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Maternal cultural values and parenting practices: Longitudinal associations with Chinese adolescents' aggression

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ABSTRACT

Keywords:

Culture
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Interrelations among cultural values, parenting practices, and adolescent aggression were examined using longitudinal data collected from Chinese adolescents and their mothers. Adolescents' overt and relational aggression were assessed using peer nominations at Time 1 (7th grade) and Time 2 (9th grade). Mothers reported endorsement of cultural values (collectivism and social harmony) and parenting practices (psychological control and inductive reasoning) at Time 1. While controlling for Time 1 adolescent aggression, maternal collectivism and social harmony indirectly and longitudinally linked to adolescent aggression through maternal parenting practices. Specifically, maternal collectivism was positively related to inductive reasoning, which, in turn, negatively related to adolescent overt aggression at Time 2. Similarly, maternal social harmony negatively related to psychological control that positively predicted later adolescent relational aggression. Results of the present study shed light on mechanisms through which culture may indirectly influence adolescent aggression.

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Researchers have been actively investigating the familial and contextual contributions of adolescent aggression, which has detrimental effects on adolescents' social and emotional adjustment (Dodge, Coie, & Lynam, 2006). Children's behavior develops within a multi-layered ecological system that encompasses both the immediate familial environment and the greater societal and cultural contexts (Bronfenbrenner, 1992). Contextual development models propose that parents endorsing culturally prescribed values adjust their parenting practices in order to promote culturally desirable behavior in their children (Chen & French, 2008; Super & Harkness, 2002). Studies have only partially supported these theoretical models by relating parenting practices to children's aggression (e.g., Chang, Schwartz, Dodge, & McBride-Chang, 2003; Chen, Wu, Chen, Wang, & Cen, 2001; Nelson, Hart, Yang, Olsen, & Jin, 2006) and by relating national and adolescents' cultural values to adolescent aggression (Bergeron & Schneider, 2005; Li, Wang, Wang, & Shi, 2010). However, limited research has examined whether parenting practices that influence the development of adolescent aggression are related to parental endorsement of cultural values. Furthermore, cultural values are largely variable within a nation and parents may also endorse multiple cultural values (Bond & van de Vijver, 2011; Tamis-LeMonda et al., 2008). Therefore, it is necessary to investigate the within cultural associations of parental cultural values and parenting practices and how they function together to influence adolescent aggression. The present research extends the literature by examining the associations between maternal cultural values and parenting practices in the Chinese culture and by investigating how they longitudinally relate to the development

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of adolescent aggression. In particular, we examine how maternal cultural values may indirectly influence adolescent aggression via the mediating role of parenting practices.

Cultural values

Cultural values function to guide an individual's attitudes and behaviors in accordance to what the greater culture considers to be important (Bardi & Schwartz, 2003; Triandis, 1995). Collectivism and individualism are the most commonly researched cultural value dimensions, representing different orientations toward the importance of interpersonal reliance (Hofstede, 2001; Oyserman, Coon, & Kemmelmeier, 2002). Collectivism emphasizes a preference for close ties with other in-group members and interdependent family units (Triandis, 1995). As shown by a recent meta-analytic study, Chinese culture is more collectivistic than individualistic (Oyserman et al., 2002). Although observing cultural values on a national-level is useful for interpreting cross-cultural differences, recent research has acknowledged the importance of investigating variations of cultural values within single cultures (Bond & van de Vijver, 2011; Tamis-LeMonda et al., 2008). Within Chinese culture, the diversity of subcultures, the influence of globalization and the nation's shift toward a market economy (Chen, Cen, Li, & He, 2005) all illuminate the possible variations in Chinese parents' endorsement of collectivism.

In addition, to better understand how culture contributes to Chinese adolescents' aggression, it may be beneficial to observe indigenous values important to Chinese socialization. In Chinese culture, social harmony is a prominent cultural value that promotes positive interpersonal relationships (Bond & Chi, 1997; Bond & Wang, 1982). Although valuing harmonious interpersonal relationships has been viewed as part of collectivism, social harmony has a distinct origin from collectivism in Chinese culture. Social harmony is rooted in Confucianism, an indigenous philosophy that has a long historical standing in Chinese culture (Li, 2006). Moreover, the major measures of collectivism used in previous studies do not include items assessing distinct social harmony (Triandis, McCusker, & Hui, 1990). Although some research has treated social harmony as a personality trait (Zhang & Bond, 1998), it should be acknowledged that, consistent with the common definitions of values (Bardi & Schwartz, 2003), social harmony has a profound philosophical ground (Li, 2006) and conveys what is important to individuals' lives in Chinese culture. Therefore, it is appropriate to treat social harmony as a value construct. Bond and Chi (1997) identified a broadly defined social harmony factor (e.g., national security, social justice) among Chinese adolescents. However, the interpersonal harmony emphasized in Confucianism (Li, 2006), which may be more relevant to Chinese adolescents' socialization, has not been adequately examined. We have therefore created a measure to assess social harmony across different interpersonal contexts in the lives of Chinese parents.

