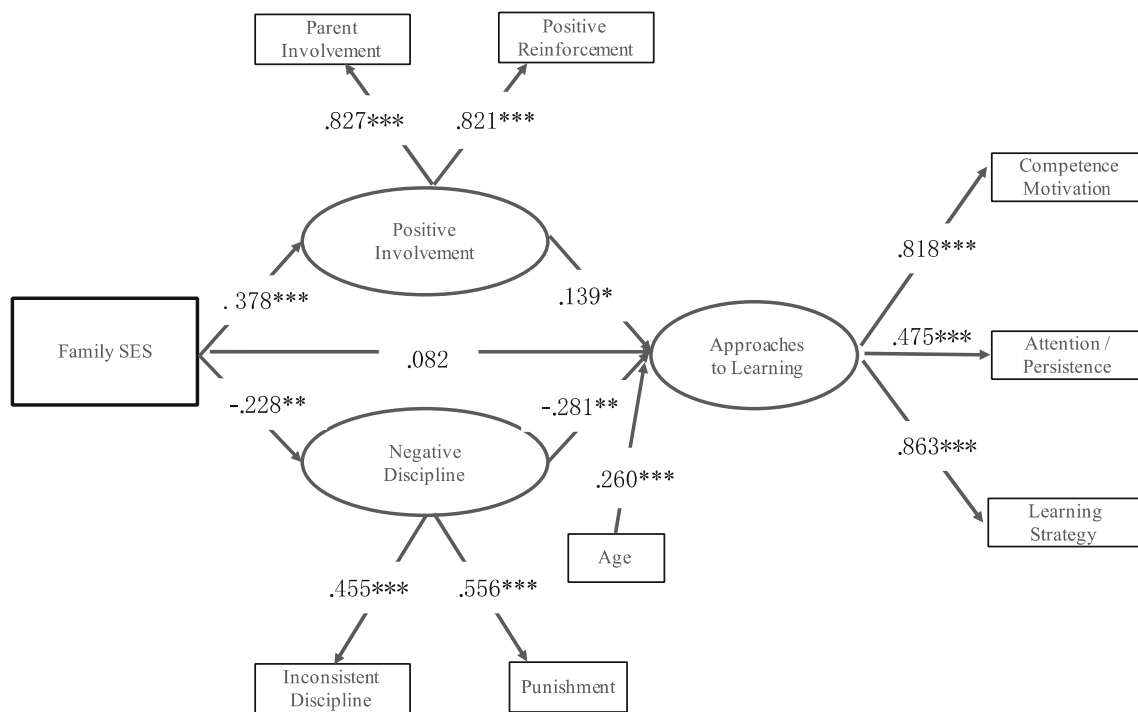


Fig. 4 The mediation model with standardized estimates for the female group (N = 481)

ATL literature by implying that family-related factors could also be important in shaping children's learning behavior and motivation, beyond the school-related factors documented in previous studies (Domínguez et al., 2010; Hu et al., 2017; Feng & Wu, 2018; Schmerse, 2020). Next, we discuss the findings of the mediators and gender difference in the mediation process in detail.

The Mediating Role of Positive Involvement

The current study finds that positive involvement mediates the relationship between family SES and the ATL of preschool children. High family SES can prompt positive involvement from parents, which further leads to improved ATL of preschoolers. The family investment model indicates that parents with high SES are more involved in joint parent-child activities and provide children with reactive and supportive education (Conger & Donnellan, 2007). Furthermore, high-SES parents are more capable of promoting their children's development through various kinds of guidance and tend to provide more encouragement in cultural resources.

Parents' influence on children's development within the proximal environment depends on the nature and frequency of parent-child interaction (Bronfenbrenner, 1979). Positive involvement indicates a supportive and beneficial parent-child relationship. The influence of learning and joint activities on children's development will be enhanced if these interactions occur in a mutually supportive parent-child interaction. When children are closely attached to their parents

emotionally, children will learn more from their parents. Parents who have a higher level of positive involvement tend to consider children's preferences more, participate more in children's activities, and demonstrate better reciprocal and positive communication with their children. Parents with a higher level of positive involvement also give specific feedback to their children to help children cope with frustration and increase the children's interest, motivation, and effort, which enhance their learning and thinking (McClelland et al., 2000). Moreover, parents' positive involvement could convey explicit emotional acceptance or praise to children, which can facilitate the improvement of children's ATL (Li & Lv, 2013; Jeon & Neppel, 2019).

