



Effects of Peer Influences and Life-History Strategy on Chinese Junior High School Students' Prosocial and Antisocial Behaviors

Nan Zhu¹, Hui J. Lu² and Lei Chang^{1*}

¹ Department of Psychology, University of Macau, Taipa, Macau, ² Department of Applied Social Sciences, The Hong Kong Polytechnic University, Kowloon, Hong Kong

OPEN ACCESS

Edited by:

Raúl Navarro,
University of Castilla-La Mancha,
Spain

Reviewed by:

Chengfu Yu,
Guangzhou University, China
Fernanda Inéz García-Vázquez,
Instituto Tecnológico de Sonora
(ITSON), Mexico

*Correspondence:

Lei Chang
chang@um.edu.mo

Specialty section:

This article was submitted to
Educational Psychology,
a section of the journal
Frontiers in Education

Received: 11 August 2020

Accepted: 02 October 2020

Published: 22 October 2020

Citation:

Zhu N, Lu HJ and Chang L (2020)
Effects of Peer Influences
and Life-History Strategy on Chinese
Junior High School Students'
Prosocial and Antisocial Behaviors.
Front. Educ. 5:593744.
doi: 10.3389/feduc.2020.593744

Peer influence and life-history strategy have been shown in previous research as facilitators of adolescents' social conduct. The current research uses the data from a two-wave, nationally representative survey of Chinese junior high school students to examine how different aspects of peer influence and life-history strategy in Grade 7 might contribute to prosocial and antisocial behaviors in Grade 8. We also considered differences between local and migrant students. The results showed that friend prestige predicted more prosocial behaviors and less antisocial behaviors, whereas friend deviancy predicted less prosocial behaviors and more antisocial behaviors. Moreover, the facilitating effect of friend deviancy on antisocial behaviors was amplified in migrant students more than for local students. Slow life-history strategy predicted more prosocial behaviors and, especially for migrant students, less antisocial behaviors. These findings indicate adolescents' migrant backgrounds deserve extra attention when investigating peer influence and life-history strategy as distinct contributors to adolescents' social conduct.

Keywords: adolescence, friendship, life history strategy, migrant students, peer influence, prosociality

INTRODUCTION

The transition to adolescence (which coincides with the entrance of the junior high school in many societies) has critical implications for the development of social behaviors (Chang et al., 2007), including prosocial behaviors (e.g., helping others and adhering to public rules) and antisocial behaviors (e.g., aggression and substance use). Research on adolescents' social development generally follows the traditional risk-factor approach (Loeber, 1990) without theorizing the qualitative differences among different types of "risk factors" or "protective factors." The current research sought to fill this research gap by highlighting the difference between current social environments (e.g., peer influence) and life-history factors. The latter represents an interaction between genetic endowment and earlier developmental environments. Utilizing large, nationally representative samples of Chinese adolescents, we examined predictions derived from the peer socialization theories (Dishion et al., 1996; Brechwald and Prinstein, 2011; Dishion and Tipsord, 2011) and the life-history theory (Del Giudice et al., 2015). These samples also allowed us to examine hypotheses related to migrant students, who are common in China, and provides

additional insights into how deviancy training and life-history adjustments work when teenagers try to adapt to a new environment.

Peer influence on social behaviors becomes especially prominent during adolescence (Dishion et al., 2004; Steinberg and Monahan, 2007). It is defined as a combination of two processes: selection (preferentially affiliating with like-minded friends with similar behavioral proclivities) and socialization (a tendency to become similar to one's friend over time). Recent research has mostly devoted to explicating the socialization effect of peer groups (Brechwald and Prinstein, 2011), which may work in two directions. In the positive direction, peers may serve as prestigious role models (Wentzel et al., 2004). Peer acceptance and group membership have been shown to motivate academic achievement and prosocial behaviors among adolescents (Wentzel and Caldwell, 1997). Friends might also serve as. Indeed, research has shown that friends' prosocial behavior predicted positive changes in 6th-graders' prosocial behavior via prosocial goals (Wentzel et al., 2004; Barry and Wentzel, 2006).

Nevertheless, the bulk of research on peer influence focused on negative processes that predict antisocial outcomes such as substance use, academic failure, high-risk sexual behavior, delinquency, and violence in adolescence (Dishion et al., 1995, 1996, 1997, 2004; Ary et al., 1999; Fergusson et al., 2002; Tolan et al., 2003; Villanti et al., 2011). Specifically, the deviancy training theory (Dishion et al., 1996; Dishion and Tipsord, 2011) highlighted adolescents' endorsement of deviant behaviors through associating with deviant friends that encourage and amplify antisocial tendencies. Indeed, studies utilizing multilevel social network analysis that tracks students' friendship networks at different time points found that influence from deviant peers might be responsible for aggression and delinquency (Monahan et al., 2009; Sijtsema et al., 2010). Overall, it seems that the type of peers and friends an adolescent has is more influential than mere peer acceptance or friendship on adolescents' prosocial and antisocial behaviors. Therefore, based on peer socialization theories, we hypothesized that friend prestige (i.e., having friends who are well-adjusted at school, especially in academic performance) should exhibit increased prosociality, whereas friend deviancy (i.e., having friends with antisocial behavioral problems) should exhibit increased antisocial behaviors.