Cultural values and aggression

Recent research among Chinese children and adolescents demonstrates individual differences in overt and relational aggression (Chang et al., 2003; Chen et al., 2001; Li, Putallaz, & Su, in press; Li et al., 2010; Nelson et al., 2006; Xu, Farver, & Zhang, 2009). Similar to American children, aggressive Chinese children experience adjustment difficulties (e.g., peer rejection) (Chen et al., 2005). To explain how cultural environments can influence individuals' aggression, previous theorists have proposed that cultural values regulate the appropriateness and social acceptance of aggressive behaviors between individuals (Bond, 2004). Past research has linked national-level cultural value differences to cross-cultural variations in youth aggression. Using meta-analysis, Bergeron and Schneider (2005) demonstrated that peer directed aggression is less prevalent in collectivistic nations than in individualistic nations. Consistent with these findings, adolescents in predominantly collectivistic cultures showed less aggressive tendencies than their Western counterparts (e.g., Crystal et al., 1994; Farver, Welles-Nyström, Frosch, Wimbarti, & Hoppe-Graff, 1997).

Research relating cultural values to adolescents' aggression has demonstrated that personal values account for more variance in misconduct (including aggression) than cultural origins (Feldman, Rosenthal, Mont-Reynaud, Leung, & Lau, 1991). Additionally, Li et al. (2010) recently revealed that Chinese adolescents' endorsement of collectivism was negatively related to their overt and relational aggression and that their endorsement of individualism was positively related to their aggression. Furthermore, the relationships between adolescent values and aggression were mediated by adolescents' interpersonal and intrapersonal factors. These findings shed light on how value endorsements can account for individual behavioral differences.

Considering that Chinese individuals heavily endorse collectivism (Oyserman et al., 2002), we expect collectivistic values to play a significant role in Chinese adolescents' development with respect to aggression. Overall, a negative association between collectivism and aggression is expected given that individuals valuing collectivism emphasize interpersonal reliance and cooperation and discourage interpersonal conflict, both of which contribute to reduced aggressive behaviors (Li et al., 2010; Triandis, 1995). Similarly, social harmony, a prominent indigenous cultural value in Chinese culture, should also be given more attention in adolescent aggression research. To date, limited empirical research has investigated the relationship between social harmony and adolescent aggression. However, researchers have proposed plausible inhibitive effects of social harmony on aggressive behaviors (Bond & Chi, 1997; Bond & Wang, 1982). In order to promote harmonious interpersonal relationships, individuals are inclined to censure aggressive and disruptive behaviors that interrupt such relationships.

Although there is a growing amount of research on the relationship between adolescents' values and outcomes, little has been done to explore the relations between parental values and adolescent aggression. As children are initially exposed to the greater culture through interactions with their parents, parental cultural values and practices should be taken into consideration when studying children's development of aggressive behaviors.

Parental cultural values and parenting practices

Cultural contexts may influence parenting practices as parents' beliefs about the ideal and appropriate ways for children to behave are shaped by cultural values and norms (Bronfenbrenner, 1992; Chen & French, 2008; Super & Harkness, 2002). Previous research has studied how culturally guided parental socialization goals and beliefs influence parenting practices and, in turn, children's socialization outcomes (Cheah & Rubin, 2003; Keller et al., 2006; Tamis-LeMonda et al., 2008). In a similar framework, parental endorsement of cultural values may influence their parenting behaviors. Rudy and Grusec's (2006) study of mothers from collectivistic and individualistic cultural backgrounds revealed that maternal endorsement of collectivism was significantly correlated with authoritarian parenting practices in mothers from the collectivistic group. Parenting styles, however, include a constellation of parenting behaviors that convey an emotional climate to children (Darling & Steinberg, 1993). Additionally, there have been debates regarding whether or not parenting styles function similarly across cultures (for a review, see Sorkhabi, 2005). Therefore, it may be informative to observe specific parenting practices as to how they relate to cultural values. In this study, we examine maternal psychological control and inductive reasoning, which may have either contributing or preventative effects on the development of adolescent aggression.

Psychological control is an aversive form of parenting behaviors that relates to adjustment difficulties (Bradford et al., 2004; Li et al., in press; Nelson et al., 2006; Wang, Pomerantz, & Chen, 2007) and disrupts parent–child relationships (Shek, 2006) among Chinese children and adolescents. To avoid potential harm to parent–child relationships, Chinese parents endorsing social harmony may be less likely to use psychological control. In contrast, the association between collectivism and psychological control may be more complex. Rudy and Halgunseth (2005) found that mothers from collectivistic cultures used more psychological control than those from individualistic societies. This study, in addition to Rudy and Grusec's findings (2006), suggests a possible positive association between collectivism and psychological control. However, it is still unclear whether cross-cultural findings can be generalized to the within-cultural context. Furthermore, a major component of collectivism in East Asian cultures is a child's connection to the family (e.g., feelings of closeness and mutuality with their parents) (Tamis-LeMonda et al., 2008). As psychological control hurts a child's relationship with their parents (Shek, 2006), it is reasonable to expect that parents emphasizing collectivistic values are less likely to use psychological control.

