



# Coercive Parenting and Juvenile Delinquency in China: Assessing Gender Differences in the Moderating Effect of Empathic Concern

Kehui Wu<sup>1</sup> · Spencer D. Li<sup>1</sup> 

Received: 6 December 2022 / Accepted: 30 January 2023 / Published online: 10 February 2023

© The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature 2023

## Abstract

Coercive parenting has been identified as a prevalent parenting style in Chinese society. Previous research has shown that personal attributes such as empathic concern moderate the positive impact of coercive parenting on juvenile delinquency. However, there has been a paucity of research examining if and how such a moderating mechanism would operate differently across genders. Drawing on the two-wave survey data from a sample of 1088 Chinese adolescents (mean of age = 13.82,  $SD = 1.49$ ; 49.7% females), this study found that compared to those with lower empathic concern, adolescents with higher empathic concern were less delinquent under a low-to-moderate level of coercive parenting, but more delinquent when coercive control reached a medium-to-high level. Furthermore, multiple group analyses revealed gender differences in the moderation mechanism, such that empathic concern only significantly moderated the relationship in females. The findings underscore the importance of considering adolescent personal characteristics and gender differences when examining the relationship between parenting styles and juvenile delinquency.

**Keywords** Coercive parenting · Juvenile delinquency · Empathic concern · Gender differences

## Introduction

Coercive parenting has been established as an important predictor of juvenile delinquency in empirical studies (Patterson, 2002). Through imposing harsh parenting disciplines, coercive parenting exerts a deleterious impact on adolescent development, culminating in children's internalizing and externalizing maladjustments, such as higher levels of depression, academic difficulties, and delinquency (Li et al., 2020). Nevertheless, not all adolescents from coercive households would become delinquents; adolescents may vary in their susceptibility and vulnerability to coercive parenting because of different individual characteristics (Belsky & Pluess, 2009). One of the individual characteristics contributing to the variation is empathic concern, which functions as a plasticity factor in moderating the relationship between coercive parenting and juvenile delinquency (Li et al., 2020). Compared to those with relatively lower empathic concern,

adolescents who possess higher empathic concern exhibit less delinquency when the level of coercive parenting is within a tolerable range, but more delinquency when coercive parenting reaches a high-to-extreme level (Li et al., 2020). Prior studies have provided valuable insight into how empathic concern operates as a moderating mechanism shaping the relationship between coercive parenting and juvenile delinquency. However, there has been a paucity of research examining if and how such a moderation mechanism would operate differently across genders. Given the substantial evidence showing adolescent levels of empathic concern, their involvement in juvenile delinquency, and their sensibility to coercive parenting differ across genders (Barnett & Scaramella, 2013; Van der Graaff et al., 2014), there are strong reasons to believe that gender differences may exist in the moderating mechanism. To address the gap in this area of research, the current study seeks to expand on prior literature by investigating whether gender differences exist in the ways empathic concern moderates the influence of coercive parenting on juvenile delinquency.

✉ Spencer D. Li  
spencerli@um.edu.mo

<sup>1</sup> Department of Sociology, University of Macau, Macau 999078, China

## Coercive Parenting and Juvenile Delinquency

Considerable evidence has shown that parenting style plays a crucial role in juvenile delinquency, with different

parenting styles either strengthening or mitigating adolescent delinquent behavior (Bao et al., 2017). Parenting styles are defined as typologies of parenting practices along key dimensions of child-rearing behavior such as demandingness and responsiveness (Li et al., 2022). Baumrind (1971, 1996) divided parenting styles into four distinct typologies, including authoritarian, authoritative, permissive, and rejecting-neglect styles, which have been accepted by many family scholars as predominant parenting styles. In recent years, researchers have identified new parenting styles that do not map into the classic typologies. Coercive parenting, characterized by excessive use of harsh parenting strategies, is one of these parenting styles that are positively linked to adolescent psychological and behavioral problems (Trinkner et al., 2012). Through adopting strict disciplines such as striking, scolding, rejecting, and psychological control, coercive parents focus more on retaining hierarchical status distinctions over their children (Supple & Cavanaugh, 2013), while spending less effort on developing mutual understanding and children's interpersonal skills (Baumrind, 1996). Due to the lack of concern for children's emotional and social needs, extensive studies have suggested that adolescents with coercive parents are more likely to engage in delinquent behavior than those without (Chang et al., 2003; Li et al., 2020).

Hostility and psychological control are two major components of coercive parenting (Morris et al., 2002). Hostility refers to parental use of verbal and physical abuse aimed at compelling children to meet their high or unreasonable expectations (Morris et al., 2002), which has been shown to increase delinquent involvement among adolescents (Aucoin et al., 2006). Psychological control, on the other hand, is the concealed aggression and incursive control (e.g., guilty induction, love withdrawal, and devaluation) imposed by the parent to control children's inner psychological world (Barber, 2002). A body of research has suggested that parental psychological control, which is more injurious to adolescent well-being than parental hostility, positively predicts adolescent delinquent and aggressive behavior (Deneault et al., 2020).

Furthermore, the coercion theory (Patterson, 1982, 1986) sheds light on understanding the association between coercive parenting and juvenile delinquency from a social learning perspective. The theory contends that the coercive cycle between the parent and child leads to children's early-onset aggression and facilitates children's later antisocial behavior (Patterson, 1986). When parents utilize stern discipline ineffectively, it generates a coercive cycle among family members, instilling coercive behavior patterns during family interactions (Snyder & Patterson, 1987). Through social learning, children from aversive families are more likely to develop coercive interpersonal skills and delinquent behaviors to react to and escape harsh parental discipline (Hops et al., 2000).

## Coercive Parenting and Juvenile Delinquency in China

Compared to European and American parents, Chinese parents adopt more coercive but less authoritative parenting practices during the childrearing process (Chao, 1994). To achieve social and academic goals they set for their children, Chinese parents use stronger control, higher authority, and less warmth to compel children to follow their strict standards (Chao, 1994). Being profoundly influenced by the philosophy of Confucianism, Chinese parents emphasize filial piety and hierarchical relationships between parents and children (Chan & Leong, 1994). They tend to regard strict parenting practices as acts of responsible parenting and parental involvement, and in turn, rely on harsh parental discipline in their childrearing strategies (Simons et al., 2000). On the other hand, Chinese children are shown to be more obedient and respectful to parental authority (Chao, 1994). They are more likely to perceive harsh parental control as an expression of parental involvement and caring, instead of domination and incursion (Cheung & McBride-Chang, 2008).

In line with the unique cultural norms, prior research has provided evidence that coercive parenting strategies are more acceptable in Chinese society. Through comparing the affective interpretations of parental control among 1085 immigrant adolescents across different countries, researchers found that although Asian immigrant adolescents held less anger towards parental control than their European counterparts, they reported more psychological control from their parents (Chao & Aque, 2009). Nonetheless, the unique parenting culture in China does not result in a cultural-specific impact on juvenile delinquency. Similar to findings from Western studies, considerable research has shown that higher levels of coercive parenting positively predicted Chinese adolescent delinquent behavior (Chang et al., 2003). Compared to parenting styles characterized by parental warmth, monitoring and permissiveness, parental coercion exerted a more direct effect on juvenile delinquency among Chinese adolescents (Bao et al., 2017).

Furthermore, the patrilineage tradition leads to gender-differentiated parental socialization in Chinese society (Chao & Tseng, 2002). Chinese parents tend to assign higher values and expectations to boys than girls and in turn impose more harsh parenting tactics on boys. Recent research conducted in China has shown that boys suffer from more parental corporal punishment at different ages than girls (Bolkan et al., 2010; Wang, 2017). However, there has been little research on how gender may influence coercive parenting and its relationship to juvenile delinquency. There is much room for further research examining whether coercive parenting would exert different impact across genders through various pathways. Therefore, it is of

great importance to consider gender differences in the study of the mechanisms linking coercive parenting to juvenile delinquency within the Chinese context.