Another set of risk/protective factors for adolescents' social conduct can be traced to individual differences in life-history strategy (LHS; Chang et al., 2019), which refers to a suite of traits resulting from gene-environment interactions in the direction that maximize reproductive success in various environmental conditions (Ellis et al., 2009). Such gene-environment interactions lead to fundamental tradeoffs between traits facilitating immediate reproductive efforts and those facilitating future-oriented somatic efforts (Chisholm, 1993; Del Giudice et al., 2015; Chang and Lu, 2018). The traits serving similar functions in such tradeoffs are called LHS, which can be represented by a single fast-slow continuum (Ellis et al., 2009; Chen and Chang, 2016). Human LHS is sensitive to one's developmental environment (especially early environment; Belsky et al., 1991; Chisholm, 1993) and exhibits plasticity in

behavioral and social aspects such as attachment, sexuality, self-regulation, health behaviors, and relationship quality (Figueredo et al., 2006; Ellis et al., 2009; Del Giudice et al., 2015). Specifically, slow strategies are characterized by secure attachment, late reproduction, sexual restraint, stable relationships, high self-control, and prosociality, whereas fast strategies are characterized by insecure attachment early reproduction, sexual promiscuity, unstable relationships, impulsivity, and exploitative tendencies (Del Giudice, 2009; Del Giudice et al., 2015).

The transition from childhood to adolescence marks an opportunity to adjust one's LHS before attaining sexual and reproductive maturity (Del Giudice and Belsky, 2011). This indicates alternative pathways for adjustments in adolescents' social conduct. For instance, impulsivity and parental uninvolved involvement have been recognized as strong risk factors for antisocial behavior (Loeber, 1990). These two apparently irrelevant factors converge as part of fast life-history strategies (Chisholm, 1993; Griskevicius et al., 2011, 2013). The life-history pathways toward social conduct are also evidenced by longitudinal studies showing that unpredictable environments that are conducive to fast LHS predicted deviancy in adolescence and young adulthood (Brumbach et al., 2009). Insecure attachment, which indicates fast strategies, was found to predict antisocial, coercive ways of resource-control in middle childhood (Chen and Chang, 2012). Moreover, both cognitive components (e.g., future-oriented planning, cognitive perspective-taking) and emotional components (e.g., stable relationships, empathic concerns) of slow LHS predicted prosocial moral reasoning and judgments (Zhu et al., 2018). Thus, slow (fast) LHS seems to be related to more (less) prosocial behaviors and less (more) antisocial behaviors.

The peer-influence and life-history factors are intertwined in development. Peer groups form among children of similar backgrounds (Cohen, 1977; Carrell et al., 2013), and common environmental conditions shape similar LHS (Ellis et al., 2009; Del Giudice et al., 2015). Accordingly, Dishion et al. (2012) argued that deviant peer clustering constitutes a core part of fast LHS. However, distinguishing between LHS as a product of gene-environment interactions (Figueredo et al., 2006; Del Giudice et al., 2015) and behavioral conformity to peer influence might be necessary. Therefore, in the current study, we simultaneously examined slow LHS (self-regulation and relationship quality with parents) and peer influence (number of friends and friend characteristics) as independent predictors of adolescents' social behaviors.

The data we used include different subsamples of Chinese junior high school students from both local and migrant backgrounds. The social and economic changes in China over the past few decades led to a considerable proportion of migrant students in Chinese junior high schools (Jia and Liu, 2017) and changes in social environment for youths (Chang et al., 2011). Because family mobility might disrupt adolescents' social networks, they might become more reliant on new friends for social influence and acceptance in the new environment. This might expose them to more deviancy training (Dishion and Tipsord, 2011). Further, aggression and other antisocial behaviors might serve to exert resource control and to earn social status

in peers, especially for disadvantaged individuals (Wilson and Daly, 1985; Hawley, 1999, 2014). Indeed, research has shown that perceived peer exclusion and the need for peer acceptance are associated with increased antisocial behaviors (Strohmeier et al., 2012; Jia and Liu, 2017). Therefore, we predicted that migrant teenagers, compared with local teenagers in China would be more susceptible to antisocial peer influence, due to their eagerness to gain peer acceptance (Dishion et al., 1996; Strohmeier et al., 2012; Jia and Liu, 2017). This does not mean that migrant students necessarily perform worse than local students. In fact, studies in China showed that migrant children with better relationship qualities demonstrated higher hope, which in turn predicted better school performance (Fang et al., 2016). This is consistent with previous research showing that slow life-history traits serve as protective factors against antisocial behaviors in adolescence and young adulthood (Brumbach et al., 2009). Hence, we hypothesized that slow LHS might serve as a protective factor against antisocial behaviors among migrant students.

Peer influence and LHS are unlikely to be the only factors contributing to adolescents' prosocial and antisocial behaviors. In the current study, in addition to students' migrant status, their number of best friends, friend characteristics, and LHS, we also included students' gender, current family financial conditions, and educational levels of the parents as control variables. There is ample evidence that girls are more prosocial and less involved in antisocial behaviors (except relational aggression) than boys (e.g., Lu and Chang, 2019). Gender might also moderate the effects of peer influence and socioeconomic status (SES) on adolescents' social conduct (Dishion et al., 1996; Veenstra et al., 2006). Students' SES, indicated by family financial condition and their parents' educational level, has also been shown to be related to prosocial and antisocial behaviors (Veenstra et al., 2006; Piff et al., 2010). Specifically, low SES might lead to stress within families and low parental engagement, which, in turn, contributes to antisocial behaviors due to a lack of parental attention or discipline (Loeber, 1990). Therefore, it is important to include it as a covariate. Overall, this study sought to provide insights into the relative importance of peer influence and LHS on the prosocial and antisocial behaviors of adolescents with different backgrounds, after controlling for gender and socioeconomic factors.