Chinese parenting has not been commonly associated with the use of reasoning possibly due to the research focus on Chinese parents' use of authoritative and authoritarian parenting styles and more controlling and harsh parenting behaviors (Chang et al., 2003; Chen, Dong, & Zhou, 1997; Nelson et al., 2006; Xu et al., 2009). However, the use of inductive reasoning resonates with Chinese socialization strategies in that both are driven by a high level of concern for the care of the child (Chao, 1994). Although limited research has examined how cultural values are related to parental inductive reasoning, research shows that parental reasoning is significantly related to Chinese adolescents' conformity, which is highly valued in collectivistic cultures (Peterson, Cobas, Bush, Supple, & Wilson, 2004). Moreover, in accordance to the tenants of collectivistic and harmonious values, Chinese parents tend to avoid unreasoned punishment to the child (Chao, 1994; Xu et al., 2009). We therefore expect that Chinese parents' endorsement of collectivism and social harmony may positively relate to their use of inductive reasoning. Findings of this study will contribute to the literature regarding the association between cultural value endorsement and parental use of inductive reasoning.

Psychological control, inductive reasoning, and adolescent aggression

Psychological control involves parental regulation of their child's behaviors and feelings through the manipulation of parent–child relationships and parental acceptance (Barber, 1996). Psychological control restricts children's emotional and psychological autonomy and has been linked to aggression in North American children and adolescents (Loukas, Paulos, & Robinson, 2005; Nelson, Crick, & Barber, 2002). Similarly, psychological control has been associated with adjustment difficulties (e.g., depression, antisocial behaviors, poor emotional functioning), poor parent–child relationship qualities among Chinese adolescents (Bradford et al., 2004; Shek, 2006; Wang et al., 2007), and physical and relational aggression among Chinese children (Li et al., in press; Nelson et al., 2006).

While past research has focused on parenting practices positively linked to children's aggression, much less is known about parenting practices that may prevent or inhibit the development of aggression. Unlike psychological control, inductive reasoning rationally guides adolescents into reflecting upon their behaviors, understanding the consequences of their actions, and making better decisions. Studies have demonstrated the beneficial effects of parental reasoning on adolescents' adjustment (e.g., higher self-esteem) and development of prosocial behavior across cultures (Bush, Peterson, Cobas, & Supple, 2002; Chen et al., 1997; Kim & Ge, 2000; Krevans & Gibbs, 1996; Kuczynski, 1983). Additionally, reasoning also reduces children's involvement in antisocial behavior (Simons et al., 2002). Taken together, these findings suggest that maternal reasoning may help reduce adolescents' use of aggression.

The present study

The overarching goal of this study is to examine a cultural contextual model in which maternal cultural values (collectivism and social harmony) and parenting practices (psychological control and inductive reasoning) may relate to adolescents' aggression over time. In particular, we are interested in examining the potential indirect relations between maternal cultural values and adolescent aggression that are mediated by parenting practices. We examine both overt and relational

aggression to reflect the recent advances in aggression research (Li et al., in press; Nelson et al., 2006). We expect that maternal collectivism and social harmony negatively relate to adolescent aggression (e.g., Bond & Wang, 1982; Li et al., 2010). Moreover, these associations are likely mediated by parenting practices. We expect that maternal psychological control positively relates to adolescents' overt and relational aggression, and that maternal reasoning negatively relates to adolescent aggression (e.g., Li et al., in press; Nelson et al., 2006; Simons et al., 2002). We also predict that social harmony negatively relates to psychological control considering that the latter may harm parent–child relationships, while maternal collectivism positively relates to reasoning given that collectivistic parents may emphasize the conformity that reasoning can promote (Bond & Wang, 1982; Peterson et al., 2004; Shek, 2006). The examination of the associations between collectivism and psychological control and between social harmony and reasoning are somewhat exploratory due to limited research in the literature.

Methods

Participants

Adolescent participants ($N = 350$, 173 boys; 177 girls) and their mothers ($N = 270$) were recruited from the 7th grade in a public middle school in a major Mideast province of China. The average age of the adolescent participants in the 7th grade was 13.42 years ($SD = .62$). Students in China stay in a single class with the same classmates throughout their time in middle school. Participants came from mostly middle and working class families. About (84%) of the mothers completed a high school education while the rest received college or graduate-level education. Mothers were on average 38.96 years old ($SD = 3.77$). Almost all of the adolescents (94%) lived in two-parent families. Approximately, 94% ($N = 328$) of the participating adolescents completed the second data collection in the 9th grade.

Procedure

Mothers were delivered letters describing the study along with parental permission letters for adolescents' participation, maternal consent forms, and questionnaires for maternal participation. Mothers who consented for participation filled out the questionnaire and put it in a sealed envelope, which was then brought back to school by their child. Not all the mothers of participating adolescents filled out the questionnaires, which explains the discrepancy between the numbers of participating mothers and adolescents. Adolescent participants were assured that their participation in the study was voluntary and that their responses would be kept confidential. Data was collected at two separate time points, eighteen months apart. In the spring semester of the 7th grade, adolescents' physical and relational aggression was assessed through peer nominations. During the same period of time in the 7th grade, mothers reported their cultural values and parenting practices. The consent rate was 96% for adolescents and 82% for mothers in the 7th grade. In the fall semester of the 9th grade, most of the first wave participating adolescents (94%) participated in the study again and provided peer nominations to assess adolescent aggression.