### Empathic Concern as a Moderator

Although previous research has found a link between coercive parenting and juvenile delinquency, it is noteworthy that not all adolescents raised by coercive parents would develop severe conduct problems. Research has suggested that adolescents exhibit varied susceptibility and vulnerability to coercive parenting as per individual characteristics (Li et al., 2020). Based on social ecological theory (Bronfenbrenner, 1979), adolescent development is primarily affected by the interactions among personal factors and the multi-layered ‘ecosystem’ in which children grow up (i.e., family, school, and social environment). During adolescent development, coercive parenting interacts with adolescent personal characteristics and other social factors to influence juvenile delinquency, in which individual characteristics may serve as the moderator to exacerbate or buffer the negative impact of coercive parenting (Luthar et al., 2000). Empathic concern, which refers to individuals’ moral feelings and ability to detect and compassionate others’ emotions (Davis, 1983), is one potential moderator influencing the relationship between coercive parenting and adolescent developmental outcomes. Driven by their moral values of helping others, people with higher levels of empathic concern tend to engage in more prosocial activities, thereby curtailing their involvement in delinquent behavior (Batanova & Loukas, 2011). For instance, students with higher levels of empathic concern are more willing to help others who are being bullied, while those with lower levels of empathic concern are more likely to commit aggressive behaviors such as bullying (Gini et al., 2007).

However, the buffering effect of empathic concern on juvenile delinquency may not be consistent when exposed to different levels of coercive parental control. General strain theory contends that strains and stressors increase the likelihood of crime when they are perceived as unjust and high in magnitude, while an individual’s coping strategy is determinant in predicting whether one would commit a crime or not (Agnew, 2001). At low-to-moderate levels, strains may not lead to delinquent or criminal behavior, especially among individuals who can use conventional means to cope with external stress because of their strong empathic concern. However, when strains are high in magnitude, empathic concern may no longer adequately mitigate the impact of the environmental stressors, which may prompt the individual to adopt criminal coping to deal with stress. Differential susceptibility hypothesis provides further support to the moderating effect of empathic concern by illustrating that people differ in their susceptibility and

malleability to external environments, with malleable individuals being more sensitive to both supportive and unsupportive environments (Belsky & Pluess, 2009). More specifically, adolescents with higher levels of empathic concern acted more prosocially under low-to-moderate levels of environmental stressors, but reported less prosocial behavior when overwhelmed by major life events (Davis et al., 2018). Since coercive parenting might be considered as a form of strain, the moderating effect of empathic concern can also be applied to it. Li et al. (2020) found that the higher empathic concern buffered the negative influence of coercive parenting on adolescent delinquent behavior under low to medium coercive parenting. However, when coercive control became high-to-extreme, adolescents with high empathic concern exhibited even more delinquent behavior than those with relatively lower empathic concern (Li et al., 2020). Empathic concern plays a plasticity role in the relationship between coercive parenting and adolescent development, rather than functioning exclusively as a deterrent against juvenile delinquency. The moderating effect of empathic concern yields more prosocial outcomes under favorable environmental conditions (i.e., low to moderate coercive parental control) but more negative outcomes in highly stressful circumstances (i.e., excessive parental control) (Belsky & Pluess, 2009).

### The Moderating Effect of Gender

Another issue deserving more attention is whether the moderating mechanism of coercive parenting and juvenile delinquency would differ by gender. Compelling evidence from previous research shows that males and females report different levels of delinquent behavior (Cheung & Cheung, 2010) and empathic concern (Van der Graaff et al., 2014), indicating the importance of considering the moderating role of gender from an investigative viewpoint. Regarding juvenile delinquency, it has been consistently observed that male adolescents engage in more delinquent behavior than female adolescents (Weerman et al., 2016). Based on the cross-sectional study, Weerman et al. (2016) found that the average level of delinquency among males was three times higher than that of females. Such a pattern was also found in the Chinese context in that male adolescents were more likely to engage in delinquency than female adolescents (Cheung & Cheung, 2010). Moreover, gender differences also exist in the effect of coercive parenting on juvenile delinquency with male adolescents being more sensitive to strict parenting practices than females (Bolkan et al., 2010). Higher levels of parental monitoring and punishment resulted in more delinquent behavior among males than females (Jo & Zhang, 2014). Through analyzing 137 African American children,

Barnett and Scaramella (2013) found that negative parenting was only positively related to conduct problems in boys. Such a detrimental impact was long-lasting, leading to a high-increasing trajectory in aggression among male adolescents (McFadyen-Ketchum et al., 1996).

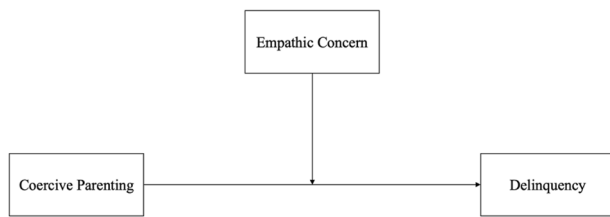
When it comes to gender differences in empathic concern, research has repeatedly found that females demonstrated higher empathic concern than males (Jolliffe & Farrington, 2006). In girls, empathic concern levels remain consistent from 13 to 18 years old, whereas boys experience a reduction in empathy from early puberty to the age of 16 (Van der Graaff et al., 2014). The substantial rise in testosterone levels in males' bodies was positively correlated with masculine traits, including dominance and power assertion (Mazur & Booth, 1998), while negatively associated with empathic concern (Lanzetta & Englis, 1989). Additionally, gender intensification theory (Hill & Lynch, 1983) upholds that gendered socialization pressure during adolescent pubertal maturation fosters traditional gender-role attitudes, which in turn fortifies the perception of gender stereotypes among adolescents. Adolescents are expected to act in accordance with gender roles ascribed to them to conform to social norms. When faced with traumatic life situations, males are encouraged to adhere to more masculine behavior while suppressing emotional traits like empathic concern (Taylor et al., 2000). Girls, on the other hand, are encouraged to be more compassionate and emotional, and adopt prosocial strategies in response to external stressors. Considering the differential susceptibility theory discussed above, females' higher levels of empathic concern may result in their higher sensibility to external circumstances, which consequently leads to more prosocial behavior under supportive conditions, but develop more negative outcomes when confronting adverse circumstances such as higher levels of coercive parenting. Such reasoning would contradict previous findings suggesting boys are more vulnerable to environmental stressors than girls (Jo & Zhang, 2014). However, few investigations have closely examined gender differences in the moderating mechanism of coercive parenting and juvenile delinquency. The confounding findings indicate the need for empirical studies of how empathic concern moderates the relationship between coercive parenting and juvenile delinquency across genders. Findings from these studies will allow a more in-depth understanding of the gendered effect of coercive parenting on juvenile delinquency.

When assessing the gender role in the moderating mechanism, it is important to consider several socio-demographic confounders that have been identified as covariates in previous research on coercive parenting and juvenile delinquency, including age, urban residence, and family income (Li et al., 2020). The analysis should also control for the effects of social bond and delinquent peer

association, which have been shown as strong predictors of juvenile delinquency in numerous studies (Akers, 2017; Cullen et al., 2018). The social bond theory contends that social bond in the forms of attachment, commitment, involvement and belief inhibits adolescent delinquent behavior (Hirschi, 1969). A large body of research has shown that adolescents with weaker social bond engage in more delinquency than those with stronger bond (Li, 2004). On the other hand, the differential association theory and social learning theory emphasize the critical role of delinquent peer association in predicting juvenile delinquency (Akers, 2017; Sutherland, 1947; Sutherland et al., 1992). In support of these theories, considerable evidence has shown that delinquent peer association not only weakens social control and increases strain (Agnew & Brezina, 2015), but also contributes to the social learning process that reinforces delinquent behavior (Akers, 2017). To rule out the competing explanations, studies aimed at providing robust results about the gendered effects of empathic concern on the relationship between coercive parenting and delinquency should include these variables in the analysis.

## Current Study

Although the moderating roles of empathic concern and gender have been well documented in previous studies, limited research has paid attention to whether empathic concern would exert a moderating effect differently across males and females. Thus, the current study aims to fill this gap by empirically investigating the gender difference in the moderation model of coercive parenting and juvenile delinquency. Based on previous literature and the differential susceptibility hypothesis, we hypothesized that coercive parenting is positively related to juvenile delinquency (Hypothesis 1), and empathic concern moderates the relationship between coercive parenting and juvenile delinquency (Hypothesis 2). Specifically, compared to those with lower levels of empathic concern, adolescents with higher levels of empathic concern engage in less delinquency under low or moderate coercive parenting but more delinquency when coercive parenting becomes extreme. Regarding gender difference, we hypothesized that the moderating effect of empathic concern on the relationship between coercive parenting and juvenile delinquency varies by gender. Under low or moderate coercive parenting, the buffering effect of empathic concern would be stronger for females, leading to lower female delinquency. However, when coercive parenting reaches a higher-to-extreme level, the strengthening effect of empathic concern becomes stronger, resulting in higher delinquency among female adolescents (Hypothesis 3). The conceptual model of the major theoretical constructs is shown in Fig. 1.