MATERIALS AND METHODS

Data

We used student data obtained from the China Education Panel Survey (CEPS; National Survey Research Center, 2015). CEPS is a large-scale, longitudinal survey project conducted in the Chinese

mainland by the National Survey Research Center (NSRC) at the Renmin University of China. The survey covered a range of topics such as family contexts, school processes, communities and social structure, and educational outcomes. The CEPS sample is nationally representative, consisting of approximately 20,000 junior high school students (Grade 7 and Grade 9) in 438 classrooms of 112 schools across 28 county-level units. The baseline (Wave-1) survey was completed in the 2013–2014 academic year, and a Wave-2 survey in 2014–2015 tracked 10,279 8th-Graders (Grade 7 in the baseline survey) with a 91.9% follow-up rate (see **Table 1** for a summary of demographic information of the participants). The current study used a combined dataset of Wave-1 and Wave-2 data, which had an overall sample size of 8984 after excluding respondents with missing responses to important items. This overall sample was further divided into three subsamples. For the purpose of this study, we conducted analyses separately using a core national sample (Subsample 1) of 4,861 students (2,536 males), which represent all 2,870 county-level units in the Chinese Mainland, and a second subsample with a high proportion of migrant students (Subsample 2) of 3,165 students (1,658 males) representing 120 counties with a high proportion of migrant students.

Measures

Outcomes: Prosocial and Antisocial Behaviors

Several items in the Wave-2 questionnaire examined students' prosocial and antisocial development by asking, "How often did you do the following things in the past year?" These items were rated from 1 (*never*) to 5 (*always*). Prosocial behaviors were represented by the average of three items: (1) helping elders, (2) following orders, and (3) being honest (Cronbach's α coefficients were 0.69, 0.70, and 0.67 within Subsamples 1, 2, and 3, respectively). Antisocial behaviors were represented by the average of another eight items: (1) cursing or saying swearwords, (2) quarreling with others, (3) having a fight, (4) bullying others, (5) having a violent temper, (6) skipping classes, being absent, or truanting, (7) copying homework or cheating in exams, and (8) smoking or drinking alcohol (Cronbach's α coefficients were 0.81, 0.79, and 0.79 within Subsamples 1, 2, and 3, respectively). These items were deemed highly relevant to prosocial and antisocial conduct, respectively, by previous researchers (Loeber, 1990; Carlo et al., 2011).

Predictors: Peer Influence

We examined three aspects of peer influence using items in the Wave-1 questionnaire: Number of friends, friend prestige, and friend deviancy. Students indicated how many best friends they had and rated their best friends in several aspects. Specifically, they were asked, "how many of your best friends mentioned

TABLE 1 | Demographic information and migrant status for the two subsamples.

	<i>N</i>	<i>n</i> of female (percentage)	<i>n</i> of migrant students (percentage)	Mean age at wave 1 (standard deviation of age at wave 1)	Minimal (maximum) age at wave 1
Subsample 1	4857	2630 (54.1%)	528 (10.9%)	12.68 (0.81)	11 (17)
Subsample 2	3167	1673 (52.8%)	1150 (36.3%)	12.44 (0.60)	11 (15)

above fit in the following descriptions" (1 = *none of them*, 2 = *one or two of them*, 3 = *most of them*). Friend prestige was represented by the average of three items: (1) having good academic performance, (2) studying hard, (3) expecting to go to college (Cronbach's α coefficients were 0.79, 0.78, and 0.80 within Subsamples 1, 2, and 3, respectively). Friend deviancy was represented by the average of five items: (1) skipping classes, (2) criticized or punished for violating school rules, (3) fighting with others, (4) smoking or drinking alcohol, and (5) dropped out of school (Cronbach's α coefficients were 0.83, 0.89, and 0.84 within Subsamples 1, 2, and 3, respectively).

Predictors: Life-History Strategy

We created a composite score of slow LHS using 10 items in the Wave-1 questionnaire. Specifically, students rated their agreement with the following items given their experiences in Grade 6: (1) I would try my best to go to school even if I had reasons to stay at home, (2) I would try my best to finish even the homework I dislike, (3) I would try my best to finish my homework even if it would take me quite a long time, (4) I was able to express myself clearly, (5) I was able to give quick responses, (6) I was a fast learner, and (7) I was curious about new stuff. We also included an item asking the student to rate their confidence in their own future. These items reflect the self-regulation component of slow LHS. Additionally, two items asked the student to rate how well their relationship with their mother and father were, respectively, reflecting the relationship component of slow LHS. These two components were given the same weight in the composite score, which ranged from 1 to 6 with higher scores reflecting slower LHS. Cronbach's α coefficients for the 10-item LHS measure were 0.74, 0.79, and 0.76 within Subsamples 1, 2, and 3, respectively.

Other Predictors

We also gathered the following information from the CEPS dataset: gender of the student (1 = *male*, 0 = *female*), migrant status of the student (1 = *migrant student*, 0 = *local student*), self-reported current financial condition (1 = *very poor*, 2 = *poor*,

3 = *average*, 4 = *rich*, 5 = *very rich*), and the highest educational level attained by either parent of the student ranging from 1 (*none*) to 9 (*Master's degree or higher*).