Measures

The questionnaires were translated from English to Chinese using the translation and back-translation procedure by two researchers who were fluent in both English and Chinese. The reliability of the measures was primarily examined through a Confirmatory Factor Analysis (CFA). Although Cronbach's alphas are not typically reported in the CFA framework (e.g., Nelson et al., 2006), we reported Cronbach's alphas to provide additional information of the measures. We used individual items instead of sum scores as indicators for each of the latent constructs in the CFA model and the structural regression model. As Table 1 shows, the CFA results showed significant factor loadings of all items for all the adolescent aggression, maternal value and parenting latent constructs ($ps < .001$), indicating that these items reliably measured the latent constructs.

Adolescent aggression

The Children's Social Behavior Scale (CSBS) was used to obtain the adolescents' nominations of their aggressive peers (Crick & Grotpeter, 1995). Three items assessed overt aggression (e.g., "Hits, pushes others.") and four items assessed relational aggression (e.g., "When mad, gets even by keeping the person from being in their group of friends."). The peer nomination method is an effective and informative approach to assess children's behaviors (Coie, Dodge, & Coppotelli, 1982; Rubin, Bukowski, & Parker, 2006). Adolescents nominated as many classmates as they wanted for each item. The number of times each adolescent was nominated for an item was aggregated and standardized within the class to control for the variations in the amount of nominations across classes. The standardized overt and relational aggression items were then directly used as indicators for the latent overt and relational aggression constructs, respectively, in the CFA and structural models. All items for both time 1 and time 2 overt and relational aggression demonstrated reliable loadings on their constructs (standardized factor loadings ranged from .60 to .94; see Table 1). The Cronbach's alphas were .92 and .93 for time 1 and time 2 overt aggression, respectively, and were .90 and .90 for time 1 and time 2 relational aggression, respectively.

Table 1

CFA results for maternal constructs and adolescent aggression at both time points.

| Item | Standardized Factor Loadings | |
|---|---------------------------------|--------|
| <i>Maternal collectivism</i> | | |
| 1. I feel good when I cooperate with others. | 0.66 | |
| 2. It is my duty to take care of my family, even when I have to sacrifice what I want. | 0.36 | |
| 3. It is important to me that I respect the decisions made by my groups. | 0.57 | |
| 4. If a coworker gets a prize, I would feel proud. | 0.46 | |
| 5. The well-being of my coworkers is important to me. | 0.48 | |
| 6. Family members should stick together, no matter what sacrifices are required. | 0.49 | |
| <i>Maternal social harmony</i> | | |
| 1. Harmonious interpersonal relationships | 0.69 | |
| 2. Social order | 0.74 | |
| 3. A harmonious society | 0.91 | |
| 4. A world of peace | 0.88 | |
| 5. Harmonious interpersonal relationships in family and school | 0.83 | |
| 6. Minimization of interpersonal conflicts | 0.83 | |
| 7. Comity | 0.82 | |
| 8. Minimization of fights and verbal assaults | 0.84 | |
| <i>Maternal inductive reasoning</i> | | |
| 1. I help my child understand the impact of behavior by encouraging my child to talk about the consequences of own actions. | 0.62 | |
| 2. I explain the consequences of the child's behavior. | 0.62 | |
| 3. I talk it over and reason with my child when my child misbehaves. | 0.77 | |
| 4. I explain to my child how we feel about the child's good and bad behaviors. | 0.56 | |
| <i>Maternal psychological control</i> | | |
| 1. I bring up our child's past mistakes when criticizing him/her. | 0.67 | |
| 2. I am less friendly with our child if our child does not see things my way. | 0.61 | |
| 3. I tell our child that we get embarrassed when he/she does not meet our expectations. | 0.68 | |
| 4. I make our child feel guilty when our child does not meet our expectations. | 0.68 | |
| 5. I lose temper easily with our child. | 0.69 | |
| 6. I tell our child he/she is not as good as other children. | 0.76 | |
| <i>Adolescent overt aggression</i> | | |
| | Time 1 | Time 2 |
| 1. Hits, pushes others. | 0.93 | 0.93 |
| 2. Yells, calls others mean names. | 0.88 | 0.84 |
| 3. Starts fights. | 0.88 | 0.93 |
| <i>Adolescent relational aggression</i> | | |
| 1. When mad, gets even by keeping the person from being in their group of friends. | 0.91 | 0.92 |
| 2. Tells friends they will stop liking them unless friends do what they say. | 0.89 | 0.81 |
| 3. When mad at a person, ignores them or stops talking to them. | 0.60 | 0.61 |
| 4. Tries to keep certain people from being in their group. | 0.94 | 0.94 |

Collectivism

Mothers completed the Horizontal and Vertical Individualism and Collectivism measure (Triandis & Gelfand, 1998). As the purpose of our study was to assess the general endorsement of collectivism, we combined the collectivism subscales that originally included eight items (e.g., "I feel good when I cooperate with others."). Participating mothers rated how much they agreed with each statement on a nine-point Likert scale (1 = "Absolutely disagree"; 9 = "Absolutely agree"). We conducted an exploratory factor analysis and removed two items from the original measure that showed different dimensionality than collectivism represented by the rest of the six items. Therefore, six items were used to assess collectivism in the CFA model and demonstrated adequate loadings on the latent construct (standardized factor loadings ranged from .36 to .66; see Table 1). The Cronbach's alpha was .61 for collectivism.

