



OPEN The unique effects of parental control from fathers on self-determination in Chinese middle school adolescents

Xiaoyan Xu^{1,2✉} & Zahyah Hanafi²

Self-determination is one of the significant and positive developmental outcomes during adolescence. Among the antecedents of self-determination, parental control may be critical based on ecological systems theory. However, the relationship between fathers' parental control and adolescents' self-determination is little known. The present study aimed to examine the unique effects of fathers' psychological and behavioral control on adolescents' self-determination. A total of 916 middle school students aged 11–15 from China reported their sex, age, self-determination and their fathers' background information, psychological control, behavioral control. Our results revealed that, after controlling for mothers' psychological control and behavioral control, fathers' psychological control was negatively related to Chinese middle school adolescents' self-determination, and fathers' behavioral control was positively related to adolescents' self-determination. Additionally, the effect of fathers' psychological control on boys' self-determination was greater than girls. These results indicated the unique effects of fathers' psychological control and fathers' behavioral control on their Chinese middle school adolescents' self-determination, clarifying sex differences in these effects. Findings of this study may add to the emerging discourse on middle school adolescents' self-determination and improve Chinese fathers' parenting intervention.

Keywords Fathers' psychological control, Fathers' behavioral control, Self-determination, Chinese middle school adolescents

Causal agency theory focuses on how self-determination develops in all individuals¹. It redefined self-determination by building on previous self-determination theories and other current advances in the field of disability and positive psychology^{2,3}. Self-determination is defined as a dispositional trait which is conceived by individuals' independently determining goals, excluding external intervention, making plans and decisions on the basis of fully recognizing and correctly evaluating themselves⁴. Self-determined actions exhibit three basic characteristics: voluntariness, agency, and being driven by action control beliefs⁵. Research on self-determination has focused on groups of children and adolescents with special needs^{6–8}. Researchers have found positive relationships between self-determination and positive emotional and social outcomes⁹, academic performance⁶, and positive post-school outcomes^{7,10}. As the study deepening and expanding, researchers have emphasized self-determination for adolescents without disabilities^{5,11}. Positive youth development theory incorporates self-determination as one of the positive traits for human^{12,13}. These findings and framework indicated the significance of assessing self-determination during adolescence. However, self-determination among adolescents without special needs received little attention in Chinese literature. Shogren's argument suggests that individuals from Eastern cultures may place more value on family goals than personal goals when exerting self-determination¹⁴. Therefore, investigating adolescents' self-determination in China is necessary.

Parenting may be one of the crucial factors for the development of adolescents. Based on Bronfenbrenner's ecological systems theory, family or parental factors are key points in the microsystem, which directly affect children and adolescents' development in various outcomes¹⁵. Much of the investigation of parenting derives from research that combined the values of fathers and mothers^{16,17}. Yet recent information suggests fathers may play an unique role which is distinct from mothers in child-rearing^{18,19}. Similarly, fathers' parenting practices have unique implications for adolescents in traditional Chinese culture²⁰. Rooted in Confucian philosophy,

¹School of Education, Shandong Women's University, Jinan, People's Republic of China. ²Present address: School of Education, Faculty of Social Sciences and Leisure Management, Taylor's University Lakeside Campus, Subang Jaya, Malaysia. ✉email: xu-xuxiaoyan@163.com

the traditional Chinese familial structure establishes paternal authority as a cardinal principle of domestic governance²¹. This hierarchical parental role finds axiomatic expression in classical didactic maxims “*yang bu jiao, fu zhi guo*”. It assumes that fathers are committed to their offspring, especially if the child appears to have the wrong perceptions and behaviors²². On marriage, the wife became part of the husband’s family. Children are by definition carriers of the father’s lineage²³. The actions of the children would bring honor or shame to the paternal lineage. Fathers are responsible for the achievements and failures of their children. Fathers usually make the important decisions in parenting, while mothers are primarily responsible for implementing these decisions²⁴ and taking on the day-to-day care of their children¹⁸. Fathers take a primary responsibility in educating and supervising their children. Chinese fathers are held principally responsible when their children exhibit problematic behaviors²⁵. For example, Shanghai fathers are more involved than mothers in advising their children about educational and career plans, as involved as mothers in interacting with school or sick-care providers, and less involved than mothers in children’s daily care²³.

There are empirical findings provide evidence that fathers’ role may influence their children’s development in China. For instance, controlling for maternal control, fathers’ control was associated with Chinese adolescents’ cognitive competence and positive self-identity²⁶. The more actively involved fathers were in child care, the more pro-social behavior and fewer emotional problems were reported by children ages 9 to 16 years old²⁷. Father involvement and positive encouragement were significantly associated with child competencies (positive child behaviors)²⁸. In a study including early adolescents, paternal corporal punishment was positively related to internalizing and externalizing problem behaviors²⁹. Similarly, a longitudinal study in Chinese Taipei reported that adolescents with more involved fathers had higher academic achievement and self-esteem, and fewer internalizing and externalizing problems than their peers with less involved fathers³⁰. In summary, fathers’ positive parenting practices and involvement are related to adolescents’ better adjustment among Chinese families. However, much remains unknown about Chinese fathers’ parenting practices and their developmental and family implications²³.