RESULTS

Descriptive statistics are separately presented for the two subsamples in **Table 2**. In the core subsample (Subsample 1), an independent samples *t*-test revealed that non-migrant students reported poorer family financial conditions than did migrant students, $t(4849) = -4.27, p < 0.001, CI95 [-0.20, -0.08]$. Other variables (number of friends, friend prestige, friend deviancy, LHS, highest educational level of parents, prosocial behaviors and antisocial behaviors) did not differ between these two groups of students, $ps > 0.08$. In the subsample with a high proportion of migrant students (Subsample 2), however, several significant differences were found between the two groups. Compared with migrant students, non-migrant students had more prestigious best friends, $t(3163) = 4.03, p < 0.001, CI95 [0.04, 0.11]$, scored higher on LHS, $t(3163) = 6.25, p < 0.001, CI95 [0.11, 0.20]$, had better-educated parents, $t(3163) = 12.17, p < 0.001, CI95 [0.80, 1.11]$, and were from richer families, $t(3163) = 7.11, p < 0.001, CI95 [0.10, 0.17]$. Compared with migrant students, non-migrant students also reported more prosocial behaviors, $t(3163) = 3.22, p = 0.001, CI95 [0.04, 0.15]$, and less antisocial behaviors, $t(3163) = -2.84, p = 0.005, CI95 [-0.09, -0.02]$. The correlations among the variables for non-migrant and migrant students within the two subsamples are reported in **Supplementary Material**.

Separate multiple regression analyses were conducted within each subsample with prosocial behaviors as the dependent variable, respectively (**Table 3**). Number of friends, friend prestige, friend deviancy, LHS, gender, migrant status, highest educational level of parents, and financial condition were entered as predictors. To examine the hypothesis that migrant students were particularly susceptible to peer influence, we also entered the interactions between friend prestige and migrant status,

TABLE 2 | Means (M) and standard deviations (SD) for the variables and comparison between non-migrant and migrant students.

Variable	Subsample 1			Subsample 2		
	Non-migrant ^a M (SD)	Migrant ^b M (SD)	<i>t</i> (non-migrant - migrant)	Non-migrant ^c M (SD)	Migrant ^d M (SD)	<i>t</i> (non-migrant - migrant)
Wave-1 variables (predictors)						
Number of best friend	12.98 (16.31)	12.86 (17.52)	0.15	11.26 (13.93)	10.93 (14.04)	0.61
Friend prestige	2.44 (0.52)	2.41 (0.53)	0.93	2.55 (0.48)	2.48 (0.51)	4.03***
Friend deviancy	1.09 (0.25)	1.11 (0.27)	-1.22	1.07 (0.22)	1.08 (0.23)	-1.61
Slow life-history strategy	5.17 (0.61)	5.12 (0.64)	1.72	5.19 (0.63)	5.03 (0.65)	6.25***
Highest educational level of parents	4.14 (1.86)	4.09 (1.85)	0.51	5.29 (2.08)	4.33 (1.88)	12.17***
Financial condition	2.67 (0.66)	2.81 (0.56)	-4.27***	3.00 (0.46)	2.87 (0.53)	7.11***
Wave-2 variables (outcomes)						
Prosocial behavior	3.75 (0.76)	3.74 (0.79)	0.35	3.87 (0.75)	3.78 (0.77)	3.22**
Antisocial behavior	1.54 (0.49)	1.57 (0.54)	-1.00	1.48 (0.45)	1.53 (0.49)	-2.84**

^a $n = 4,418$; ^b $n = 443$; ^c $n = 2,216$; ^d $n = 949$. ** $p < 0.01$, *** $p < 0.001$.

and between friend deviancy and migrant status. To examine the hypothesis that slow LHS serves as a protective factor against antisocial behaviors particularly for migrant students, we also entered the interaction between LHS and migrant status. To account for potential interactions between peer influence and LHS, we conducted further regression analyses with such interactions in the second step. As these are not central to our hypotheses, they are reported in **Supplementary Material**.

These predictors accounted for 9.1% of variance in prosocial behaviors in Subsample 1, $F(11,4839) = 44.12, p < 0.001$, and 8.6% of variance in prosocial behaviors in Subsample 2, $F(11,3155) = 26.84, p < 0.001$. In Subsample 1, we found that friend prestige, LHS, and highest educational level of parents were associated with more prosocial behaviors (β s = 0.13, 0.16, 0.08, $ps < 0.001$, respectively). Friend deviancy was associated with less prosocial behaviors ($\beta = -0.06, p < 0.001$). Compared with girls ($M = 3.84, SD = 0.66$), boys ($M = 3.67, SD = 0.83$) reported less prosocial behaviors ($\beta = -0.08, p < 0.001$). However, the interactions were not significant, indicating that friend prestige, friend deviancy, and slow life-history had similar effects on prosocial behaviors for non-migrant and migrant students (β s = $-0.01, 0.01, 0.01, ps = 0.460, 0.617, 0.578$). A similar pattern was found within Subsample 2. Friend prestige, LHS, and highest educational level of parents were associated with more prosocial behaviors (β s = 0.14, 0.16, 0.11, $ps < 0.001$, respectively). However, friend deviancy was not associated with antisocial behaviors ($\beta = 0.02, p = 0.473$). Compared with girls ($M = 3.90, SD = 0.67$), boys ($M = 3.79, SD = 0.82$) reported less

prosocial behaviors ($\beta = -0.05, p = 0.004$). Like in subsample 1, friend prestige, friend deviancy, and LHS had similar effects on prosocial behaviors for non-migrant and migrant students (β s = $-0.002, 0.02, 0.01, ps = 0.933, 0.383, 0.574$). Other predictors were not significant in both subsamples (**Table 3**).