Social harmony

Following previous research on the construct of social harmony (Bond & Chi, 1997; Bond & Wang, 1982), we developed a social harmony measure for the present study. We created six new items to assess how much mothers valued harmonious interpersonal relationships in their lives (e.g., "Harmonious interpersonal relationships" and "Minimization of interpersonal conflicts"). In addition to the two items ("social order" and "a world of peace") adapted from Bond and Chi (1997), this new measure consisted of eight statements covering social harmony values expressed in different forms (e.g., valuing harmonious relationships vs. minimizing conflict) and contexts (e.g., general value vs. in family and schools). The diverse coverage of items ensures an adequate content validity. Participating mothers reported how important each item was to their life on a five-point Likert scale (1 = "Not important at all"; 5 = "Very important"). All eight items demonstrated adequate measurement reliability in the CFA model (standardized factor loadings ranged from .69 to .91; see Table 1). The Cronbach's alpha for social harmony was also high, .82.

Psychological control

The Psychological Control measure (Olsen et al., 2002) was used to assess mothers' psychologically controlling behaviors (e.g., "I make my child feel guilty when my child does not meet my expectations"). This measure has been previously validated

among Chinese parents (Nelson et al., 2006; Olsen et al., 2002). Mothers reported how often they used each of the psychological control practices on a five-point Likert scale (1 = “Never”, 5 = “Always”). Six items demonstrating reliable loadings on the construct were used (standardized factor loadings ranged from .61 to .75; see Table 1). The Cronbach’s alpha for psychological control was .81.

Inductive reasoning

The rational guidance subscale of the Parenting Practice Questionnaire (PPQ) was used to assess maternal inductive reasoning (Robinson, Mandleco, Olsen, & Hart, 1995). Mothers rated the frequency of their engagement in reasoning behaviors (e.g., “I talk it over and reason with my child when my child misbehaves.”) on a five-point Likert scale (1 = “Never”, 5 = “Always”). The four items demonstrated adequate loadings on the inductive reasoning construct (standardized factor loadings ranged from .56 to .77; see Table 1). The Cronbach’s alpha for this construct was .66.

Analytic strategies

The measurement of constructs was first examined in CFA, followed by the estimation of the associations among parental and adolescent constructs in the structural regression model using *Mplus* 5.1 (Muthén & Muthén, 1998–2010). To examine the hypotheses, we specified the paths from the two maternal cultural values to both psychological control and inductive reasoning, and to adolescent overt and relational aggression. We also specified the paths from both parenting practices to both aggression constructs. To control for the possible effects of adolescent gender, it was controlled as a covariate. Time 1 overt and relational aggression were specified to predict Time 2 overt and relational aggression, respectively. The full-information maximum likelihood (FIML), an advanced method to account for missing values, was used (Enders, 2006). This method of dealing with missing values is the default setting in *Mplus*. The proportion of missing data ranged from 0% to 1.7% among both time 1 and time 2 adolescent aggression items and from 1.6% to 5.8% among maternal value and parenting items. We used WLSMV (robust weighted least square parameter estimation with adjusted mean and variance) to obtain robust parameter estimates for the structural regression model because (a) non-normality was observed for some of the items (e.g., adolescent aggression); and (b) we used individual items with limited ordinal choice options in the Likert scale as indicators for endogenous latent constructs (e.g., aggression, parenting practice). These indicators are not a sufficient approximation of continuous data (Bollen, 1989). The estimator, WLSMV can handle both situations and is the most appropriate estimator to handle ordered categorical data given the limited ordinal choice options in the Likert scale (Finney & DiStefano, 2006). Model fit was examined through multiple indexes (Kline, 2005). As the χ^2 values can be artificially inflated by sample and data characteristics (Hu & Bentler, 1995), we relied more on other indexes, including Comparative Fit Index (CFI), Tucker Lewis Index (TLI; also known as Non-normed Fit Index), Root Mean Square Error of Approximation (RMSEA), and Weighted Root Means Square Residual (WRMR). The WRMR estimator is used for ordered categorical data with values under 1.0 representing a good fit (Finney & DiStefano, 2006). The indirect effects of maternal cultural values on adolescent aggression were tested using bootstrapping analysis, which gives greater statistical power while having an adequate control of Type I errors compared to other indirect effect tests (MacKinnon, Lockwood, Hoffmann, West, & Sheets, 2002; Preacher & Hayes, 2008). A significant indirect effect is observed if the 95% bias-corrected bootstrap confidence intervals (95% BC CI) for the indirect effect do not contain a zero.

Results

To examine the measurement of the constructs, a CFA model was conducted that included items for maternal collectivism and social harmony, maternal psychological control and inductive reasoning, and adolescents’ overt and relational aggression at both time points. The model fit was adequate ($\chi^2 = 801.40$, $df = 637$, $CFI = .97$, $TLI = .96$, $RMSEA = .03$, $WRMR = .96$). The factor loadings of item indicators were all significant ($ps < .001$), indicating that the items reliably assessed the constructs (see Table 1).