Fathers’ involvement originally comprised three dimensions: responsibility, accessibility, and engagement³¹. Subsequently, Pleck assumed paternal engagement as three actions: positive engagement activities, warmth and responsiveness, and control and monitoring³². This study was interested in whether the specific dimension of paternal control contributes to adolescents’ self-determination. Previous studies have distinguished parental control into psychological and behavioral control³³. Parental psychological control refers to a way of manipulating and intruding a child’s feelings and thoughts, such as love withdrawal, guilt introduction^{33,34}. While parental behavioral control is an intentional effort by parents to regulate and monitor their children’s performance, such as knowing and limiting their children’s activities^{33,34}. It was believed as a sign of parental responsibility and discipline in most studies^{33–35}. Research indicated that parental psychological and behavioral control were associated with developmental outcomes for children and adolescents^{35–37}. In the Chinese culture, parental control is an important socialization practice²⁶. Although research indicated that fathers’ psychological and behavioral control was lower than mothers’ in Hong Kong^{20,38,39}, fathers’ psychological and behavioral control still have an independent influence on adolescents’ development^{40,41}. Yet, there was little research focused on the relationship between fathers’ psychological and behavioral control and adolescents’ self-determination. The lack of attention to fathers in the parenting literature has been a major limitation for adolescents¹⁹. Thus, this study will focus on the influence of fathers’ psychological and fathers’ behavioral control.

According to attachment theory, parents are the base of a child’s sense of safety⁴². However, parental psychological control may disrupt the parent-child emotional connection, leading to insecure attachment. The child may become wary and anxious about environmental stimuli and individuals, developing psychological problems. In the Western context, the negative effects of parental psychological control on adolescents was observed^{35,37}. Nevertheless, it is said that the role of parental psychological control may vary culturally. Some studies in China did not identify psychological control as a disfavorable factor^{34,43}. Adolescents may tend to perceive psychological control as an expression of caring in traditional Chinese culture⁴⁴. Building on the Confucian culture of filial piety, Chinese children are taught from an early age to be obedient to their parents⁴⁵. Therefore, Chinese adolescents may view psychological control as a normal form of discipline and not perceive it as a violation of their inner emotional world⁴⁶. Because of these mixed findings, more research is needed to determine whether parental psychological control may lead to adolescents’ problems in China. Based on these literature reviews, this study proposed Hypothesis 1: Fathers’ psychological control will be negatively related to adolescents’ self-determination.

As to the effect of fathers’ behavioral control, there may be no more cultural variations. Both in the West and in the East, a number of studies indicated that parents conducted behavioral control through setting clear rules and monitoring adolescents’ activities^{33–35,44,45}. As such, its beneficial effects have been found. Greater parental behavioral control is associated with positive traits in adolescents⁴⁷, and reduces negative outcomes^{48,49}. In China, the more often behavior control is enforced, the fewer externalizing problems^{10,43,50} and higher life satisfaction experienced by Chinese adolescents⁴⁴. These findings indicates that fathers’ behavioral control may contribute to positive developmental outcomes. Self-determination is one of the key positive developmental traits according to the positive youth development framework¹². Fathers’ behavioral control could provide children with the opportunity to understand the consequences of their behavior and thus develop their capacity for effective decision-making¹⁶. Decision-making skill is the core construct in enhancing self-determination⁵¹. This implies that behavioral control may also promote adolescents’ capacity for self-determination. Thus, this study proposed Hypothesis 2: Fathers’ behavioral control will be positively related to adolescents’ self-determination.

Moreover, studies indicated that the adolescent’s sex could act as a moderator between fathers’ parenting practices and adolescents’ developmental outcomes⁵². Two gender socialization frameworks (transactional model and interactional model) have been introduced to explain how girls’ and boys’ interactions with their parents shaping their psychological well-being⁵³. The transactional model assumes that children’s factors such

as the gender of the children impact the way their parents approach them. Accordingly, sex-specific adolescents may also face different levels of parental psychological and behavioral control⁵³. Limited studies have addressed parents exercising greater control over girls than boys^{54,55}. Several studies have reported that boys might have more parental psychological control than girls^{39,56,57}. Particularly in China, adolescent boys experienced significantly more parental psychological control than adolescent girls²⁵. Adolescent girls perceived greater parental behavioral control compared to boys^{55,58,59}. Similar results were also found in Hong Kong⁴⁴. This may be due to in the Chinese socio-cultural context, parents expect more from their sons than from their daughters, and they then demand and supervise their sons more²⁵.