We also regressed antisocial behaviors on the same set of predictors within each subsample (**Table 4**). These predictors accounted for 10.1% of variance in antisocial behaviors in Subsample 1, $F(11,4845) = 49.70, p < 0.001$, and 8.7% of variance in antisocial behaviors in Subsample 2, $F(11,3155) = 27.23, p < 0.001$. In Subsample 1, we found that friend prestige, LHS, and highest educational level of parents were associated with less antisocial behaviors (β s = $-0.09, -0.12, -0.05, ps < 0.01$, respectively). Friend deviancy was associated with more antisocial behaviors ($\beta = 0.17, p < 0.001$). Compared with girls ($M = 1.31, SD = 0.35$), boys ($M = 1.44, SD = 0.46$) reported more antisocial behaviors ($\beta = 0.10, p < 0.001$). Moreover, we found a positive and significant interaction between friend deviancy and migrant status ($\beta = 0.03, p = 0.022$), indicating that the association between friend deviancy and more antisocial behaviors was stronger for migrant students than for non-migrant students. However, the effects of friend prestige and LHS were similar for non-migrant and migrant students (β s = 0.01, $-0.01, ps = 0.382, 0.605$, respectively). Other predictors were not significant. In Subsample 2, friend prestige, LHS, and highest educational level of parents were associated with less antisocial behaviors (β s = $-0.09, -0.13, -0.05, ps < 0.01$, respectively). Friend deviancy was associated with more antisocial behaviors

TABLE 3 | Results of multiple linear regression analysis for prosocial actions.

Variable	Subsample 1 ^a			Subsample 2 ^b		
	B	SE	β	B	SE	β
(Constant)	3.66	0.03		3.68	0.04	
Number of best friend	0.00	0.00	0.03	0.00	0.00	-0.01
Friend prestige	0.19	0.02	0.13***	0.21	0.03	0.14***
Friend deviancy	-0.20	0.05	-0.07***	0.05	0.07	0.02
Life-history strategy	0.20	0.02	0.16***	0.19	0.03	0.16***
Gender	-0.12	0.02	-0.08***	-0.08	0.03	-0.05**
Migrant status	0.01	0.04	0.00	-0.01	0.03	0.00
Highest educational level of parents	0.03	0.01	0.08***	0.04	0.01	0.11***
Financial condition	0.00	0.02	0.00	0.01	0.03	0.01
Friend prestige × migrant status	-0.05	0.07	-0.01	0.00	0.06	0.00
Friend deviancy × migrant status	0.07	0.14	0.01	0.11	0.13	0.02
Life-history strategy × migrant status	0.03	0.06	0.01	0.03	0.05	0.01
R ²	0.091***			0.086***		

^a $n = 4,861$; ^b $n = 3,165$. ** $p < 0.01$ *** $p < 0.001$.

TABLE 4 | Results of multiple linear regression analysis for antisocial actions.

Variable	Subsample 1 ^a			Subsample 2 ^b		
	B	SE	β	B	SE	β
(Constant)	1.54	0.02		1.48	0.02	
Number of best friend	0.00	0.00	0.01	0.00	0.00	0.04*
Friend prestige	-0.09	0.01	-0.09***	-0.08	0.02	-0.09***
Friend deviancy	0.33	0.03	0.17***	0.18	0.04	0.09***
Slow life-history strategy	-0.09	0.01	-0.12***	-0.09	0.02	-0.13***
Gender	0.10	0.01	0.10***	0.10	0.02	0.10***
Migrant status	0.01	0.02	0.00	0.02	0.02	0.02
Highest educational level of parents	-0.01	0.00	-0.05***	-0.01	0.00	-0.05**
Financial condition	0.00	0.01	0.00	0.04	0.02	0.04*
Friend prestige × migrant status	0.04	0.05	0.01	0.00	0.04	0.00
Friend deviancy × migrant status	0.22	0.09	0.03*	0.15	0.08	0.04*
Life-history strategy × migrant status	-0.02	0.04	-0.01	-0.06	0.03	-0.04*
R ²	0.101***			0.087***		

^a $n = 4,861$; ^b $n = 3,165$. * $p < 0.05$ ** $p < 0.01$, *** $p < 0.001$.

($\beta = 0.09, p < 0.001$). Compared with girls ($M = 1.43, SD = 0.38$), boys ($M = 1.56, SD = 0.52$) reported more antisocial behaviors ($\beta = 0.10, p < 0.001$). Additionally, number of best friends and financial condition predicted more antisocial behaviors ($\beta_s = 0.04, 0.04, p_s = 0.017, 0.020$, respectively). We found significant interactions between friend deviancy and migrant status ($\beta = 0.04, p = 0.048$), and between LHS and migrant status ($\beta = -0.04, p = 0.044$). These results indicate that the associations between friend deviancy and more antisocial behaviors, and between slow life-history and less antisocial behaviors, were more prominent for migrant students than for non-migrant students.