The Mediating Role of Negative Discipline

This study finds that negative discipline also mediates the relationship between family SES and the ATL of preschool children. Low family SES can incur negative parenting from parents, which further results in poor ATL of preschoolers. Conger et al. (2012) suggest that parents from low-SES families will experience heavier family pressure, thus spending less time with their children and tending to show more negative emotions when interacting with children. The unfavorable factors caused by low family SES can lead to inferiority in child development, compared to children from higher-SES families (Bradley & Corwyn, 2002).

In contrast to positive involvement, negative discipline was found to play a negative role in the development of children's

ATL. In the proximal family environment, a passive or aggressive parent-child relationship can destroy the positive effect of joint activities between parents and their children, thus hampering the children's learning. This is supported by previous research that showed that parental practices involving restrictiveness, negative emotions, and rudeness may stifle children's exploratory behavior and impede their initiative and self-efficacy, which are necessary for children to develop positive ATL (Larzelere et al., 2013; Loginova & Slobodskaya, 2017). Therefore, parents who exhibit a high level of negative discipline will suppress the development of children's ATL.

To support the development of the ATL of children in low-SES families, it is important to formulate social policies and preventive strategies. Such strategies include reducing family pressure and developing support systems to help families develop a constructive and satisfying family environment for developing positive involvement of parents.

Overall, by bridging family investment theory with parenting theory, our findings of the mediators open the black-box covering the relationship between family SES and preschoolers' ATL. In practice, these findings suggest that educational government can boost children's ATL by organizing parenting training instructed by education experts to improve parents' parenting skills, despite that altering the socioeconomic status of a family is often unlikely in a short time.

The Gender Difference in the Mediating Process

This study uncovered the gender difference in the mediating process. For girls, parents' positive involvement (e.g., support, praise) and negative discipline (e.g., spanking, corporal punishment) both play mediating roles. However, for boys, family SES mainly affects ATL through the positive involvement of parents. The observed gender difference may be due to the following two reasons: (1) Chinese society has different role expectations for boys and girls. Parents generally want boys to be more independent but want girls to be submissive, sensitive, and dependent on others (Zuo et al., 2013; Milfont & Sibley, 2016). Therefore, girls are more sensitive to emotional information in parent-child relationships. Girls have more emotional needs from their parents. Especially, girls are more sensitive to parents' negative discipline behavior; (2) The influence of Chinese parenting culture. The patriarchal culture is very salient in China, and the patriarchal gender preference leads to gender differences in children's accessibility to educational resources within a family, which is particularly unfavorable for girls (Wu & Huang, 2015; Zheng & Lu, 2018).

In Chinese society, females from poor family environments have significantly fewer educational opportunities than other females (Li, 2009). Compared with males, a relative lack of family socioeconomic resources and cultural resources greatly restricts females' education resources in China (Niu & Qi,

2010). In Chinese culture, parents have higher expectations for boys in terms of abilities and education compared to girls (Hannum et al., 2009). Regardless of a family's socioeconomic status, parents tend to put more energy into boys and thus boys receive more parental supervision (Huang & Wu, 2016). Moreover, parents are reluctant to beat or scold boys, which promotes the development of boys' ATL to some extent. This suggests that, in China, family SES does not have a significant impact on the negative discipline that boys receive but it has a great impact on that received by girls. In families with low SES (limited economic, social, and cognitive resources), girls are more likely to be ignored and are very susceptible to negative discipline, criticism, and beating, resulting in poor ATL. However, in families with high SES, girls are considered as the "jewels" of their parents, and thus parents will manifest less negative discipline, which is conducive to the development of the girls' ATL. Overall, the finding of the gender-specific mediation process contributes to the ATL literature from a Chinese parenting culture perspective.