The interactional model suggests that the effects of parenting vary according to the gender of the child, regardless of the way in which the parent approaches the child⁵³. Accordingly, even if fathers provide the same level and type of parenting to their children, sons and daughters experience the effects of parenting differently. For instance, there were differences between boys and girls in the mechanisms behind the effects of fathers' warmth on positive behaviors¹⁹. Fathers' parenting behaviors are more strongly associated with practices in boys⁶⁰. Among Filipinos, fathers' psychological control is also more likely to lead to problematic behavior in sons⁶¹. One study showed that parental behavioral control (parents setting and enforcing rules) increased self-criticism in girls but not in boys⁶². According to social learning theory, same-sex parents play a more important role in the development of their children because children are more inclined to imitate the actions of their same-sex parents⁶³. Several studies have demonstrated that same-sex parent-adolescent dyads have greater parenting effects^{59,64}. In the U.S., boys benefited more from their father's parental involvement than girls⁶⁵. Fathers' behavioral control was associated with negative aspects of the father-son relationship but not the father-daughter relationship⁶⁶. Rodriguez and Cavendish reported gender differences in levels of self-determination. Female students developed better self-determination than male students⁶⁷. However, few investigations were conducted on sex difference in adolescents' self-determination in China. If there is a gender difference in Chinese adolescents' self-determination, is this difference related to fathers' psychological and behavioral control? The present study will answer this question. Although there was little direct evidence of the sex differences in how fathers' psychological control and fathers' behavioral control affect adolescents' self-determination, this study based on the above literature reviews proposed Hypothesis 3 and 4: There will be sex differences in the relationship between fathers' psychological/behavioral control and adolescents' self-determination.

The present study addressed prior limitations by investigating the relationships between fathers' parental control (psychological control and behavioral control) and adolescents' self-determination in China mainland. Adolescents' development could be affected by many background variables, such as adolescents' age and sex, fathers' income, and educational level^{15,68}. Generally, maternal psychological control and behavioral control is significantly associated with adolescents' developmental outcomes⁴³. Although adolescents reported that their fathers were less controlling than their mothers⁶⁹, father's control may still have a significant role independent of mother's control. As mentioned earlier, fathers have a higher status in Chinese families and play a decisive role in important developmental events for their children²¹. The influence of fathers may even be higher than that of mothers, even though participation in daily life events is lower than that of mothers²⁴. The limited research indicated that father might have greater effects on their offsprings' development^{16,70}. Previous research has focused more on mothers, and some studies have examined the differences and consistency between fathers and mothers, yet the unique and irreplaceable role of fathers has received less attention. Exploring the role of fathers independent of mothers can help recognize the uniqueness and necessity of fathers' roles and encourage more Chinese fathers to engage in parenting. Women's expanding role outside the home necessitates a corresponding shift in men's roles within the family in China⁷¹. Therefore, the current study would perform these background factors and mothers' psychological control and behavioral control as controlling variables. The present study assumed that fathers' psychological control is negatively related to adolescents' self-determination (Hypothesis 1). While fathers' behavioral control is positively related to adolescents' self-determination (Hypothesis 2). Lastly, we expected sex differences in the relationship between fathers' psychological control and adolescents' self-determination (Hypothesis 3), fathers' behavioral control, and adolescents' self-determination (Hypothesis 4), these two effects will be greater in boys than girls.

Method

Participants

A total of 916 adolescents in grades 7 and 8 from two public middle schools located in Shandong Province, China. The age of adolescents in this study was 11–15 years old (Mean = 12.98 ± 0.73 years). There were 487 (53.5%) boys. A total of 107 (11.7%) adolescents have no siblings, 663 (72.4%) adolescents have 1 sibling, 125 (13.6%) adolescents have 2 siblings, 21 (2.3%) adolescents have 3 or more than 3 siblings. Fathers' education level categories are as follows: 1 = primary school or below (1.6%); 2 = middle school (34.5%); 3 = high school (19.1%); 4 = junior college degree (25.6%); 5 = bachelor's degree (17.3%); 6 = master's degree or above (1.9%). According to Shandong Provincial Bureau of Statistics in 2023⁷², the per capita monthly disposable income is 2975 Chinese yuan/person. Father's monthly incomes (Chinese yuan) were reported in the following categories: 1 = below 1000 (1.7%); 2 = 1001 ~ 2000 (2.1%); 3 = 2001 ~ 3000 (5.3%); 4 = 3001 ~ 5000 (16.9%); 5 = 5001 ~ 7000 (26.8%); 6 = 7001 ~ 10,000 (22.1%); 7 = 10,001 ~ 15,000 (11.2%); 8 = 15,001 ~ 20,000 (5.9%); 9 = 20,001 ~ 30,000 (3.6%); 10 = 30,001 ~ 50,000 (2.0%); 11 = 50,001 ~ 100,000 (1.3%); 12 = above 100,001 (1.0%). In the current study, more than 50% fathers had monthly income at 5000–10,000 Chinese yuan. Since 72.4% adolescents have 1 sibling in this study, the per capita monthly disposable income is about from 2500 to 5000 Chinese yuan/person in a family. This result is close to the data (2975 Chinese yuan/person) from the Shandong Provincial Bureau of Statistics in 2023.