DISCUSSION

Adolescents' prosocial and antisocial behaviors are likely shaped by both peer influence (e.g., Wentzel et al., 2004; Barry and Wentzel, 2006; Dishion and Tipsord, 2011), and their LHS (Chisholm, 1993; Ellis et al., 2009; Del Giudice and Belsky, 2011). This view is supported in this study, which examined nationally representative samples of Chinese junior high school students. Consistent with peer socialization theories, we found that friend prestige measured by academic achievement and aspiration predicted more prosocial behaviors and less antisocial behaviors in both subsamples. Conversely, friend deviancy in terms of aggression, problematic behaviors, and poor school adjustments predicted less prosocial behaviors in the core subsample and more antisocial behaviors in both subsamples.

By contrast, number of best friends reported by the student, which might reflect friend acceptance or popularity, only predicted more antisocial behaviors in Subsample 2, which include a high proportion of migrant students. Combined with the finding that migrant students exhibited a stronger link between friend deviancy and increased antisocial behavior than non-migrant students did, this seems to support the view that antisocial behaviors serve as a means to gain acceptance or popularity, especially in migrant youths who crave peer acceptance (Strohmeier et al., 2012; Jia and Liu, 2017). Indeed, migrant students also indicated less prosocial behaviors and more antisocial behaviors than non-migrant students did in Subsample 2, but not Subsample 1. In Subsample 2, although migrant students, on average, had similar numbers of best friends as local students, their friends were less prestigious than those of local students. Thus, both environmental circumstances and migrant status might contribute to adolescents' desire to impress peers with deviancy. However, the link between peer prestige and more prosocial behaviors did not differ between non-migrant and migrant groups. This is understandable, as the prosocial behaviors we examined (e.g., helping others, following rules, and being honest) generally reflect good social adjustment but are unlikely to impress other teenagers. Previous research has shown that the positive peer influence that promotes adolescents' prosociality mainly works through reciprocated friendships, which reinforce prosocial goals (Wentzel et al., 2004).

In both subsamples, slow LHS measured by better self-regulation and warmer relationship with parents predicted

more prosocial behaviors and less antisocial behaviors. This is consistent with the results of the existing research (e.g., Chen and Chang, 2012; Zhu et al., 2018) that link prosocial behaviors to future development (Chisholm, 1993), and antisocial behaviors to more immediate goals of resource control (Hawley, 1999; Chen and Chang, 2012). Moreover, slow LHS seems to serve as a protective factor against antisocial tendencies for migrant students. This is consistent with recent evidence that stable relationships with family, which indicate slow LHS, predicted higher levels of hope and academic performance among Chinese migrant students (Fang et al., 2016).

Consistent with existing research (e.g., Lu and Chang, 2019), we found that girls are more prosocial and less antisocial than boys. The highest education levels of the parents also predicted more prosocial behaviors and less antisocial behaviors, which might reflect the effects of both parental socialization and SES. Financial difficulties did not appear to hinder prosociality for Chinese students, but in Subsample 2 we did observe that poor family financial condition was associated with more antisocial behaviors. This supports the view that antisocial behaviors serve as a resource-control strategy mainly for disadvantaged individuals (Wilson and Daly, 1985). However, the inconsistent finding between the two subsamples implicates that environmental circumstance is also important.

In conclusion, a major contribution of this study is to distinguish between the effects of peer influence and LHS on adolescents' social behaviors and examine these predictors simultaneously using the CEPS data. Although the findings are inevitably limited by the format of responses (i.e., mostly self-reported scales) and some measures with less ideal internal consistency, they offer valuable insights into the multifaceted phenomena of adolescent social adjustment. Importantly, adolescents are not all the same. Chinese junior high school students with different backgrounds differed in their susceptibility to antisocial peer contagion and the manifestation of LHS. Building on these findings, future research should examine in more detail distinct peer processes that might be responsible for such differences, and whether these findings can be extended to other cultures.

DATA AVAILABILITY STATEMENT

Publicly available datasets were analyzed in this study. This data can be found here: Chinese National Survey Data Archive, <https://ceps.ruc.edu.cn>.

AUTHOR CONTRIBUTIONS

NZ and LC were responsible for the conceptualization of the research. NZ conducted formal analyses and wrote the original draft. HL and LC were responsible for writing and editing the final draft. All authors contributed to the article and approved the submitted version.

FUNDING

This research has been funded by a General Research Fund (Project 15608415) from the Research Grants Council (RGC) of Hong Kong SAR.