Limitations and Future Research Suggestions

We acknowledge that this study has limitations, which offer potential directions for future research. First, this study examines the role of family SES in determining preschoolers' ATL. As family environment is also an important factor in shaping preschoolers' learning behavior, we hope this study can spur more research examining the influence of other family-level variables (e.g. family climate) on children's ATL. Family is a child's "first school". Focusing more on family environment can favor us comprehensively and essentially figure out the formation of various learning behaviors. Second, this study indicates that family SES affects ATL via different routes between boys and girls in China. To some extent, this finding can generalize to other eastern countries because the geographic proximity among them leads to more cultural exchange in ancient times, and thus more cultural similarities in parenting preconception. However, it should be cautious when generalizing this finding to western countries. Future research can examine whether such a gender difference is also present in western culture, or explore whether the effect of family SES on ATL is different between eastern and western cultures, which would contribute to the extant parenting and ATL literature from a cross-cultural viewpoint.

Conclusion

Although preschool children's ATL was identified as a key aspect of their school readiness, few studies systematically investigated how family SES and parenting behaviors influence children's ATL. This study fills the gap by uncovering the internal mechanism by which family SES affects

children's ATL, and further unraveling the gender difference in the internal mechanism in Chinese parenting culture. Interestingly, this study suggests that family SES affects ATL via different routes between boys and girls in China, contributing to the ATL literature from a cultural perspective. Understanding the development of children's ATL from the perspective of parenting is not only meaningful for building appropriate social structure but also informative for establishing beneficial family and social environment to favor children's development. This study provides a theoretical basis for policymakers to introduce policies supporting the overall development of children, families, and society. The findings of our study can also be used to provide child-caring advice for parents and other caregivers.

Funding This study was supported by grants from the National Social Science Fund of China "Multilevel Modeling on the Influence of Parent Involvement on Children's Approaches to Learning" (Grant No. BHA190151).

Data Availability The data used in this research were acquired in accordance with the https://www.springer.com/journal/12144/submission-guidelines#Instructions%20for%20Authors_Research%20Data%20Policy.

Declarations

Ethics Approval This research was conducted in accordance with the ethical guidelines of the American Psychological Association and was approved by the Institutional Review Board (IRB) of Ningbo University.

Informed Consent The teachers and parents were given informed consent for the study.

Conflict of Interest The authors of the study do not have potential conflicts of interests to report.