**Fig. 1** Conceptual Model. This figure illustrates the GSEM multiple group analysis model with empathic concern moderating the relationship between coercive parenting and juvenile delinquency. Delinquency was specified as the negative binomial option with mean dispersion in the GSEM analysis

## Methods

### Data

The current study utilized data from a two-wave longitudinal survey conducted in one of the largest metropolitan areas in China. The study design and procedures underwent human subject review and were approved by the Research Ethics Committee of University of Macau on 19th December 2014 (Project number is MYRG2014-00120-FSS). The first wave of the survey was conducted in 2015, and the second wave was conducted one year later. The research site had been a major city before China entered the reform era in the late 1970s, and it has developed into a large metropolitan area with blended urban and suburban districts, which was home to over 8 million individuals at the start of the survey, including a large proportion of migrants and ethnic minorities.

As calculated with the finite population formula for the determination of sample size (Daniel, 1999), the study required 1042 or more responses in order to achieve a 95% confidence level that the real value is within  $\pm 3\%$  of the survey value. To compensate for a potential reduction in sample size due to subject attrition and nonresponses, 1300 adolescents were initially included in the sample. A three-stage stratified probability proportionate-to-size sampling procedure was employed to maximize sample representativeness. In the first stage, we randomly selected 2 urban districts and 1 suburban district. In the second stage, we randomly selected 1 suburban middle school, 1 urban middle school, 1 suburban high school, and 1 urban high school within each district, yielding a total of 12 schools. In the third stage, we proportionately selected a random number of classes in the seventh, eighth, tenth and eleventh grades in each sampled school. Considering that ninth and twelfth grades were in the final year of middle and high school respectively and would graduate in the following year, we did not include them in the baseline survey.

Before the survey administration, we contacted the selected schools to seek their agreement and cooperation for the study. If the selected school refused to participate in the

study, we randomly selected another school for replacement until the sample size was reached. Once we obtained the agreement of cooperation from the school, we visited the school to introduce our study purpose and provided the selected schools with written informed consent forms for both students and their parents. The consent forms described the background, purpose, and procedures of the survey. In addition, the forms clearly stated that participation in the survey was entirely voluntary, and the confidentiality and anonymity of the responses were strictly protected. We asked students to provide their contact information if they were willing to participate in the second wave of the survey. Only students who agreed to participate in both waves of the study and whose parents signed the consent form were included in the study. A paper-and-pencil survey was provided to the eligible participants. In the following year (2016), we collected the second wave of data in the same schools with the same class of students. The response rates were 97.20% for Wave 1 and 96.73% for Wave 2. We excluded 212 participants with missing values on study variables, including non-respondents, yielding a final sample of 1088 adolescents aged between 9 and 16 years old at wave 1 (*mean of age* = 13.82, *SD* = 1.49), including 50.3% males (*n* = 547; *mean of age* = 13.75, *SD* = 1.47) and 49.7% females (*n* = 541; *mean of age* = 13.90, *SD* = 1.52).

### Measures

The key variables in the current study included coercive parenting, empathic concern, and delinquency, all of which were measured using standard instruments with verified reliability and validity. To help establish time order, coercive parenting was measured using data collected in the baseline survey, while empathic concern and delinquency were measured with data in the follow-up survey. Nearly all adolescents provided valid responses on the questions measuring coercive parenting and empathic concern. The percent of respondents who skipped any question on the measures of coercive parenting and empathic concern were only 1.59% and 0.46%, respectively. These respondents were excluded in the GSEM analysis through listwise deletion.

#### Coercive parenting

Coercive parenting was measured by a total of fourteen items, including two subscales (each with 7 items) measuring maternal and paternal coercive parenting separately. Six questions were derived from the National Longitudinal Survey of Youth 1997 (NLSY, 1997) and eight were specially developed for the locality of the study. The items included “Dad/mom beats you for no reason”, “Dad/mom beats you for your wrongdoing”, “Dad/mom admonishes you in front of other people”, “Dad/mom forbids you to do

what you want to do if you do something wrong”, “Dad/mom nags you or scolds you if you make a mistake”, “Dad/mom tells you that you are breaking his/her heart if you do something wrong”, and “Dad/mom nicknames you if you do something wrong”. Participants were asked to rate the father/father figure and mother/mother figure separately on a 5-point scale ranging from 1 (*never*) to 5 (*always*). The Cronbach’s  $\alpha$  value of the fourteen items was 0.82, indicating a high level of reliability. The father/father figure and mother/mother figure were combined, and the mean score was used as the measure of coercive parenting with higher scores indicating higher levels of coercive parenting.

### Empathic concern

Empathic concern was measured by the empathic concern subscale derived from the Interpersonal Reactivity Index (Davis, 1980), which has shown reasonable reliability and validity in the Chinese context (Guo et al., 2018; Zhang et al., 2010). Participants were asked to respond to seven items on a 5-point scale (0 = *does not describe me well* to 4 = *describes me very well*), and higher scores indicated higher empathic concern. Sample items included “I often have tender, concerned feelings for people less fortunate than me”, “When I see someone being taken advantage of, I feel kind of protective towards them”, and “I am often quite touched by things that I see happen”. As suggested by Milone et al. (2019), the centralized sum of the seven items was calculated and used as the measure of empathic concern.

### Delinquency

Delinquency was assessed with sixteen dichotomous items derived from the National Youth Survey (Elliott & Huizinga, 1983). Respondents were asked whether they had engaged in the delinquent acts in the last year with ‘0’ for ‘No’ and ‘1’ for ‘Yes’. The items included using drugs, selling drugs, fighting with others, threatening someone with weapons, hurting someone with weapons, running away from home, stealing something worth less than 500 RMB [USD70], snatching property from others, committing vandalism, bringing a knife to school, beating or threatening to beat someone, seriously injuring someone, stealing something worth more than 500 RMB [USD70], robbery, and joining a gang. The sum of the 16 items was calculated, with higher scores indicating more delinquent behavior. The range of the measure was from 0 to 16.

### Control variables

**Sociodemographic covariates** Participants’ age, residence (0 = non-urban area, 1 = urban area), and family monthly income were included as control variables. Age was an

interval variable measured by year, ranging from 9 to 16. Family monthly income was an ordinal variable measured by a 4-category scale ranging from 1 (*less than RMB 1000 [USD140]*) to 4 (*more than RMB 9000 [USD1260]*). Since there was no standard classification of income categories on the national level, the classification of income for the current study was based on the low-income cut-off of the research site where we conducted our study, which was approximately RMB 1000 [USD140] in 2015.

**Social bond** Among the four elements of social bonds, attachment and commitment were found to be most consistently related to juvenile delinquency (Li, 2004). To control for the influence of social bond, the analysis included attachment to parents and commitment to school, both of which were measured on a 5-point Likert scale. Sample questions of attachment are “you share your feeling with dad/mom,” and “you want to be like your dad/mom”. The Cronbach’s  $\alpha$  value of the 10 items measuring attachment was 0.90. Commitment was measured by questions such as “you like to go to school” and “getting good grades is important for you”. The  $\alpha$  value of the 5 items measuring commitment was 0.69. The average values of the two groups of items were computed and used as measures of attachment and commitment, respectively.

**Delinquent peer association** Delinquent peer association was measured by five questions asking participants how many of their friends had been involved in fighting, stealing, vandalism, threatening others, and joining a gang (Stouthamer-Loeber et al., 2002). Each item was scored on a 5-point scale ranging from 1 (none) to 5 (all). The Cronbach’s  $\alpha$  value was 0.78. The mean of the five items was calculated with higher scores indicating more association with delinquent friends.