The correlations among latent constructs showed that maternal collectivism was negatively correlated with Time 1 relational aggression ($\Phi = -.17$, $p < .01$), and psychological control ($\Phi = -.22$, $p < .01$); and was positively correlated with reasoning ($\Phi = .49$, $p < .001$) and social harmony ($\Phi = .49$, $p < .001$). Collectivism was marginally negatively correlated with Time 1 overt aggression ($\Phi = -.10$, $p < .10$), and Time 2 relational aggression ($\Phi = -.10$, $p < .10$). Social harmony was positively correlated with reasoning ($\Phi = .33$, $p < .001$) and negatively correlated with psychological control ($\Phi = -.33$, $p < .001$). Psychological control was negatively correlated with reasoning ($\Phi = -.20$, $p < .01$). Time 1 overt aggression was positively related to Time 2 overt aggression ($\Phi = .75$, $p < .001$) as well as both Time 1 ($\Phi = .67$, $p < .001$) and Time 2 ($\Phi = .38$, $p < .001$) relational aggression. Additionally, Time 1 relational aggression was positively correlated with Time 2 overt ($\Phi = .50$, $p < .001$) and relational ($\Phi = .62$, $p < .001$) aggression. Time 2 overt and relational aggression were also positively correlated ($\Phi = .52$, $p < .001$).

To examine our hypotheses on the associations among maternal cultural values, parenting practices, and adolescent aggression, we conducted the structural model testing. The structural model fits the data adequately ($\chi^2 = 783.90$, $df = 643$, $CFI = .97$, $TLI = .97$, $RMSEA = .03$, $WRMR = .94$). Our hypotheses that maternal psychological control would positively predict adolescents’ overt and relational aggression while maternal reasoning would negatively predict both forms of aggression were partially supported. As Fig. 1 shows, after controlling for adolescent aggression at 7th grade, maternal psychological