References

- Bi, X. W., Wei, X., Wang, M. P., Chen, L., & Zhang, W. X. (2018). Parental educational level and adolescents' academic adjustment: The mediating effects of parenting and parent-adolescent communication. *Journal of Psychological Science, 41*(2), 330–336. <https://doi.org/10.16719/j.cnki.1671-6981.20180212>
- Bradley, R. H., & Corwyn, R. F. (2002). Socioeconomic status and child development. *Annual Review of Psychology, 53*(1), 371–399. <https://doi.org/10.1146/annurev.psych.53.100901.135233>
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard University Press.
- Buek, K. (2019). Early growth trajectories of children's ATL: The contribution of parent and family characteristics. *Psychology in the Schools, 56*(6), 1053–1072. <https://doi.org/10.1002/pits.22224>
- Choe, D. E., Olson, S. L., & Sameroff, A. J. (2013). Effects of early maternal distress and parenting on the development of children's self-regulation and externalizing behavior. *Development and Psychopathology, 25*(2), 437–453. <https://doi.org/10.1017/S0954579412001162>
- Chou, H. L., & Sun, J. C. Y. (2017). The moderating roles of gender and social norms on the relationship between protection motivation and risky online behavior among in-service teachers. *Computers & Education, 112*, 83–96. <https://doi.org/10.1016/j.compedu.2017.05.003>
- Conger, R. D., & Conger, K. J. (2002). Resilience in Midwestern families: Selected findings from the first decade of a prospective, longitudinal study. *Journal of Marriage and Family, 64*(2), 361–373. <https://doi.org/10.1111/j.1741-3737.2002.00361.x>
- Conger, R. D., & Donnellan, M. B. (2007). An interactionist perspective on the socioeconomic context of human development. *Annual Review of Psychology, 58*(1), 175–199. <https://doi.org/10.1146/annurev.psych.58.110405.085551>
- Conger, K. J., Martin, M. J., Reeb, B. T., Little, W. M., Craine, J. L., Shebloski, B., & Conger, R. D. (2012). Economic hardship and its consequences across generations. In R. King & V. Maholmes (Eds.), *The Oxford handbook of poverty and child development*. Oxford University Press.
- Dewar, A. L. (2012). The relationship between parent involvement and preschool children's social competence and learning behaviors. *Dissertations & Theses-Gradworks, 26*(3), 203–208.
- Domínguez, X., Vitiello, V. E., Maier, M. F., & Greenfield, D. B. (2010). A longitudinal examination of young children's learning behavior: Child-level and classroom-level predictors of change throughout the preschool year. *School Psychology Review, 2010*, 39(1), 29–47. <https://doi.org/10.1080/02796015.2010.12087788>
- Esposito, A., Servera, M., Garcia-Banda, G., & Giudice, E. D. (2016). Factor analysis of the Italian version of the Alabama Parenting Questionnaire in a community sample. *Journal of Child and Family Studies, 25*(4), 1208–1217. <https://doi.org/10.1007/s10826-015-0291-7>
- Essau, C. A., Sasagawa, S., & Frick, P. J. (2006). Psychometric properties of the Alabama Parenting Questionnaire. *Journal of Child and Family Studies, 15*(5), 595–616. <https://doi.org/10.1007/s10826-006-9036-y>
- Fantuzzo, J., McWayne, C., Perry, M. A., & Childs, S. (2004). Multiple dimensions of family involvement and their relations to behavioral and learning competencies for urban, low-income children. *School Psychology Review, 33*(4), 467–480. <https://doi.org/10.1080/02796015.2004.12086262>
- Feng, L. (2020). The mediation effect of home learning environment between family socioeconomic status and preschool children's approaches to learning. *Studies in Early Childhood Education, 304*(4), 62–72. <https://doi.org/10.13861/j.cnki.sece.2020.04.007>
- Feng, L., & Wu, C. (2018). Influence of family SES and parenting practices on preschool children's learning approaches. *Journal of Ningbo University (Educational Science Edition), 40*(4), 115–125.
- Hannum, E., Kong, P., & Zhang, Y. (2009). Family sources of educational gender inequality in rural China: A critical assessment. *International Journal of Educational Development, 29*(5), 474–486. <https://doi.org/10.1016/j.ijedudev.2009.04.007>
- Harding, J. F., Morris, P. A., & Hughes, D. (2015). The relationship between maternal education and children's academic outcomes: A theoretical framework. *Journal of Marriage and Family, 77*(1), 60–76. <https://doi.org/10.1111/jomf.12156>
- Hu, B. Y., Teo, T., & Nie, Y. (2017). Classroom quality and Chinese preschool children's approaches to learning. *Learning and Individual Differences, 54*, 51–59. <https://doi.org/10.1016/j.lindif.2017.01.007>
- Huang, C., & Wu, Y. (2016). Gender difference in educational expectations of middle school students: Characteristics and causes. *Jiangsu Social Sciences, 4*(4), 121–132. <https://doi.org/10.13858/j.cnki.cn32-1312/c.2016.04.017>
- Hyson, M. (2008). *Enthusiastic and engaged learners: ATL in the early childhood classroom*. Teachers College Press.

- Jeon, S., & Neppel, T. K. (2019). Economic pressure, parent positivity, positive parenting, and child social competence. *Journal of Child and Family Studies*, 28(5), 1402–1412. <https://doi.org/10.1007/s10826-019-01372-1>
- Lan, P. (2019). *Struggling to raise children—Globalization, parental anxieties and unequal childhoods*. Spring Hill Publishing.
- Larzelere, R. E., Morris, A. S., & Harrist, A. W. (Eds.). (2013). Authoritative parenting: Synthesizing nurturance and discipline for optimal child development. *American Psychological Association*. <https://doi.org/10.1037/13948-000>
- Li, C. L. (2009). Gender differences in educational attainment: Impacts of family background on educational attainment of men and women. *Collection of Women's Studies*, 1, 14–18.
- Li, Y., & Lv, Y. (2013). The effect of investment in family education on preschoolers' early academic skills: The intermediary role of early ATL. *Chinese Journal of Special Education*, 9, 65–72.
- Liao, L. P., & Zhang, C. L. (2020). Does the son preference harm girls' health? Evidence from China family panel studies. *Economic Review*, (02), 139–154. <https://doi.org/10.19361/j.er.2020.02.09>
- Lin, W. J., & Zhao, Y. H. (2015). Does parental son preference reduce women's welfare? Evidence from divorce and the pressure of raising children. *China Economic Quarterly*, (01), 135–158. <https://doi.org/10.13821/j.cnki.ceq.2015.01.009>
- Loginova, S. V., & Slobodskaya, H. R. (2017). The mediating role of parenting in the relation between personality and externalizing problems in Russian children. *Personality and Individual Differences*, 106(1), 275–280. <https://doi.org/10.1016/j.paid.2016.10.055>
- Marsh, H. W., & Hocevar, D. (1985). Application of confirmatory factor analysis to the study of self-concept: First- and higher order factor models and their invariance across groups. *Psychological Bulletin*, 97(3), 562–582. <https://doi.org/10.1037/0033-2909.97.3.562>
- McClelland, M. M., Morrison, F. J., & Holmes, D. L. (2000). Children at risk for early academic problems: The role of learning-related social skills. *Early Childhood Research Quarterly*, 15(3), 307–329. [https://doi.org/10.1016/S0885-2006\(00\)00069-7](https://doi.org/10.1016/S0885-2006(00)00069-7)
- McClelland, M. M., Cameron, C. E., Duncan, R., Bowles, R. P., Acock, A. C., Miao, A., & Pratt, M. E. (2014). Predictors of early growth in academic achievement: The head-toes-knees-shoulders task. *Frontiers in Psychology*, 5, 1–14. <https://doi.org/10.3389/fpsyg.2014.00599>
- McDermott, P. A., Rikoon, S. H., Waterman, C., & Fantuzzo, J. W. (2012). The preschool learning behaviors scale: Dimensionality and external validity in head start. *School Psychology Review*, 41(1), 66–81. <https://doi.org/10.1080/02796015.2012.12087376>
- McDermott, P. A., Rikoon, S. H., & Fantuzzo, J. W. (2014). Tracing children's ATL through head start, kindergarten, and first grade: Different pathways to different outcomes. *Journal of Educational Psychology*, 106(1), 200–213. <https://doi.org/10.1037/a0033547>
- McDermott, P. A., Rikoon, S. H., & Fantuzzo, J. W. (2016). Transition and protective agency of early childhood learning behaviors as portents of later school attendance and adjustment. *Journal of School Psychology*, 54, 59–75. <https://doi.org/10.1016/j.jsp.2015.10.003>
- Milfont, T. L., & Sibley, C. G. (2016). Empathic and social dominance orientations help explain gender differences in environmentalism: A one-year Bayesian mediation analysis. *Personality and Individual Differences*, 90, 85–88. <https://doi.org/10.1016/j.paid.2015.10.044>
- Morgan, P. L., Farkas, G., Hillemeier, M. M., & Maczuga, S. (2009). Risk factors for learning-related behavior problems at 24 months of age: Population-based estimates. *Journal of Abnormal Child Psychology*, 37(3), 401–413. <https://doi.org/10.1007/s10802-008-9279-8>
- Nakamuro, M., Matsuoka, R., Inui, T. (2013). More time spent on television and video games, less time spent studying? *RIETI Discussion Paper Series NO.13-E-095*. Research Institute of Economy, Trade and Industry, 12-36.
- Neppel, T. K., Senia, J. M., & Donnellan, M. B. (2016). Effects of economic hardship: Testing the family stress model over time. *Journal of Family Psychology*, 30(1), 12–21. <https://doi.org/10.1037/fam0000168>
- Ningbo Statistics Bureau. (2020). *Ningbo statistical yearbook*. China Statistics Press.
- Niu, J., & Qi, Y. (2010). The influence of regional differences in social economic development on the balance of male and female education in China. *China Population Science*, 31, 132–141.
- Osa, N. D. L., Granero, R., Penelo, E., Domènech, J. M., & Ezpeleta, L. (2014). Psychometric properties of the Alabama parenting questionnaire-preschool revision (apq-pr) in 3 year-old Spanish preschoolers. *Journal of Child & Family Studies*, 23(5), 776–784. <https://doi.org/10.1007/s10826-013-9730-5>
- Pederson, C. A., & Fite, P. J. (2014). The impact of parenting on the associations between child aggression subtypes and oppositional defiant disorder symptoms. *Child Psychiatry & Human Development*, 45(6), 728–735. <https://doi.org/10.1007/s10578-014-0441-y>
- Perry, L. B., & McConney, A. (2010). Does the SES of the school matter? An examination of SES and student achievement using pisa 2003. *Teachers College Record*, 112(4), 1137–1162.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40(3), 879–891. <https://doi.org/10.3758/BRM.40.3.879>
- Razza, R. A., Bergen-Cico, D., & Raymond, K. (2015). Enhancing preschoolers' self-regulation via mindful yoga. *Journal of Child and Family Studies*, 24(2), 372–385. <https://doi.org/10.1007/s10826-013-9847-6>
- Schmerse, D. (2020). Preschool quality effects on learning behavior and later achievement in Germany: Moderation by socioeconomic status. *Child Development*, 91(6), 2237–2254. <https://doi.org/10.1111/cdev.13357>
- Shelton, K. K., Frick, P. J., & Wootton, J. (1996). Assessment of parenting practices in families of elementary school-age children. *Journal of Clinical Child Psychology*, 25, 317–329. <https://doi.org/10.1207/s15374424jccp25038>
- Shih, Y. (2010). *Raising an international child: Parenting, class and social boundaries in Taiwan* (pp. 18–24). Department of Sociology: State University of New York at Buffalo.
- Wang, B., Feng, X., Xiao, S., & Cang, C. (2010). Family SES, approach to learning and school readiness. *Studies in Preschool Education*, 4, 3–9.
- Wu, Y., & Huang, C. (2015). Gender differences in educational access inequality on the urban-rural of China. *Journal of the National Academy of Governance*, (2), 41–47. <https://doi.org/10.14063/j.cnki.1008-9314.2015.02.030>
- Wu, Z., Hu, B., & Fan, X. (2019). Cross-cultural validity of preschool learning behavior scale in Chinese cultural context. *Journal of Psychoeducational Assessment*, 37(1), 125–130. <https://doi.org/10.1177/0734282916651538>
- Wu, J., Zheng, Y., Wu, Z., Chen, N., & Xu, J. (2020). Gender differences in education and their changing trends: Based on CGSS 2008–2015 data analysis. *Northwest Population*, 41(3), 53–115. <https://doi.org/10.15884/j.cnki.issn.1007-0672.2020.03.010>
- Xing, X., Wang, M., Zhang, Q., He, X., & Zhang, W. (2011). Gender differences in the reciprocal relationships between parental physical aggression and children's externalizing problem behavior in China. *Journal of Family Psychology*, 25(5), 699–708. <https://doi.org/10.1037/a0025015>
- Yeung, W. J., Linver, M. R., & Brooks-Gunn, J. (2014). How money matters for young children's development: Parental investment and family processes. *Child Development*, 73(1), 1861–1879. <https://doi.org/10.1111/1467-8624.t01-1-00511>

- Zhao, X., Liu, L., Meng, Q., & Wang, M. (2017). Parenting behavior: Validation of the Alabama parenting questionnaire. *Youth Journal*, (01), 32–38–32–56. <https://doi.org/10.16399/j.cnki.qsnj.2017.01.006>
- Zuo, X., Lian, Q., Cheng, Y., Tu, X., Wang, Z., Yu, C., & Lou, C. (2013). Gender role development and gender stereotype of adolescents in China. *The Chinese Journal of Human Sexuality*, 22(8), 71–75. <https://doi.org/10.3969/j.issn.1672-1993.2013.08.023>
- Zheng, X., & Lu, X. (2018). Is it good to have a brother for a female? A study on gender discrimination in family human capital investment. *China Economic Quarterly*, 1(17), 277–298. <https://doi.org/10.13821/j.cnki.ceq.2017.04.11>

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.