REFERENCES

- Ary, D. V., Duncan, T. E., Duncan, S. C., and Hops, H. (1999). Adolescent problem behavior: the influence of parents and peers. *Behav. Res. Therapy* 37, 217–230. doi: 10.1016/S0005-7967(98)00133-8
- Barry, C. M., and Wentzel, K. R. (2006). Friend influence on prosocial behavior: the role of motivational factors and friendship characteristics. *Dev. Psychol.* 42, 153–163. doi: 10.1037/0012-1649.42.1.153
- Belsky, J., Steinberg, L., and Draper, P. (1991). Childhood experience, interpersonal development, and reproductive strategy: an evolutionary theory of socialization. *Child Dev.* 62, 647–670. doi: 10.1111/j.1467-8624.1991.tb01558.x
- Brechwald, W. A., and Prinstein, M. J. (2011). Beyond homophily: a decade of advances in understanding peer influence processes. *J. Res. Adoles.* 21, 166–179. doi: 10.1111/j.1532-7795.2010.00721.x
- Brumbach, B. H., Figueredo, A. J., and Ellis, B. J. (2009). Effects of harsh and unpredictable environments in adolescence on development of life history strategies. *Hum. Nat.* 20, 25–51. doi: 10.1007/s12110-009-9059-3
- Carlo, G., Mestre, M. V., Samper, P., Tur, A., and Armenta, B. E. (2011). The longitudinal relations among dimensions of parenting styles, sympathy, prosocial moral reasoning, and prosocial behaviors. *Int. J. Behav. Dev.* 35, 116–124. doi: 10.1177/0165025410375921
- Carrell, S. E., Sacerdote, B. L., and West, J. E. (2013). From natural variation to optimal policy? The importance of endogenous peer group formation. *Econometrica* 81, 855–882. doi: 10.3982/ECTA10168
- Chang, L., Chen, B. B., and Ji, L. Q. (2011). Attributions and attitudes of mothers and fathers in China. *Parenting* 11, 102–115. doi: 10.1080/15295192.2011.585553
- Chang, L., Liu, H., Fung, K. Y., Wang, Y., Wen, Z., Li, H., et al. (2007). The mediating and moderating effects of teacher preference on the relations between students' social behaviors and peer acceptance. *Merrill-Palmer Q.* 53, 603–630.
- Chang, L., and Lu, H. J. (2018). Resource and extrinsic risk in defining fast life histories of rural Chinese left-behind children. *Evol. Hum. Behav.* 39, 59–66. doi: 10.1016/j.evolhumbehav.2017.10.003
- Chang, L., Lu, H. J., Lansford, J. E., Skinner, A. T., Bornstein, M. H., Steinberg, L., et al. (2019). Environmental harshness and unpredictability, life history, and social and academic behavior of adolescents in nine countries. *Dev. Psychol.* 55, 890–903. doi: 10.1037/dev0000655
- Chen, B. B., and Chang, L. (2012). Adaptive insecure attachment and resource control strategies during middle childhood. *Int. J. Behav. Dev.* 36, 389–397. doi: 10.1177/0165025412445440
- Chen, B. B., and Chang, L. (2016). Procrastination as a fast life history strategy. *Evol. Psychol.* 14:1474704916630314. doi: 10.1177/1474704916630314
- Chisholm, J. (1993). Death, hope, and sex: life-history theory and the development of reproductive strategies. *Curr. Anthropol.* 34, 1–24. doi: 10.1086/204131
- Cohen, J. M. (1977). Sources of peer group homogeneity. *Soc. Educ.* 50, 227–241. doi: 10.2307/2112497
- Del Giudice, M. (2009). Sex, attachment, and the development of reproductive strategies. *Behav. Brain Sci.* 32, 1–21. doi: 10.1017/S0140525X09000016
- Del Giudice, M., and Belsky, J. (2011). “The development of life history strategies: toward a multi-stage theory,” in *The Evolution of Personality and Individual Differences*, eds D. M. Buss and P. H. Hawley (New York, NY: Oxford Press), 154–176.
- Del Giudice, M. D., Gangestad, S. W., and Kaplan, H. S. (2015). “Life history theory and evolutionary psychology,” in *The Handbook of Evolutionary Psychology*, ed. D. M. Buss (Hoboken, NJ: Wiley), 88–114. doi: 10.1002/9781119125563.evpsych102
- Dishion, T. J., Capaldi, D., Spracklen, K. M., and Li, F. (1995). Peer ecology of male adolescent drug use. *Dev. Psychopathol.* 7, 803–824. doi: 10.1017/S0954579400006854
- Dishion, T. J., Eddy, J. M., Haas, E., Li, F., and Spracklen, K. (1997). Friendships and violent behavior during adolescence. *Soc. Dev.* 6, 207–223. doi: 10.1111/j.1467-9507.1997.tb00102.x
- Dishion, T. J., Ha, T., and Véronneau, M.-H. (2012). An ecological analysis of the effects of deviant peer clustering on sexual promiscuity, problem behavior, and childbearing from early adolescence to adulthood: an enhancement of the life history framework. *Dev. Psychol.* 48, 703–717. doi: 10.1037/a0027304
- Dishion, T. J., Nelson, S. E., and Bullock, B. M. (2004). Premature adolescent autonomy: parent disengagement and deviant peer process in the amplification of problem behaviour. *J. Adoles.* 27, 515–530. doi: 10.1016/j.adolescence.2004.06.005
- Dishion, T. J., Spracklen, K. M., Andrews, D. W., and Patterson, G. R. (1996). Deviancy training in male adolescent friendships. *Behav. Therapy* 27, 373–390. doi: 10.1016/S0005-7894(96)80023-2
- Dishion, T. J., and Tipsord, J. M. (2011). Peer contagion in child and adolescent social and emotional development. *Ann. Rev. Psychol.* 62, 189–214. doi: 10.1146/annurev.psych.093008.100412
- Ellis, B. J., Figueredo, A. J., Brumbach, B. H., and Schlomer, G. L. (2009). Fundamental dimensions of environmental risk. *Hum. Nat.* 20, 204–268. doi: 10.1007/s12110-009-9063-7
- Fang, L., Sun, R. C., and Yuen, M. (2016). Acculturation, economic stress, social relationships and school satisfaction among migrant children in urban China. *J. Happiness Stud.* 17, 507–531. doi: 10.1007/s10902-014-9604-6
- Fergusson, D. M., Swain-Campbell, N. R., and Horwood, L. J. (2002). Deviant peer affiliations, crime and substance use: a fixed effects regression analysis. *J. Abnormal Child Psychol.* 30, 419–430. doi: 10.1023/A:1015774125952
- Figueredo, A. J., Vásquez, G., Brumbach, B. H., Schneider, S. M., Sefcek, J. A., Tal, I. R., et al. (2006). Consilience and life history theory: from genes to brain to reproductive strategy. *Dev. Rev.* 26, 243–275.
- Griskevicius, V., Ackerman, J. M., Cantú, S. M., Delton, A. W., Robertson, T. E., Simpson, J. A., et al. (2013). When the economy falters, do people spend or save? Responses to resource scarcity depend on childhood environments. *Psychol. Sci.* 24, 197–205. doi: 10.1177/0956797612451471
- Griskevicius, V., Tybur, J. M., Delton, A. W., and Robertson, T. E. (2011). The influence of mortality and socioeconomic status on risk and delayed rewards: a life history theory approach. *J. Pers. Soc. Psychol.* 100, 1015–1026. doi: 10.1037/a0022403
- Hawley, P. H. (1999). The ontogenesis of social dominance: a strategy-based evolutionary perspective. *Dev. Rev.* 19, 97–132. doi: 10.1006/drev.1998.0470
- Hawley, P. H. (2014). Ontogeny and social dominance: a developmental view of human power patterns. *Evol. Psychol.* 12:147470491401200204. doi: 10.1177/147470491401200204
- Jia, X., and Liu, X. (2017). Perceived discrimination and antisocial behaviour among Chinese rural-to-urban migrant adolescents: mediating effects of social support. *Int. J. Psychol.* 52, 327–335. doi: 10.1002/ijop.12280
- Loeber, R. (1990). Development and risk factors of juvenile antisocial behavior and delinquency. *Clin. Psychol. Rev.* 10, 1–41. doi: 10.1016/0272-7358(90)90105-J
- Lu, H. J., and Chang, L. (2019). Aggression and risk taking as adaptive implementations of fast life history strategy. *Dev. Sci.* 22:e12827. doi: 10.1111/desc.12827
- Monahan, K. C., Steinberg, L., and Cauffman, E. (2009). Affiliation with antisocial peers, susceptibility to peer influence, and antisocial behavior during the transition to adulthood. *Dev. Psychol.* 45, 1520–1530. doi: 10.1037/a0017417
- National Survey Research Center (2015). *China Education Panel Survey. Chinese National Survey Data Archive*. Chicago, IL: National Survey Research Center.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/feduc.2020.593744/full#supplementary-material>