### Analytic Strategy

Descriptive analysis and Pearson’s correlation test were initially performed to provide an overview of the sample characteristics and bivariate correlations of the key variables. We then applied the generalized structural equation modeling (GSEM) method in Stata 17.0 to examine the moderating effect of empathic concern on the relationship between coercive parenting and juvenile delinquency. We first examined the baseline model by including coercive parenting and empathic concern as predictors of juvenile delinquency, followed by adding the interaction term of coercive parenting and empathic concern. The model fit of the GSEM model was estimated by three indicators (i.e., log-likelihood, Akaike information criteria [AIC] and Bayesian information criteria [BIC]). The model with a larger log-likelihood and smaller AIC and BIC would be identified as more appropriate to predict juvenile delinquency (Kline, 2013).

Regarding gender differences in the moderating mechanism, we conducted multiple group analyses by fitting the models separately by sex. A likelihood ratio test was applied to compare the unconstrained model (i.e., the estimates of all pathways vary freely across each subgroup) and the constrained model (i.e., all estimates were constrained to be the same). The significant likelihood ratio indicated that the models differed between male and female adolescents (Acock, 2013). To facilitate the interpretation of the study results, we further created visual plots to demonstrate the effect of coercive parenting on juvenile delinquency under different levels of empathic concern. Sensitivity analyses were conducted to test whether the findings remained consistent after controlling for the effect of juvenile delinquency in wave 1. Moreover, an alternative measure of juvenile delinquency was modeled as the outcome variable to test if the results were robust after excluding minor forms of juvenile delinquency (i.e., running away from home and fighting with classmates) or substance-related behavior (i.e., using drugs and selling drugs).

The main reason we adopted the GSEM method was that the distribution of the measure of delinquency was highly skewed, which may violate the assumption of normality in the structural equation modeling (SEM) (West et al., 1995). SEM assumes multivariate normality in order to fit a standard linear regression modeling. The fitting of SEM to non-normally distributed data (e.g., delinquency in the current study) would lead to inflated model test statistics or under-estimated standard errors. To address the technical restrictions of SEM, GSEM keeps the modeling strengths of SEM for mediating and moderating mechanisms, while advantaged by combing broader estimation techniques of the generalized linear model, which is more appropriate for measuring an over-dispersed discrete variable (Khine, 2013). Meanwhile, GSEM also supports multiple group analyses, which enables researchers to model groups to investigate distinct characteristics rather than aggregating the groups and averaging out estimates (von Eye et al., 2015). Multiple group analyses have been widely used in previous person-oriented studies to examine gender differences in mediation and moderation models (Chen et al., 2021; Davis et al., 2018). Therefore, GSEM multiple group analysis is an ideal statistical method to evaluate the proposed moderation model in the current study. To address the over-dispersion of juvenile delinquency, the current study specified the negative binomial option with mean dispersion in the GSEM analyses of all models.

## Results

Descriptive statistics of the whole sample and gender subsamples are presented in Table 1, and the bivariate correlations among the variables for the male and female subsamples are provided in Table 2. Overall, the

**Table 1** Descriptive statistics for the whole, male and female samples

	Whole ( <i>N</i> = 1088)		Male ( <i>n</i> = 547)		Female ( <i>n</i> = 541)	
	<i>M</i> / <i>%</i>	<i>SD</i>	<i>M</i> / <i>%</i>	<i>SD</i>	<i>M</i> / <i>%</i>	<i>SD</i>
Female	49.72%					
Urban residence	72.06%		73.86%		70.24%	
Age	13.82	1.50	13.75	1.47	13.90	1.52
Family income	4.23	2.01	4.27	1.98	4.19	2.05
Attachment	3.30	0.81	3.30	0.80	3.30	0.83
Commitment	3.46	0.73	3.41	0.77	3.52	0.69
Delinquent peer association	1.24	0.44	1.29	0.48	1.19	0.38
Coercive parenting	2.12	0.62	2.19	0.63	2.06	0.61
Empathic concern	4.30	4.74	3.53	4.76	5.07	4.59
Delinquency	0.62	1.70	0.92	2.09	0.32	1.10

respondents reported moderate levels of coercive parenting and moderately high levels of empathic concern but low levels of delinquent behavior. Independent samples *t*-tests indicated that female adolescents reported significantly higher empathic concern ( $t = -5.43$ ,  $p < 0.001$ ) and lower delinquency than male adolescents ( $t = 5.89$ ,  $p < 0.001$ ).

## The Moderating Effect of Empathic Concern

GSEM analysis was first applied to examine the proposed moderation model for the whole sample. As presented in Table 3, the results of baseline model showed that both coercive parenting ( $\beta = 0.26$ ,  $SE = 0.12$ ,  $p = 0.029$ ) and empathic concern ( $\beta = -0.05$ ,  $SE = 0.01$ ,  $p < 0.001$ ) directly predicted juvenile delinquency after adjusting for the control variables. After adding the interaction term of coercive parenting and empathic concern to the baseline model, two of three of the indicators revealed that the moderation model (log-likelihood =  $-1006.92$ , AIC = 2035.83, BIC = 2090.69) was more appropriate for predicting juvenile delinquency than the baseline model (log-likelihood =  $-1003.84$ , AIC = 2031.68, BIC = 2091.52). However, the direct association between coercive parenting and juvenile delinquency became non-significant after adding the interaction effect while empathic concern continued to predict juvenile delinquency negatively (see Table 3,  $\beta = -0.19$ ,  $SE = 0.06$ ,  $p = 0.001$ ). The interaction effect of coercive parenting and empathic concern was positive ( $\beta = 0.06$ ,  $SE = 0.03$ ,  $p = 0.015$ ), suggesting that empathic concern strengthened the positive effect of coercive parenting on delinquency.

## Gender Differences in the Moderation Model

Multiple group analyses were then employed to examine gender differences in the moderating mechanism. The

**Table 2** Correlations between key variables for the male and female subsamples

	1	2	3	4	5	6	7	8	9
1. Urban residence	—	-0.15**	0.01	-0.06	-0.04	0.01	0.13**	-0.02	-0.02
2. Age	-0.17**	—	0.07	-0.01	-0.12**	-0.01	-0.09*	-0.02	-0.01
3. Family income	0.13**	0.01	—	0.02	-0.06	-0.02	-0.06	-0.10*	-0.03
4. Attachment	-0.02	0.02	0.04	—	0.40**	-0.09*	-0.15**	0.05	-0.10*
5. Commitment	0.05	-0.15**	-0.05	0.25**	—	-0.08	0.05	0.13**	-0.05
6. Delinquent peer	-0.02	-0.14**	0.00	-0.24**	-0.16**	—	0.19**	-0.04	0.23**
7. Coercive parenting	0.05	-0.03	-0.02	-0.27**	-0.04	0.23**	—	0.00	0.09*
8. Empathic concern	0.00	-0.00	-0.02	0.13**	0.20**	-0.07	-0.06	—	-0.09*
9. Delinquency	0.00	-0.01	-0.03	-0.11*	-0.09*	0.18**	0.09*	-0.09*	—

Correlations above the diagonal are for the male subsample, and correlations below the diagonal are for the female subsample, respectively

\* $p < 0.05$ , \*\* $p < 0.01$

**Table 3** Standardized Coefficients of Explanatory Variables on Delinquency

	Whole ( $N = 1088$ )		Male ( $n = 547$ )		Female ( $n = 541$ )	
	(1)	(2)	(1)	(2)	(1)	(2)
Age	-0.01 (0.05)	0.00 (0.05)	-0.02 (0.06)	-0.01 (0.06)	0.05 (0.09)	0.05 (0.09)
Female	-0.89*** (0.14)	-0.89*** (0.14)	-	-	-	-
Urban	-0.18 (0.16)	-0.18 (0.15)	-0.22 (0.19)	-0.23 (0.19)	-0.08 (0.28)	-0.07 (0.28)
Family income	-0.05 (0.04)	-0.05 (0.04)	-0.04 (0.04)	-0.05 (0.04)	-0.04 (0.07)	-0.04 (0.07)
Attachment	-0.21* (0.10)	-0.21* (0.10)	-0.21 (0.12)	-0.21 (0.12)	-0.25 (0.17)	-0.24 (0.17)
Commitment	-0.11 (0.10)	-0.10 (0.10)	-0.03 (0.12)	-0.02 (0.12)	-0.27 (0.21)	-0.24 (0.21)
Delinquent peer association	0.92*** (0.17)	0.90*** (0.17)	0.82*** (0.18)	0.80*** (0.18)	1.26** (0.39)	1.26** (0.38)
Coercive parenting (CP)	0.26* (0.12)	0.05 (0.15)	0.21 (0.15)	0.08 (0.17)	0.37 (0.23)	-0.03 (0.29)
Empathic concern (EC)	-0.05*** (0.01)	-0.19*** (0.06)	-0.05** (0.02)	-0.14* (0.07)	-0.05* (0.03)	-0.26* (0.11)
CP × EC		0.06* (0.03)		0.04 (0.03)		0.10* (0.05)
Constant	-0.32 (0.93)	-0.02 (0.94)	-0.07 (1.08)	0.02 (1.08)	-2.08 (1.84)	-1.38 (1.87)