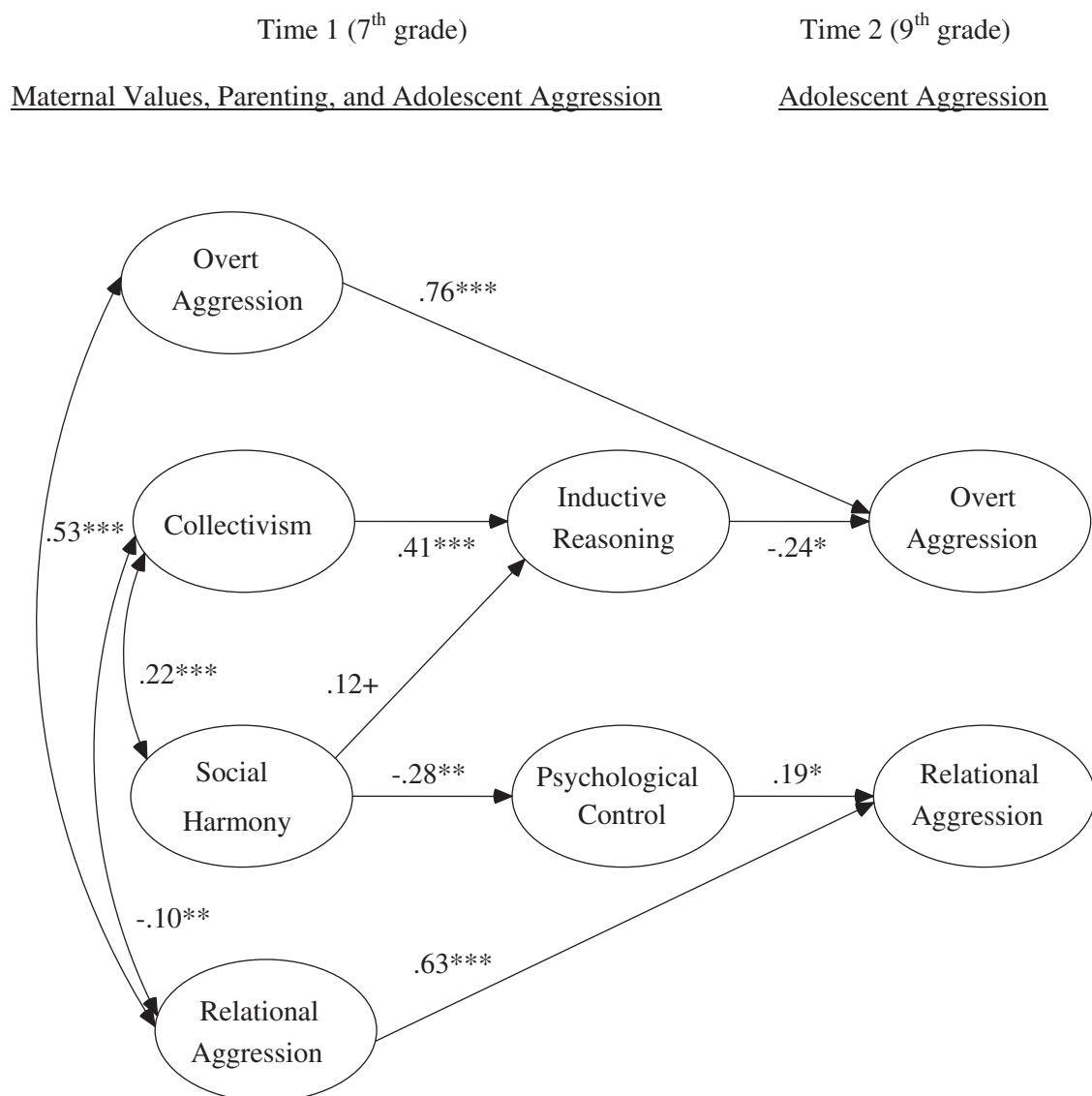


Fig. 1. Structural model for the longitudinal prediction of adolescent aggression using maternal cultural values and parenting practices. Unstandardized path coefficients are presented. To facilitate reading, non-significant paths, the disturbances correlations, and paths for gender covariate were omitted. $N = 346$ (Four cases were excluded from the analysis due to missing values in x-variables in the structural model). *** $p < .001$, ** $p < .01$, * $p < .05$, + $p < .09$.

control positively predicted adolescent relational aggression at 9th grade ($B = .19$, $SE = .09$, $p < .05$), whereas maternal reasoning negatively predicted later adolescent overt aggression ($B = -.24$, $SE = .12$, $p < .05$). These findings suggest that maternal psychological control and reasoning may longitudinally predict different types of aggression among adolescents.

As mentioned earlier, due to limited information in the literature, we cautiously predicted that social harmony would negatively relate to psychological control while collectivism would positively relate to reasoning. After controlling for the effects of both values on one another, maternal collectivism positively related to reasoning ($B = .41$, $SE = .10$, $p < .001$), while social harmony was negatively related to psychological control ($B = -.28$, $SE = .09$, $p < .01$). Social harmony also positively related to reasoning at a near significance level ($B = .12$, $SE = .07$, $p < .09$). Supporting our hypotheses, these findings suggest that both cultural values may uniquely relate to different parenting practices among Chinese mothers. Although we predicted negative relationships between maternal values and adolescent aggression, no direct associations were observed.

Our hypotheses and the significant associations suggested two potential indirect effects from maternal values to adolescent aggression. Bootstrapping analyses revealed that both indirect effects were significant. Specifically, maternal social harmony was negatively related to Time 2 adolescent relational aggression, which was mediated by maternal psychological control (indirect effect = $-.05$, 95% BC CI: $-.13$ to $-.01$). Similarly, maternal collectivism was negatively related to Time 2 adolescent overt aggression, which was mediated by maternal inductive reasoning (indirect effect = $-.10$, 95% BC CI: $-.42$ to $-.03$). These

findings indicate that maternal cultural values may relate to long-term adolescent aggression development via the mediating influence of parenting practices.

Discussion

Supporting ecological and contextual theories of behavioral development (Bronfenbrenner, 1992; Chen & French, 2008; Super & Harkness, 2002), this study empirically demonstrates how the greater cultural context may influence socialization processes and adolescents' aggressive behaviors. We found that maternal cultural values indirectly and longitudinally related to adolescent aggression through the mediating role of parenting practices. Furthermore, the unique associations between cultural values and parenting practices reveal that while related, collectivism and social harmony are distinct constructs, each explaining a different facet of Chinese socialization. In addition, this study's longitudinal design contributes to filling the gap in our knowledge concerning the enduring effects of parental cultural values and parenting practices on Chinese adolescents' development of aggression.

Maternal cultural values and parenting practices

By revealing associations between maternal cultural values and parenting behaviors, this study supports theories proposing that socialization interactions within the family are influenced by the greater cultural context (e.g., Super & Harkness, 2002). We found that the indigenous Chinese cultural value (Bond & Wang, 1982; Li, 2006), social harmony, showed a unique negative association with psychological control. This association indicates that Chinese mothers who value harmonious interpersonal relationships are likely to refrain from using psychological control. The function of this association may help maintain a quality parent–child relationship (Shek, 2006) and reduce child problem behaviors (e.g., Bradford et al., 2004; Nelson et al., 2006) that may be disruptive to interpersonal relationships in both familial and school settings. By using a social harmony construct that covers interpersonal harmony at different settings, our study also extends the scope of prior studies that demonstrated how increased familial harmony related to lower parental control (Lau, Lew, Hau, Cheung, & Berndt, 1990). Social harmony, an indigenous cultural value generated from Confucianism (Li, 2006), has been shown to be related to, yet distinct from, collectivism and can explain parenting practices beyond collectivistic values.

We observed a positive relation between mothers' endorsement of collectivism and their use of inductive reasoning. This finding is consistent with collectivistic value systems in which parental care for children's well-being is reflected in their gentle and positive behaviors and avoidance of non-reasoned harsh punishment (Chao, 1994; Xu et al., 2009). Although previous research suggests a potential positive link between parental collectivism and psychological control (Rudy & Grusec, 2006; Rudy & Halgunseth, 2005), we did not find such an association. Our findings suggest that the associations between maternal collectivism and psychological control that occur across cultures (e.g., Rudy & Halgunseth, 2005) do not necessarily hold within cultures. While some parents from collectivistic cultures may use certain parenting behaviors more than parents from individualistic cultures, it does not necessarily imply that those parenting behaviors are culturally normative within collectivistic cultures (Lansford et al., 2005). Furthermore, our findings suggest that parenting styles do not associate with cultural values in the same manner as the specific parenting practices that they encompass (i.e. psychological control). In light of the debates regarding whether authoritarian parenting style functions similarly across cultures (Sorkhabi, 2005), our findings further demonstrate the importance of examining specific parenting practices in order to focus on the parenting behaviors that are aversive to children's behavioral development within Chinese culture.

Parenting practices and adolescent aggression

Consistent with previous findings regarding the contribution of authoritarian and harsh parenting to younger Chinese children's aggression (Chang et al., 2003; Chen et al., 2001; Nelson et al., 2006), this study shows that maternal psychological control can longitudinally predict adolescents' relational aggression. However, maternal psychological control did not predict adolescent overt aggression after controlling for maternal reasoning. This unique association may be understood given the similar nature of psychological control and relational aggression (Li et al., *in press*). Parental psychological control involves manipulation of parent–child relationships to make the child comply. Similarly, relationally aggressive adolescents manipulate peer relationships (e.g., friendships) to get what they want. According to the social learning theory (Bandura, 1973), adolescents may observe and experience parental psychological control and learn to use it in the peer context. Nevertheless, other less direct mechanisms may also be occurring. For example, psychological control may hinder adolescents' autonomy and undermine their emotional regulation abilities, resulting in their increased use of aggression (Zhou, Eisenberg, Wang, & Reiser, 2004).

Consistent with previous research on the positive contributions of reasoning to Chinese adolescents' social adjustment (Bush et al., 2002), we observed that maternal inductive reasoning negatively related to later adolescent overt aggression. This finding is in line with previous research indicating that parental inductive reasoning reduces pre-adolescent involvement in antisocial behavior (Simons et al., 2002), and increases long-term behavioral compliance (Kuczynski, 1983). Providing adolescents with rationales for why they should obey rules or commands enhances their emotional regulation abilities and allows them to better control their anger, frustration, and use of overt aggression (Zhou et al., 2004). Interestingly, parental inductive reasoning did not relate to adolescents' use of relational aggression. This may be due to the covert nature of

relational aggression. The consequences of overt aggression are much more visible than those of relational aggression, so mothers may be more concerned about their children having overt aggression and may thus put more effort toward inhibiting it through rational reasoning. Supplementing the literature that heavily emphasizes harsh and coercive parenting, this research sheds light on parenting practices that may have preventive effects on the development of aggression. Furthermore, this study highlights the enduring inhibitive effect of maternal reasoning on Chinese adolescents' overt aggression.

Maternal cultural values and adolescent aggression

Past studies have demonstrated that parenting behaviors can explain the relations between parental socialization goals/beliefs and child outcomes (e.g., Keller et al., 2006). Parallel to this research, the present study reveals indirect associations between maternal cultural values and adolescent aggression that occur through the influence of parenting practices. Specifically, maternal collectivism positively related to mothers' use of inductive reasoning, which, in turn, negatively related to adolescents' later use of overt aggression. Extending Li et al.'s (2010) findings that Chinese adolescents' own endorsement of collectivism was negatively and indirectly related to their aggression, this study shows that maternal endorsement of collectivism is also negatively and indirectly related to adolescents' aggression. Furthermore, our study also shows that the culturally specific value, social harmony, can longitudinally relate to Chinese adolescents' relational aggression through reduced parental psychological control. The latter finding further demonstrates the important function of this indigenous cultural value in Chinese adolescents' socialization. This study did not observe direct effects of maternal cultural values on adolescent aggression. As depicted by the ecological development models (e.g., Bronfenbrenner, 1992), maternal cultural values are more distal to adolescent development than direct parent-child behavioral interactions and thus the direct effects may be weakened. Research in other areas, such as acculturation (e.g., Park, Kim, Chiang, & Ju, 2010), has also lent support to the explanatory role of parenting behaviors in the links between parental cultural values and child behaviors.

Limitations and future directions

Some limitations of the study should be noted in order to better guide future directions in this line of research. First, while this study only included mothers, future efforts should look into the impact of paternal values and parenting behaviors on adolescent aggression as well as the convergent and discrepant effects of maternal and paternal parental variables on adolescent aggression (Nelson et al., 2006). Second, we examined maternal cultural values and parenting practices concurrently and theorized the direction of relations. However, the direction of influences may be bidirectional, which warrants future longitudinal investigation. Third, we examined a limited number of cultural values and parenting practices important to Chinese parents. Future research may extend the investigation to a wider range of global and indigenous values and parenting behaviors. Finally, future studies may also consider peer processes as possible mediating mechanisms transmitting the effect of cultural values to child behavioral outcomes.

In summary, this study shows longitudinal indirect associations between maternal cultural values and adolescent aggression in the critically understudied population of Chinese adolescents. While this study is not directly focused on intervention, the findings suggest that certain parental cultural values may promote adaptive parenting behaviors that reduce adolescent aggression. Therefore, this research may inform future intervention programs designed to curb adolescent aggression by either modifying parental behavior directly or through the macro-level propagation of values associated with adaptive parenting practices. In nations such as China with a changing culture due to globalization and urbanization (Chen et al., 2005), this research may be of particular interest to parents and educators, who could be better informed about the role of cultural context in children's socialization processes.

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