Measures

Parental psychological control

This study used the Chinese version of the parental psychological control questionnaire to assess parental psychological control³⁴. A total of 18 items (e.g., “My father/mother says that when I grow up, I will appreciate all the decisions he made for me.”) were reported by adolescents on a 5-point Likert scale from 1 = *strongly disagree* to 5 = *strongly agree*. Higher scores of mean values for all items indicated greater psychological control. Modification indices from the confirmatory factor analysis (CFA) indicated that the three-factor (guilt induction, love withdrawal, and authority assertion) measurement model for fathers’ psychological control fit the data well: $\chi^2/df = 3.114$, RMSEA = 0.048, NFI = 0.957, CFI = 0.983. CFA analysis indicated that the measurement model for mothers’ psychological control fit the data well: $\chi^2/df = 3.014$, RMSEA = 0.047, NFI = 0.983, CFI = 0.989. The scale has good internal consistency with $\alpha = 0.939$ for fathers and 0.958 for mothers.

Parental behavioral control

This study adopted the Chinese version of the parental behavioral control questionnaire to evaluate parental behavioral control³⁴. This scale included 16 items (e.g., “My father/mother requires me to inform him about what I have done at school.”) and evaluated two dimensions (parental solicitation and parental restriction). Adolescents reported their feelings on a 5-point scale from 1 = *never* to 5 = *always*. Higher mean scores of all items indicated higher levels of behavioral control. CFA analysis indicated that the measurement model for fathers’ behavioral control fit the data well: $\chi^2/df = 3.261$, RMSEA = 0.050, NFI = 0.94, CFI = 0.980. While CFA indicated that the measurement model for maternal behavioral control fit the data well: $\chi^2/df = 2.943$, RMSEA = 0.046, NFI = 0.991, CFI = 0.994. The internal consistency of behavioral control is 0.924 for fathers’ reports and 0.938 for mothers’ reports.

Self-determination

The Self-Determination Inventory: Student Report (SDI: SR) of Chinese Translation version was also used in this study to measure adolescents’ self-determination⁵. This scale employed 21 items (e.g., “I choose activities I want to do.”). Adolescents reported their levels of feelings by scoring from 0 to 99⁵. The mean scores of all items suggest the levels of self-determination with high scores showing stronger developmental attributes. Prior study suggested that the one-factor model was fit better than a three-factor model for Chinese adolescents⁵. Then the self-determination was not divided into dimensions in the present study. CFA indicated that the measurement model fit the data well: $\chi^2/df = 2.930$, RMSEA = 0.046, NFI = 0.969, CFI = 0.979. It indicated good internal consistency among the items with $\alpha = 0.957$.

Procedure

Researcher invited all the students in grades 7–8 from the two schools to participate in this survey. Students were asked to bring the Consent Form back to school and return it to the teachers. One week later, the researcher returned to the school to collect consent forms. The student version of the consent form and questionnaire was also distributed to students who had obtained signed parental consent forms. Students completed the surveys in their class.

Ethics declaration

The studies involving human respondents were approved by the Human Ethics Committee of Taylor’s University (No. HEC 2023/260). Consent letters were issued to the student’s parents, with the aims, the procedures, and the right to participate or withdraw from the study voluntarily. All procedures performed in studies involving human participants were in accordance with the 1964 Helsinki Declaration and its later amendments.

Data analysis

This study utilized SPSS 23.0 and PROCESS macro to perform data analysis. Firstly, common method bias was checked by Harman’s One-Factor Test for factor analysis. The results showed that the eigenvalues of 9 factors were greater than 1. The variance explained by the first factor was 20.11%, less than 40%, indicating that the common method bias did not exist in our study. Then, the normality of all variables was examined by calculating the Skewness and Kurtosis values (fathers’ psychological control = 0.805, 0.275; fathers’ behavioral control = − 0.107, − 0.288; mothers’ behavioral control = − 0.477, − 0.067; mothers’ psychological control = 0.659, − 0.247; self-determination = − 0.697, − 0.207). The results determined the distributions of all variables were within acceptable limits (Skewness ≤ 2 and Kurtosis ≤ 7)⁷³. Next, descriptive statistics (mean, standard deviation, and *t*-test), and partial correlation analyses were conducted to examine the relationship between fathers’ psychological control, fathers’ behavioral control, and adolescents’ self-determination (controlling mothers’ psychological control and mothers’ behavioral control). Lastly, multicollinearity tests indicated acceptable variance inflation factors (VIF) ranging from 1.023 to 2.412, suggesting no serious collinearity problems. The PROCESS macro for SPSS (Model 1) based on bias-corrected percentile Bootstrap method was conducted to determine the unique effect of fathers’ psychological and behavioral control on adolescents’ self-determination, and the sex differences in the effects between boys and girls, by controlling demographic factors and mothers’ psychological and mothers’ behavioral control. The 95% confidence intervals (CI) for the effects, were calculated using a bootstrapping method of 5,000 resamples. An effect is statistically significant if its corresponding 95% CI did not include zero.

Results

Descriptive findings and partial correlations

Firstly, a paired sample *t*-test was conducted and the results revealed that there was a significant difference in the mean scores for fathers’ psychological control ($M = 2.16$, $SD = 0.85$) and mothers’ psychological control ($M = 2.25$,

Variable	M (SD)		t	d
	Boys	Girls		
Fathers' psychological control	2.22 (0.84)	2.09 (0.85)	2.39*	0.85
Fathers' behavioral control	3.05 (0.84)	2.94 (0.84)	2.09*	0.84
Self-determination	78.03 (18.20)	75.27 (18.41)	2.28*	18.30

Table 1. Descriptive statistics by adolescents' sex (N=916). Note. * $p < 0.05$.

Variable	M (SD)	1	2	3	4	5
1. Age	12.98 (0.73)	1				
2. Siblings	2.07 (0.58)	− 0.03	1			
3. Fathers' psychological control	2.13 (0.86)	0.13***	0.08	1		
4. Fathers' behavioral control	3.08 (0.85)	0.01	− 0.02	0.25***	1	
5. Self-determination	75.27 (18.41)	− 0.01	− 0.02	− 0.03	0.16***	1

Table 2. Descriptive statistics and partial correlation matrices (N=916). Note. *** $p < 0.001$.

$SD = 0.98$, $t(915) = -4.02$, Cohen's $d = 0.68$, $p < 0.001$. The findings suggest that adolescents perceived less fathers' psychological than maternal psychological control significantly. The mean score of fathers' behavioral control ($M = 3.00$, $SD = 0.84$) was significantly lower than mothers' behavioral control ($M = 3.54$, $SD = 0.87$), $t(915) = -21.96$, Cohen's $d = 0.75$, $p < 0.001$. The findings suggest that adolescents perceived less fathers' behavioral control than mothers' behavioral control.

This study also conducted independent sample t -test to examine adolescents' sex differences. Table 1 shows that there were significant sex differences in the mean scores of fathers' psychological control, $t(914) = 2.39$, $p < 0.05$, Cohen's $d = 0.85$, fathers' behavioral control, $t(914) = -2.09$, $p < 0.05$, Cohen's $d = 0.84$, and adolescents' self-determination, $t(914) = 2.28$, $p < 0.05$, Cohen's $d = 18.30$; both mean scores were higher for boys and girls.

As shown in Table 2, the results of a partial correlation analysis (controlling mother' psychological and behavioral control) in the full sample indicate that fathers' behavioral control positively correlated with adolescents' self-determination ($r = 0.16$, $p < 0.001$).

Regression analysis

The present study conducted a regression analysis to determine the unique effects of both fathers' behavioral control and psychological control on adolescent self-determination. In model 1, the independent variable was fathers' psychological control. Demographic factors (adolescents' sex, age, siblings, fathers' educational level, and monthly income), fathers' behavioral control, mothers' psychological control, and mothers' behavioral control were controlling variables.

In model 2, the independent variable was fathers' behavioral control. Demographic factors (adolescents' sex, age, siblings, fathers' educational level, and monthly income), fathers' psychological control, mothers' psychological control, and mothers' behavioral control were controlling variables. Results were showed in Table 3.

As shown in Table 3, model 1 was statistically significant, with $R^2 = 0.110$, $F = 11.179$ ($p < 0.001$). Our results revealed that fathers' psychological control predicted adolescents' self-determination significantly and negatively ($B = -4.454$, $p < 0.001$) with 95% CI excluding 0, after controlling fathers' behavioral control, mothers' psychological control, and mothers' behavioral control. Hypothesis 1 was supported.

The interaction term (fathers' psychological control $\times$ adolescents' sex) also predicted adolescents' self-determination significantly ($B = 3.652$, $p < 0.01$) with 95% CI excluding 0. Hypothesis 3 was supported. Thus, the relationship between fathers' psychological control and adolescents' self-determination was moderated by adolescents' sex. Simple slope analysis (Fig. 1) shows that, for girls, the negative relationship between fathers' psychological control and adolescents' self-determination (Effect = -2.978 , $p < 0.01$) was stronger than for female adolescents (Effect = 0.358 , $p > 0.05$).

In model 2, results revealed that fathers' behavioral control predicted adolescents' self-determination significantly and positively ($B = 3.691$, $p < 0.01$) after controlling fathers' psychological control, maternal psychological control, and maternal behavioral control. Hypothesis 2 was supported.

However, the interaction item between fathers' behavioral control and adolescents' sex could not predict adolescents' self-determination significantly ($B = 1.491$, $p > 0.05$). Hypothesis 4 was rejected.

Discussion

The present study provides new evidence of the association between fathers' parental practices and adolescents' self-determination. Our results suggest that fathers' psychological control and behavioral control still have significant effects on adolescents' self-determination, after controlling adolescents' sex, fathers' educational level, and monthly income, mothers' psychological control and behavioral control in Chinese middle schools. Fathers' psychological control may associate with self-determination variously by adolescents' sex.

Predictors	Model 1				Model 2			
	B	SE	t	BootCI	B	SE	t	BootCI
Sex	2.682 [*]	1.175	2.283	[0.31, 5.01]	2.657 ^{**}	1.179	2.255	[0.25, 5.00]
Age	0.192	0.802	0.240	[-1.43, 1.83]	0.161	0.805	0.200	[0.143, 1.79]
Siblings	0.630	1.011	0.624	[-1.44, 2.60]	0.590	1.014	0.581	[-1.51, 2.67]
Father's education level	1.540 ^{**}	0.593	2.599	[0.40, 2.75]	1.546 ^{**}	0.594	2.600	[0.35, 2.71]
Father's monthly income	1.653 ^{**}	0.588	2.813	[0.48, 2.78]	1.703 ^{**}	0.590	2.888	[0.60, 2.86]
Maternal psychological control	-1.092	0.911	-1.199	[-2.96, 0.72]	-1.063	0.915	-1.162	[-2.89, 0.83]
Maternal behavioral control	1.176	0.882	1.334	[-0.72, 3.02]	1.162	0.886	1.311	[-0.66, 3.07]
Fathers' psychological control	-4.454 ^{***}	1.262	-3.530	[-7.20, -1.77]	-2.509 [*]	1.058	-2.371	[-4.80, -0.20]
Fathers' behavioral control	4.551 ^{***}	0.908	5.014	[2.67, 6.41]	3.691 ^{**}	1.158	3.189	[1.37, 6.18]
Fathers' psychological control×sex	3.652 ^{**}	1.365	2.675	[0.71, 6.71]				
Fathers' behavioral control×sex					1.491	1.385	1.077	[-1.37, 4.35]
R	0.332				0.323			
R ²	0.110				0.104			
F	11.179 ^{***}				10.510 ^{***}			

Table 3. Coefficients for regression models. Notes. ^{*} $p < 0.05$, ^{**} $p < 0.01$, ^{***} $p < 0.001$. Sex was dummy coded such that 0 = male adolescents and 1 = female students.

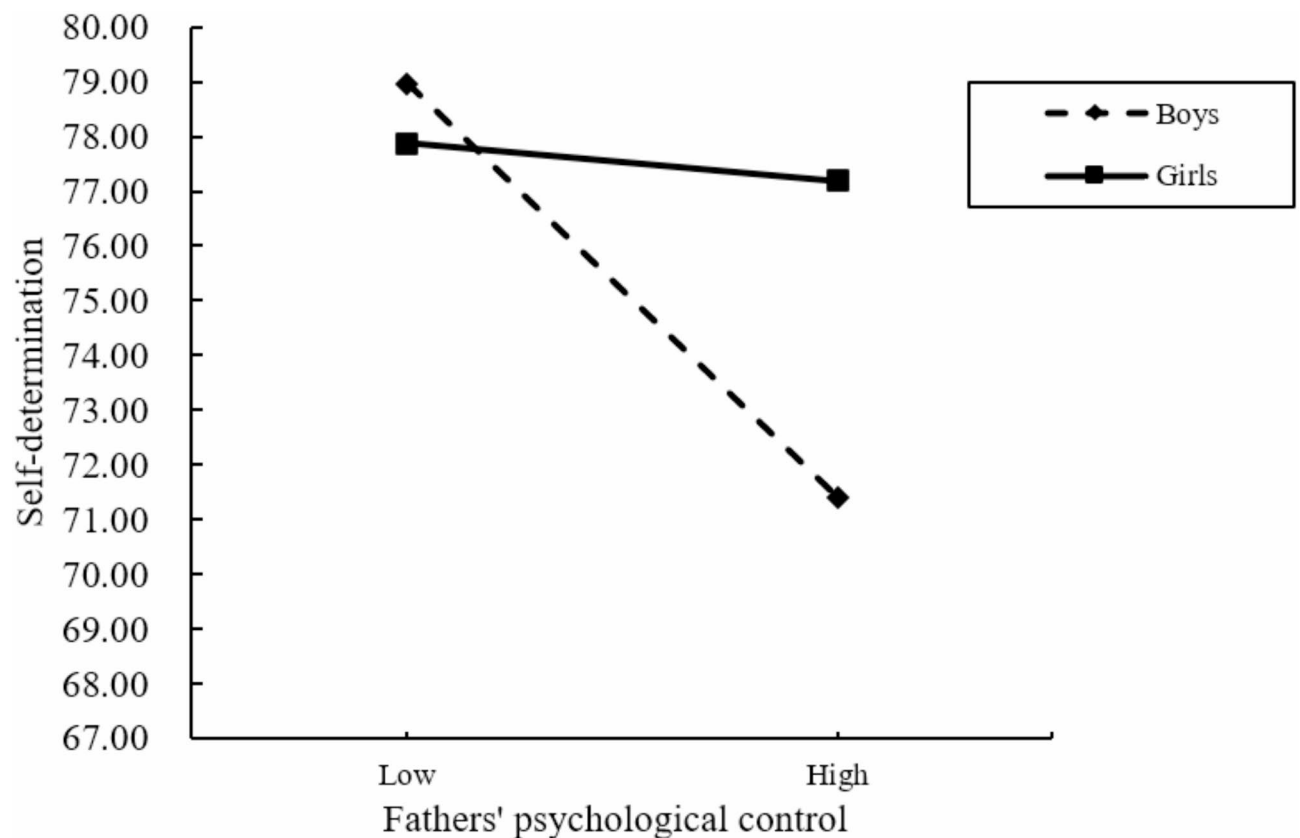


Fig. 1. Sex difference in the relationship between fathers' psychological control and adolescents' self-determination.

The results of this study imply the negative effect of psychological control and the positive effect of behavioral control by fathers on Chinese middle school adolescents' self-determination. Hypothesis 1 and Hypothesis 2 were supported. Given that psychological control may violate the inner world of adolescents and frustrate the satisfaction of basic psychological needs according to self-determination theory¹. For example, a father may say to his child, "I'm ashamed that you didn't get good grades". By manipulating the mood of the child in this covert way, the father makes the child think, feel, and act by the fathers' wishes. The child loses the autonomy of his or her behavior. The adolescents' need for autonomy is not satisfied by long-term psychological control, which

prevents them from forming a positive self-construct, such as self-determination. While it was said that the fathers' behavioral control was shown to be favorable^{49,74}, as well as in China^{10,43,50}.

Behavioral control means the provision of constraints and rules⁷⁵. In turn, clear and reasonable rules from parents provide children with effective social norms and problem-solving strategies, thus developing adolescents' ability to make effective decisions independently¹⁶. This implies that behavioral control may also promote children's capacity for self-determination. Theoretical perspectives from self-determination theory could help explain the positive effects of fathers' behavioral control. Behavioral control might meet the adolescents' need for autonomy and relatedness¹. On the one hand, fathers discipline adolescents through supervision and restriction, allowing adolescents to identify what is acceptable behavior and how to demonstrate it. Thus, fathers' behavioral control helps adolescents learn to control their behavior in order to conform to social norms⁵⁰. This promotes the development of autonomy. On the other hand, the father's behavioral control signals care to the child, implying a more intimate father-child interaction. This close connection fulfills the needs of adolescent relatedness⁷⁶. The satisfactory of autonomy and relatedness allows adolescents to experience higher levels of self-determination.

This study revealed that fathers' psychological control and behavioral control were significantly related to adolescents' self-determination, after controlling mothers' psychological control and behavioral control in Chinese middle schools. Although there is no direct evidence from the existing studies to support the result, several studies have suggested the unique effects of fathers' psychological control and behavioral control on adolescents' developmental outcomes^{40,41}. In Chinese society, based on Confucian culture, fathers are usually the leaders and power holders in a family²¹. It cannot be ignored that their words and actions have great influence on their children. However, Chinese fathers are also likely to be affected by the traditional idea that men should work outside and are less involved in the upbringing of their offspring than their mothers. With the implementation of China's three-child policy and the increasing maternal stress and mother burnout⁷⁷, the co-parenting of fathers is essential. In addition, as society shifts, more mothers enter the workforce, and more fathers are involved in their children's parenting. Fathers have changed from traditional breadwinners to guidance for children⁷⁸. The behavioral control of the father might play a unique and greater role in the development of the child than that of the mother^{44,79}. In Chinese society, fathers' power is prominent in a family. Fathers are often involved in parenting by setting rules which are the forms of behavioral control. Thus, fathers' behavioral control still had unique effects on adolescents' self-determination after controlling mothers' control. The findings in this study confirm the significant and powerful roles of fathers in Chinese families. It implies and reminder the importance of the intervention in fathers' parenting in China.

Our findings further indicated that sex differences in the effects of fathers' psychological control on Chinese middle school adolescents' self-determination. Fathers' psychological control had a stronger effect on boys' self-determination than girls. Hypothesis 3 was supported. It was consistent with a finding in Filipinos, fathers' psychological control was more likely to lead to problematic behavior in sons⁶¹. Our findings further offer support to the interactive model of gender socialization⁵³. During adolescence, one's gender cognition begins to develop sharply. The socialization of parents is crucial in shaping this process. In the Chinese cultural context, fathers are considered to have the primary responsibility for disciplining their children. Adding to this, boys are usually placed with high expectations, such as achieving a high social status³⁹. Chinese fathers may have higher parenting involvement with their sons. In the present study, fathers showed more psychological control over boys compared to girls. Moreover, based on social learning theory, children may be more likely to care for their same-sex parents⁶³. Fathers generally play a protective role in the family¹⁸. Boys may be more respectful of their powerful fathers, while girls may be more sensitive to their soft mothers. Therefore, adolescent boys may be more vulnerable to their father's parenting effects.

There were additional findings in this study. Fathers' educational level and monthly income significantly positively predicted Chinese middle school adolescents' self-determination. An interactionist model of socioeconomic status and human development emphasizes on the crucial role of parents' economic status on children and adolescents' development^{68,80}. First, fathers in higher income and greater material investment in their children^{80,81}. These investments would involve varied cultural activities, more books, and upscale neighborhoods to foster the development of social skills. All of these material investments ultimately lead to children having enough resources to develop themselves. It enables a child to grow into one person with more positive traits, such as self-determination. Second, fathers with high levels of education may increase a range of parenting investments in their children, such as devoting more emotional attention and more likely talking to their children⁸⁰. Adolescents experience a sense of safety and warmth as a result of their father's emotional investment. Then the self-construct maybe fully developed and better self-determination are gained.

Implications

There was an insightful implication in this study. First, it may be the first known study to examine the relations between fathers' psychological control, parental behavioral control, and self-determination in Chinese middle school adolescents. Although fathers exercised less psychological and behavioral control than mothers, their influence on adolescents was significant and independent of mothers. The mother's role is not significant anymore in the present study. This suggests that the father's behavior, although less, has a greater impact. There is consistency in previous studies^{16,19,69}. As children reach their adolescence, fathers may feel increasingly distant from their children and may question the significance of their role¹⁹. Based on the results of this study, their efforts to convey care to their children are worthwhile even during this period, which may give fathers more confidence to participate in father-child interactions. The findings of the study will be a guide to improving Chinese fathers' parenting. Second, the findings of this study yield significant implications for family intervention programs targeting the mental health of adolescents. The results may prompt fathers to recognize the importance of their practices for their children's growth, especially self-determination. Fathers should make greater efforts to use the beneficial effects of behavioral control while avoiding the adverse effects of psychological control.

Furthermore, these findings may help fathers adjust their parenting practices by their children's sex. Fathers need to be especially careful about using psychological control with boys.

Limitations

The findings of our study have several shortcomings. First, the cross-sectional data could not contribute to causal relationships. It is possible that adolescents who are more self-determined elicit less control from their fathers. In the future, longitudinal survey with at least two time points might be a better way to determine the relationship and direction between paternal control and adolescent self-determination. Second, the survey depended solely on adolescents' self-reports. Adolescents' perceptions of their parents' practice are arguably more relevant than are parents' perceptions of their own practice^{19,82}. Nonetheless, response bias from adolescents could have influenced the results. Future studies may try to expand these findings using the direct data from parent and adolescent reporting, as well as observations data. This extension will also reveal whether parents and their adolescents are consistent in their perceptions of the degree of control. Third, the families in the sample are working class in urban. The characteristics of rural families and adolescents also require attention in the future.

Conclusions

In summary, the findings of this study enhance our understanding in Chinese middle school adolescents' self-determination. Fathers' psychological control and behavioral control may have unique effects on adolescents' self-determination after controlling the effects of mothers' psychological control and behavioral control. Moreover, fathers' psychological control may influence self-determination for boys greater than girls. Parenting programs may be guided by these findings.

Data availability

Data will be made available from the corresponding author on reasonable request.

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Author contributions

X.X.: Executed the study, analyzed the data, wrote and revised the article. Z.H.: Supervised the article.

Declarations

Competing interests

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 subsequent amendments or comparable ethical standards. The Human Ethics Committee of Taylor's University provided the approval (No. HEC 2023/260). Informed consent was obtained from a parent and/or legal guardian for study participation and all individual respondents in the study.

Additional information

Correspondence and requests for materials should be addressed to X.X.

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