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

results of likelihood ratio test revealed that the unconstrained model (log-likelihood = -997.77, AIC = 2039.54, BIC = 2149.25) and constrained model (log-likelihood = -1022.89, AIC = 2067.78, BIC = 2122.63) were significantly different ( $\Delta\chi^2(11) = 50.24, p < 0.001$ ), suggesting the two models were different across males and females. Thus, it was reasonable to fit the moderation model separately by sex.

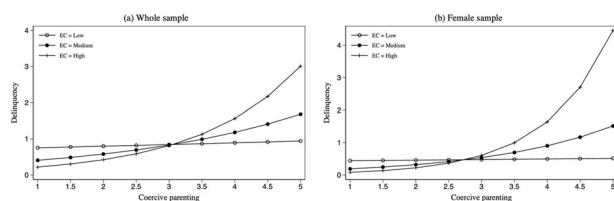
As presented in Table 3, empathic concern negatively predicted delinquent behavior in both male ( $\beta = -0.14, SE = 0.07, p = 0.042$ ) and female adolescents ( $\beta = -0.26, SE = 0.11, p = 0.015$ ). However, gender difference was found in the interaction effect of coercive parenting and empathic concern. Compared to the nonsignificant interaction effect in males ( $\beta = 0.04, SE = 0.03, p = 0.183$ ), empathic concern only significantly elevated the effect of



coercive parenting and juvenile delinquency in females ( $\beta = 0.10$ ,  $SE = 0.05$ ,  $p = 0.046$ ).

To facilitate the interpretation of the moderating effect in the whole sample and female sample, we divided empathic concern into three levels: low (mean  $-1$  SD), moderate (mean), and high (mean  $+1$  SD), and plotted the effect of coercive parenting on delinquent behavior under each level of empathic concern. The graph of the male sample was not shown because the moderating effect of empathic concern was not statistically significant in this sample. As shown in Fig. 2a, b, a similar pattern was observed in the two samples: coercive parenting was positively related to juvenile delinquency, and adolescents with higher empathic concern were more sensitive to the level of coercive parenting compared to those with lower empathic concern. As shown in Fig. 2a, adolescents with higher empathic concern reported less delinquency before the crossover point located at around 3 on coercive parenting (i.e., moderate level of coercive parenting). After the crossover point, the slope of low empathic concern remained relatively stable while the slopes of higher empathic concern (i.e., medium and high) showed an increase. The results suggested that empathic concern may attenuate the positive impact of coercive parenting on juvenile delinquency under lower levels of coercive parenting. When coercive parenting became too high, empathic concern would adversely strengthen the positive effect of coercive parenting on delinquent behavior, such that adolescents with higher empathic concern were more likely to be involved in delinquency under higher levels of coercive parenting.

The moderating effect of empathic concern observed in the whole sample appeared to be mainly attributed to the moderating effect among female adolescents. Figure 2b revealed that females were more susceptible to the impact of coercive parenting. The smaller value of the crossover point between 2.5 to 3 indicated that the impact of coercive parenting would reach the turning point earlier in the female sample than in the whole sample. Thus, the attenuating effect of empathic concern on female delinquency only



**Fig. 2** Marginal effect of coercive parenting on delinquency at different levels of empathic concern in **a** the whole sample and **b** female subsample. The value of delinquency was logarithm transformed to apply negative binomial regression. Thus, the plotted lines were non-linear.

existed under a low level of coercive parenting. From moderate to high levels of coercive parenting, higher empathic concern strengthened the positive effect of coercive parenting and resulted in more delinquent behavior among females. Specifically, female adolescents with high levels of empathic concern exhibited extremely high involvement in delinquency under excessive coercive parenting, indicating the strengthening effect of empathic concern would be more severe when coercive parenting became too extreme.

## Sensitivity Analyses

The first aim of sensitivity analyses was to test whether the results were consistent after controlling for the effect of juvenile delinquency in wave 1. GSEM moderation analysis was conducted by including delinquency in wave 1 as one of the covariates. The results of the new analysis were similar to those of the previous one. That is, the direct relationship between coercive parenting and juvenile delinquency was nonsignificant, while empathic concern negatively predicted juvenile delinquency ( $\beta = -0.21$ ,  $SE = 0.05$ ,  $p < 0.001$ ). The interaction effect of coercive parenting and empathic concern was positive ( $\beta = 0.07$ ,  $SE = 0.02$ ,  $p = 0.005$ ), suggesting that empathic concern strengthened the positive impact of coercive parenting on delinquency. Multiple group analysis again suggested the two models were significantly different across males and females ( $\Delta\chi^2(12) = 42.99$ ,  $p < 0.001$ ).

An additional analysis was conducted to test whether the findings were robust after excluding minor forms of juvenile delinquency and substance-related behavior. The coefficients were re-estimated with the new measure of juvenile delinquency as the endogenous variable in the GSEM analysis. Once again, the results were similar to the previous analysis. Specifically, empathic concern was negatively related to juvenile delinquency ( $\beta = -0.28$ ,  $SE = 0.09$ ,  $p = 0.003$ ). The interacting effect of coercive parenting and empathic concern was positive ( $\beta = 0.09$ ,  $SE = 0.04$ ,  $p = 0.042$ ). Multiple group analysis also suggested the two models were significantly different across males and females ( $\Delta\chi^2(11) = 22.22$ ,  $p = 0.023$ ).

## Discussion

Although more Chinese parents, especially those living in urban areas, have increasingly recognized the deleterious influence of parental coercion on adolescent development, there is still a high prevalence of coercive parenting in Chinese society. Several studies have examined the influence of coercive parenting on juvenile delinquency and the moderating effect of empathic concern on this influence.

However, the gendered moderating effect of empathic concern on the relationship between coercive parenting and juvenile delinquency has remained largely underexplored. The current study seeks to address this gap in the existing literature.

Through the analysis of the two-wave data collected from a probability sample of Chinese adolescents, this study found that in consistence with previous evidence, coercive parenting was positively related to juvenile delinquency. Moreover, such a relationship was moderated by the plasticity role of empathic concern (Li et al., 2020). The results showed that adolescents with higher empathic concern were more sensitive to both low and high levels of coercive parenting than those with lower empathic concern. More specifically, adolescents with stronger empathic concern exhibited less delinquency under low to moderate levels of coercive parenting. When coercive parenting became extreme, these adolescents demonstrated even more delinquent behavior compared to their counterparts with weaker empathic concern. These patterns emerged in a multivariate analysis controlling for demographic characteristics and common correlates of juvenile delinquency, including delinquent peer association, attachment to parents, and commitment to school. Among the control variables, delinquent peer association demonstrated a particularly strong effect on juvenile delinquency. However, the moderating effect of empathetic concern on the relationship between coercive parenting and delinquency remained significant in the full sample and the female sample, even with the inclusion of these variables in the model.

The current study addresses a gap in the existing literature by testing gender differences in the moderation mechanism. Consistent with previous studies (Eisenberg & Lennon, 1983; Weerman et al., 2016), the results showed that female adolescents exhibited higher empathic concern and lower delinquency than their male counterparts. More notable, however, was the finding indicating that empathic concern only strengthened the effect of coercive parenting and juvenile delinquency among females. The finding stood in contrast to previous research suggesting that boys were more vulnerable to parental coercion than girls (e.g., Barnett & Scaramella, 2013; Bolkan et al., 2010). These findings lent empirical support to our hypothesis of gender difference in adolescent susceptibility to negative parenting practices by demonstrating that empathic concern only mitigated the impact of coercive parenting on female delinquency under low levels of coercive parenting. When coercive parenting reached medium to high levels, female adolescents with higher empathic concern might be disproportionately affected by coercive parenting and exhibit more delinquent involvement that accumulated at a dramatically high level of delinquency under excessive coercive control.

Several plausible explanations may contribute to the observed patterns in the analysis. First, empathic concern is characterized by feelings of compassion and concern for individuals or groups in need or distress, which is believed to facilitate prosocial beliefs and behaviors. Adolescents with higher empathic concern are more sympathetic to parental coercive behavior although this line of behavior could be objectionable. These adolescents were more capable of developing a positive child-parent relationship despite the adversity brought forward by coercive parenting, which could operate as a protective factor against delinquent involvement under the condition of low to moderate coercive control. However, the differential susceptibility theory contends that adolescents with stronger empathic concern also demonstrate higher vulnerability to external stressors (Belsky & Pluess, 2009). When coercive parenting reaches an intolerable level, it could invariably impair adolescent ability to cope with external stressors and lead to more delinquent behaviors. Second, the finding of the detrimental effect of excessive coercive parenting can be explained by general strain theory, which contends that strains increase crime when they are seen as unjust and high in magnitude (Agnew, 2001). Low-to-moderate levels of strains in the form of coercive control may not foster delinquent behavior. However, when strains reach high levels, the adolescent may become more inclined to choose criminal coping because their ability to cope with the strains through socially acceptable means may be overwhelmed. Last, empathic concern represents an adaptive form of affective empathy, which is in line with the gender role expectations ascribed to females. When encountering external stressors, girls are encouraged to be compassionate and caring while boys are expected to suppress their empathic concern because such an affective attribute contradicts social expectations of masculinity. The gendered socialization pressure fortifies adolescents to act as per socially expected behaviors, thereby enlarging the discrepancy in empathic concern between males and females. As a result, females' high empathic concern makes them more sensitive to both supportive and unsupportive environments, resulting in more delinquency when coercive parenting becomes challenging to tolerate.

The findings of the current study have far-reaching implications for the prevention and intervention of juvenile delinquency. First, the mean score of coercive parenting among all the participants was 2.12, suggesting that on average the Chinese adolescents experienced more than two forms of coercive tactics imposed by Chinese parents. To address this problem, parent education programs should enhance parents' awareness of the negative effect of coercive parenting and encourage them to use more effective parenting practices to promote their children's healthy growth. These programs should also aim to facilitate a close

parent-child relationship, which is linked to a host of positive developmental outcomes. Second, our research called attention to adolescent individual characteristics that may moderate the impact of coercive control on juvenile delinquency. Adolescent development is influenced not only by parental coercion but also by the interaction between coercive parenting and empathic concern. Thus, intervention programs should address the specific needs of the individuals in a more targeted manner. Lastly, our findings underscored the importance of considering adolescent gender when designing intervention programs. Among female adolescents, coercive parenting showed a significant and mostly positive relationship with delinquency. Furthermore, its relationship with female delinquency was moderated by empathic concern. Considering these results, it is important for parents to recognize the unique vulnerability and resilience of adolescent girls, especially those who have a strong tendency to empathize with others. While these female adolescents may appear to be resilient to daily stress, there may be a limit on how much they can absorb. Because they are more sensitive to external stressors, they can be more strongly influenced by excessive and unjust strains. As a result, even a medium level of coercive parenting may lead to higher delinquency among these female adolescents. Therefore, parents should make an effort to understand their children's capacity for empathy and avoid imposing excessive coercive control on those who are especially vulnerable to it. For male adolescents, coercive parenting had no significant effect on delinquency. However, no effect should be understood as an undesirable outcome in this particular case. Effective parenting should inhibit children's involvement in delinquency. Coercive parenting showed no such effect on male adolescents. To achieve a better outcome in delinquency prevention, parents who employ excessive coercive control over their sons should also reconsider their child-rearing practices and replace coercive parenting with a more effective style such as authoritative parenting.

Despite the contributions made to the existing literature, it should be noted that the current study has several major limitations. First, the study drew on a sample of secondary school students in one metropolitan area in China. It is unclear whether the research findings could be generalized to other regions in China. Second, due to a lack of data, the current study did not control for biological and situational factors such as genetic dispositions and neighborhood environment. The social ecological theory contends that such factors play crucial roles in the 'ecosystem' where children grow up and omitting these variables may reduce the reliability of the study findings (Bronfenbrenner, 1979). Third, this study did not take into full consideration of the unique cultural and historical factors that might have shaped parenting practices, empathic concern, and/or delinquent behavior. Prior research

has indicated that due to the influence of Confucianism, the Chinese culture emphasizes group unity, interdependence, and respect for authoritative figures including parents, which contribute to a higher level of acceptance of coercive parenting among Chinese parents and children, when compared to adolescents from cultures that are more individualistically oriented (Chao, 1994; Crocetti et al., 2015). Moreover, all the adolescents who participated in the study were born and grew up during the period when the one-child policy was in force in China. This unique historical context might have influenced parenting practices, especially the extent to which parents were willing to exercise coercive control over their sons and daughters by reducing the number of children in the household and consequently the size of the family. Unfortunately, no measure of cultural norms, one-child status, or family size is available in the dataset. Hence, the influences of these factors could not be examined. Last, most measures adopted in the current study were based on self-report data of adolescents. Although research has noted that it is reasonable to use children's perceptions to measure parenting styles and their impact on children (Palmer & Hollin, 2001), self-report data may be biased by children's interpretation of the behavior or event in question. To address the limitations, future research should use nationally representative data to validate the generalizability of research findings. To the extent possible, studies should include more genetic and environmental confounders to test whether the results can withstand alternative explanations. Future analysis should also examine how unique cultural and historical factors such as collective culture and one-child policy might shape the relationship between parenting practices and adolescent development. Additionally, further studies may consider including multi-informant reports such as parents, teachers, and peers, to capture the full scope of parenting styles and juvenile delinquency.

## Conclusion

Coercive parenting has been identified as an important predictor of juvenile delinquency. Although the moderating effect of empathic concern on the relationship between coercive parenting and juvenile delinquency has been well documented in prior research, it is unclear whether and how the moderating mechanism varies by gender. This research seeks to address this gap in the existing literature. The structural equation modeling analysis of the two-wave data collected from a large metropolitan area in China indicated that compared to those with low levels of empathic concern, adolescents with higher empathic concern engaged in less delinquent behavior under low-to-moderate coercive parenting but more delinquency when coercive parenting reached a medium-to-high level. Such a moderating mechanism was found to operate differently across genders.

The study showed that empathic concern neither strengthened nor mitigated the impact of coercive parenting on male delinquency. In contrast, females' high empathic concern increased their susceptibility to the influence of coercive parenting, which could lead to an extremely high level of delinquency when coercive parenting became excessive. The findings underscore the importance of considering gender differences when examining parenting styles and juvenile delinquency. Coercive parenting appears to impede the development of prosocial behavior in both males and females, but its role in increasing female delinquency requires particular attention.

**Authors' Contributions** KW led the conceptualization of initial research questions, developed the statistical analysis plan, performed the formal analysis, and drafted the manuscript; SDL designed the survey and managed the data collection, refined the research questions, supervised the statistical analysis, and reviewed and edited the manuscript. All authors read and approved the final manuscript.

**Funding** This research was funded by a Multi-Year Research Grant provided by University of Macau, grant number MYRG2014-00120-FSS.

**Data Sharing Declaration** The dataset generated during the current study is not publicly available but is available from the corresponding author upon reasonable request.

## Compliance with Ethical Standards

**Conflict of Interests** The authors declare no competing interests.

**Ethical Approval** This study underwent a human subject review and was approved by the Research Ethics Committee of University of Macau on 19 December 2014.

**Informed Consent** Informed consent was obtained from all individuals who participated in the study.

## References

- Acocck, A. C. (2013). Discovering structural equation modeling using Stata. *Stata Press Books*. Retrieved from <https://ideas.repec.org/b/tsj/spbook/dsemus.html>
- Agnew, R. (2001). Building on the foundation of general strain theory: specifying the types of strain most likely to lead to crime and delinquency. *Journal of Research in Crime and Delinquency*, 38(4), 319–361. <https://doi.org/10.1177/0022427801038004001>.
- Agnew, R., & Brezina, T. (2015). *Juvenile delinquency: Causes and control*. New York: Oxford University Press.
- Akers, R. L. (2017). *Social learning and social structure: A general theory of crime and deviance*. Routledge. <https://doi.org/10.4324/9781315129587>
- Aucoin, K. J., Frick, P. J., & Bodin, S. D. (2006). Corporal punishment and child adjustment. *Journal of Applied Developmental Psychology*, 27(6), 527–541. <https://doi.org/10.1016/j.appdev.2006.08.001>.
- Bao, W.-N., Haas, A., & Tao, L. (2017). Impact of Chinese parenting on adolescents' social bonding, affiliation with delinquent peers, and delinquent behavior. *Asian Journal of Criminology*, 12(2), 81–105. <https://doi.org/10.1007/s11417-016-9239-0>.
- Barber, B. K. (2002). *Intrusive parenting: How psychological control affects children and adolescents*. American Psychological Association. <https://doi.org/10.1037/10422-000>
- Barnett, M. A., & Scaramella, L. V. (2013). Mothers' parenting and child sex differences in behavior problems among African American preschoolers. *Journal of Family Psychology*, 27(5), 773. <https://doi.org/10.1037/a0033792>.
- Batanova, M. D., & Loukas, A. (2011). Social anxiety and aggression in early adolescents: examining the moderating roles of empathic concern and perspective taking. *Journal of Youth and Adolescence*, 40(11), 1534–1543. <https://doi.org/10.1007/s10964-011-9634-x>.
- Baumrind, D. (1971). Current patterns of parental authority. *Developmental Psychology*, 4(1p2), 1. <https://doi.org/10.1037/h0030372>.
- Baumrind, D. (1996). The discipline controversy revisited. *Family Relations*, 45(4), 405–414. <https://doi.org/10.2307/585170>.
- Belsky, J., & Pluess, M. (2009). Beyond diathesis stress: differential susceptibility to environmental influences. *Psychological Bulletin*, 135(6), 885. <https://doi.org/10.1037/a0017376>.
- Bolkan, C., Sano, Y., De Costa, J., Acocck, A. C., & Day, R. D. (2010). Early adolescents' perceptions of mothers' and fathers' parenting styles and problem behavior. *Marriage & Family Review*, 46(8), 563–579. <https://doi.org/10.1080/01494929.2010.543040>.
- Bronfenbrenner, U. (1979). *The ecology of human development*. Cambridge, MA, USA: Harvard University Press. <http://www.jstor.org/stable/43852879>.
- Chan, S., & Leong, C. W. (1994). Chinese families in transition: cultural conflicts and adjustment problems. *Journal of Social Distress and the Homeless*, 3(3), 263–281. <https://doi.org/10.1007/BF02087760>.
- Chang, L., Schwartz, D., Dodge, K. A., & McBride-Chang, C. (2003). Harsh parenting in relation to child emotion regulation and aggression. *Journal of Family Psychology*, 17(4), 598. <https://doi.org/10.1037/0893-3200.17.4.598>.
- Chao, R., & Tseng, V. (2002). Parenting of Asians. *Handbook of Parenting*, 4, 59–93.
- Chao, R. K. (1994). Beyond parental control and authoritarian parenting style: understanding Chinese parenting through the cultural notion of training. *Child Development*, 65(4), 1111–1119. <https://doi.org/10.1111/j.1467-8624.1994.tb00806.x>.
- Chao, R. K., & Aque, C. (2009). Interpretations of parental control by Asian immigrant and European American youth. *Journal of Family Psychology*, 23(3), 342–354. <https://doi.org/10.1037/a0015828>.
- Chen, H., Meza, J. I., Yan, Y., Wu, Q., & Lin, X. (2021). Parental attachment and depression in adolescents: moderation mediation model of empathy and gender. *Current Psychology*. <https://doi.org/10.1007/s12144-021-01698-4>
- Cheung, C. S., & McBride-Chang, C. (2008). Relations of perceived maternal parenting style, practices, and learning motivation to academic competence in Chinese children. *Merrill-Palmer Quarterly*, 54(1), 1–22. <https://doi.org/10.1353/mpq.2008.0011>.
- Cheung, N. W. T., & Cheung, Y. W. (2010). Strain, self-control, and gender differences in delinquency among Chinese adolescents: extending general strain theory. *Sociological Perspectives*, 53(3), 321–345. <https://doi.org/10.1525/sop.2010.53.3.321>.
- Crocetti, E., Hale III, W. W., Dimitrova, R., Abubakar, A., Gao, C.-H., & Agaloo Pesigan, I. J. (2015). Generalized anxiety symptoms and identity processes in cross-cultural samples of adolescents from the general population. *Child & Youth Care Forum*, 44, 159–174. <https://doi.org/10.1007/s10566-014-9275-9>.
- Cullen, F. T., Agnew, R., & Wilcox, P. (2018). *Criminological theory: past to present, essential readings* (Sixth Edition. ed.). Oxford University Press.

- Daniel, W. W. (1999). *Biostatistics: A foundation for analysis in the health sciences* (7th edition ed.). John Wiley & Sons.
- Davis, A. N., Luce, H., & Davalos, N. (2018). Associations among life events, empathic concern, and adolescents' prosocial and aggressive behaviors toward specific targets. *The Journal of Genetic Psychology*, 179(4), 183–197. <https://doi.org/10.1080/00221325.2018.1468314>.
- Davis, M. H. (1980). A multidimensional approach to individual differences in empathy. *JSAS Catalog of Selected Documents in Psychology*, 10, 85.
- Davis, M. H. (1983). Measuring individual differences in empathy: evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, 44(1), 113. <https://doi.org/10.1037/0022-3514.44.1.113>.
- Deneault, A.-A., Gareau, A., Bureau, J.-F., Gaudreau, P., & Lafontaine, M.-F. (2020). Fear of failure mediates the relation between parental psychological control and academic outcomes: a latent mediated-moderation model of parents' and children's genders. *Journal of Youth and Adolescence*, 49(8). <https://doi.org/10.1007/s10964-020-01209-x>
- Eisenberg, N., & Lennon, R. (1983). Sex differences in empathy and related capacities. *Psychological Bulletin*, 94(1), 100. <https://doi.org/10.1037/0033-2909.94.1.100>.
- Elliott, D. S., & Huizinga, D. (1983). Social class and delinquent behavior in a national youth panel: 1976–1980. *Criminology*, 21(2), 149–177. <https://doi.org/10.1111/j.1745-9125.1983.tb00256.x>.
- Gini, G., Albiero, P., Benelli, B., & Altoe, G. (2007). Does empathy predict adolescents' bullying and defending behavior. *Aggressive Behavior*, 33(5), 467–476. <https://doi.org/10.1002/ab.20204>.
- Guo, Q., Sun, P., & Li, L. (2018). Shyness and online prosocial behavior: a study on multiple mediation mechanisms. *Computers in Human Behavior*, 86, 1–8. <https://doi.org/10.1016/j.chb.2018.04.032>.
- Hill, J. P., & Lynch, M. E. (1983). The intensification of gender-related role expectations during early adolescence. In J. Brooks-Gunn & A. C. Petersen (Eds.), *Girls at Puberty: Biological and Psychosocial Perspectives* (pp. 201–228). US: Springer. [https://doi.org/10.1007/978-1-4899-0354-9\\_10](https://doi.org/10.1007/978-1-4899-0354-9_10)
- Hirschi, T. (1969). *Causes of delinquency*. University of California Press.
- Hops, H., Andrews, J. A., Duncan, S. C., Duncan, T. E., & Tildesley, E. (2000). Adolescent drug use development. In *Handbook of developmental psychopathology* (pp. 589–605). Springer. [https://doi.org/10.1007/978-1-4615-4163-9\\_31](https://doi.org/10.1007/978-1-4615-4163-9_31)
- Jo, Y., & Zhang, Y. (2014). Parenting, self-control, and delinquency: examining the applicability of Gottfredson and Hirschi's general theory of crime to South Korean youth. *International Journal of Offender Therapy and Comparative Criminology*, 58(11), 1340–1363. <https://doi.org/10.1177/0306624x13494670>.
- Jolliffe, D., & Farrington, D. P. (2006). Development and validation of the basic empathy scale. *Journal of Adolescence*, 29(4), 589–611. <https://doi.org/10.1016/j.adolescence.2005.08.010>.
- Khine, M. S. (2013). *Application of structural equation modeling in educational research and practice* (Vol. 7). Springer. [https://doi.org/10.1007/978-94-6209-332-4\\_1](https://doi.org/10.1007/978-94-6209-332-4_1)
- Lanzetta, J. T., & Englis, B. G. (1989). Expectations of cooperation and competition and their effects on observers' vicarious emotional responses. *Journal of Personality and Social Psychology*, 56(4), 543. <https://doi.org/10.1037/0022-3514.56.4.543>.
- Li, S. D. (2004). The impacts of self-control and social bonds on juvenile delinquency in a national sample of midadolescents. *Deviant Behavior*, 25(4), 351–373. <https://doi.org/10.1080/01639620490441236>.
- Li, S. D., Liu, T.-H., & Xia, Y. (2022). A comparative study of parenting practices and juvenile delinquency between China and the United States. *Deviant Behavior*, 1–16. <https://doi.org/10.1080/01639625.2022.2081102>
- Li, S. D., Xia, Y., Xiong, R., Li, J., & Chen, Y. (2020). Coercive parenting and adolescent developmental outcomes: The moderating effects of empathic concern and perception of social rejection. *International Journal of Environmental Research and Public Health*, 17(10), 3538. <https://doi.org/10.3390/ijerph17103538>.
- Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: a critical evaluation and guidelines for future work. *Child Development*, 71(3), 543–562. <https://doi.org/10.1111/1467-8624.00164>.
- Mazur, A., & Booth, A. (1998). Testosterone and dominance in men. *Behavioral and Brain Sciences*, 21(3), 353–363. <https://doi.org/10.1017/S0140525X98001228>.
- McFadyen-Ketchum, S. A., Bates, J. E., Dodge, K. A., & Pettit, G. S. (1996). Patterns of change in early childhood aggressive-disruptive behavior: gender differences in predictions from early coercive and affectionate mother-child interactions. *Child Development*, 67(5), 2417–2433. <https://doi.org/10.1111/j.1467-8624.1996.tb01865.x>.
- Milone, A., Cerniglia, L., Cristofani, C., Inguaggiato, E., Levantini, V., Masi, G., Paciello, M., Simone, F., & Muratori, P. (2019). Empathy in youths with conduct disorder and callous-unemotional traits. *Neural Plasticity*, 2019. <https://doi.org/10.1155/2019/9638973>
- Morris, A. S., Silk, J. S., Steinberg, L., Sessa, F. M., Avenevoli, S., & Essex, M. J. (2002). Temperamental vulnerability and negative parenting as interacting predictors of child adjustment. *Journal of Marriage and Family*, 64(2), 461–471. <https://doi.org/10.1111/j.1741-3737.2002.00461.x>.
- NLSY. (1997). *National Longitudinal Survey of Youth*. Retrieved 9 October from <https://www.nlsinfo.org/content/cohorts/nlsy97/using-and-understanding-the-data/survey-instruments-questionnaire>
- Palmer, E. J., & Hollin, C. R. (2001). Sociomoral reasoning, perceptions of parenting and self-reported delinquency in adolescents. *Applied Cognitive Psychology*, 15(1), 85–100.
- Patterson, G. R. (1982). *Coercive family process* (Vol. 3). Castalia publishing company.
- Patterson, G. R. (1986). Performance models for antisocial boys. *American Psychologist*, 41(4), 432. <https://doi.org/10.1037/0003-066X.41.4.432>.
- Patterson, G. R. (2002). The early development of coercive family process. In *Antisocial behavior in children and adolescents: a developmental analysis and model for intervention*. (pp. 25–44). American Psychological Association. <https://doi.org/10.1037/10468-002>
- Simons, R. L., Wu, C. I., Lin, K. H., Gordon, L., & Conger, R. D. (2000). A cross-cultural examination of the link between corporal punishment and adolescent antisocial behavior. *Criminology*, 38(1), 47–80. <https://doi.org/10.1111/j.1745-9125.2000.tb00883.x>.
- Snyder, J., & Patterson, G. (1987). Family interaction and delinquent behavior. In H. C. Quay (Ed.), *Handbook of Juvenile Delinquency*, 216–243. (New York: Wiley).
- Stouthamer-Loeber, M., Loeber, R., Wei, E., Farrington, D. P., & Wikström, P. O. (2002). Risk and promotive effects in the explanation of persistent serious delinquency in boys. *Journal of Consulting and Clinical Psychology*, 70(1), 111–123. <https://doi.org/10.1037/0022-006x.70.1.111>.
- Supple, A. J., & Cavanaugh, A. M. (2013). Tiger mothering and among American parent-adolescent relationships. *Asian American Journal of Psychology*, 4(1), 41. <https://doi.org/10.1037/a0031202>.
- Sutherland, E. H. (1947). *Principles of criminology*, 4th ed. J. B. Lippincott.
- Sutherland, E. H., Cressey, D. R., & Luckenbill, D. F. (1992). *Principles of criminology*. Altamira Press.
- Taylor, S. E., Klein, L. C., Lewis, B. P., Gruenewald, T. L., Gurung, R. A., & Updegraff, J. A. (2000). Biobehavioral responses to

- stress in females: tend-and-befriend, not fight-or-flight. *Psychological Review*, 107(3), 411. <https://doi.org/10.1037/0033-295X.107.3.411>.
- Trinkner, R., Cohn, E. S., Rebellon, C. J., & Van Gundy, K. (2012). Don't trust anyone over 30: parental legitimacy as a mediator between parenting style and changes in delinquent behavior over time. *Journal of Adolescence*, 35(1), 119–132. <https://doi.org/10.1016/j.adolescence.2011.05.003>.
- Van der Graaff, J., Branje, S., De Wied, M., Hawk, S., Van Lier, P., & Meeus, W. (2014). Perspective taking and empathic concern in adolescence: gender differences in developmental changes. *Developmental Psychology*, 50(3), 881. <https://doi.org/10.1037/a0034325>.
- von Eye, A., Bergman, L. R., & Hsieh, C.-A. (2015). Person-oriented methodological approaches. In *Handbook of Child Psychology and Developmental Science* (pp. 1–53). <https://doi.org/10.1002/9781118963418.childpsy121>
- Wang, M. (2017). Harsh parenting and peer acceptance in Chinese early adolescents: Three child aggression subtypes as mediators and child gender as moderator. *Child Abuse & Neglect*, 63, 30–40. <https://doi.org/10.1016/j.chiabu.2016.11.017>.
- Weerman, F. M., Bernasco, W., Bruinsma, G. J., & Pauwels, L. J. (2016). Gender differences in delinquency and situational action theory: a partial test. *Justice Quarterly*, 33(7), 1182–1209. <https://doi.org/10.1080/07418825.2015.1064987>.
- West, S. G., Finch, J. F., & Curran, P. J. (1995). Structural equation models with nonnormal variables: Problems and remedies. In *Structural equation modeling: Concepts, issues, and applications*. (pp. 56–75). Sage Publications, Inc.
- Zhang, F.-f., Dong, Y., & Wang, K. (2010). Reliability and validity of the Chinese version of the Interpersonal Reactivity Index-C. *Chinese Journal of Clinical Psychology*.

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

Springer Nature or its licensor (e.g. a society or other partner) holds exclusive rights to this article under a publishing agreement with the author(s) or other rightsholder(s); author self-archiving of the accepted manuscript version of this article is solely governed by the terms of such publishing agreement and applicable law.

**Kehui Wu** is a Ph.D. student in the Department of Sociology at University of Macau. Her major research interests are parenting styles, adolescent development, substance abuse, and gender inequality.

**Spencer D. Li** is a Professor in the Department of Sociology at University of Macau. His major research interests include child development, substance abuse, corrections, and criminal psychology.