- Piff, P. K., Kraus, M. W., Côté, S., Cheng, B. H., and Keltner, D. (2010). Having less, giving more: the influence of social class on prosocial behavior. *J. Personal. Soc. Psychol.* 99, 771–784. doi: 10.1037/a0020092
- Sijtsema, J. J., Ojanen, T., Veenstra, R., Lindenberg, S., Hawley, P. H., and Little, T. D. (2010). Forms and functions of aggression in adolescent friendship selection and influence: a longitudinal social network analysis. *Soc. Dev.* 19, 515–534. doi: 10.1111/j.1467-9507.2009.00566.x
- Steinberg, L., and Monahan, K. C. (2007). Age differences in resistance to peer influence. *Dev. Psychol.* 43, 1531–1543. doi: 10.1037/0012-1649.43.6.1531
- Strohmeier, D., Fandrem, H., Stefanek, E., and Spiel, C. (2012). The goal to be accepted by friends as underlying function of overt aggressive behaviour in immigrant adolescents. *Scand. J. Psychol.* 53, 80–88. doi: 10.1111/j.1467-9450.2011.00910.x
- Tolan, P. H., Gorman-Smith, D., and Henry, D. B. (2003). The developmental ecology of urban males' youth violence. *Dev. Psychol.* 39, 274–291. doi: 10.1037/0012-1649.39.2.274
- Veenstra, R., Lindenberg, S., Oldehinkel, A. J., De Winter, A. F., and Ormel, J. (2006). Temperament, environment, and antisocial behavior in a population sample of preadolescent boys and girls. *Int. J. Behav. Dev.* 30, 422–432.
- Villanti, A., Boulay, M., and Juon, H. S. (2011). Peer, parent and media influences on adolescent smoking by developmental stage. *Addictive Behav.* 36, 133–136. doi: 10.1016/j.addbeh.2010.08.018
- Wentzel, K. R., Barry, C. M., and Caldwell, K. A. (2004). Friendships in middle school: influences on motivation and school adjustment. *J. Educ. Psychol.* 96, 195–203. doi: 10.1037/0022-0663.96.2.195
- Wentzel, K. R., and Caldwell, K. (1997). Friendships, peer acceptance, and group membership: relations to academic achievement in middle school. *Child Dev.* 68, 1198–1209. doi: 10.2307/1132301
- Wilson, M., and Daly, M. (1985). Competitiveness, risk taking, and violence: the young male syndrome. *Ethol. Sociobiol.* 6, 59–73. doi: 10.1016/0162-3095(85)90041-X
- Zhu, N., Hawk, S. T., and Chang, L. (2018). Living slow and being moral. *Hum. Nat.* 29, 186–209. doi: 10.1007/s12110-018-9313-7

Conflict of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Copyright © 2020 Zhu, Lu and Chang. This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY). The use, distribution or reproduction in other forums is permitted, provided the original author(s) and the copyright owner(s) are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms.