HHS Public Access

Author manuscript

Dev Psychol. Author manuscript; available in PMC 2019 June 01.

Published in final edited form as:

Dev Psychol. 2018 June ; 54(6): 1111–1123. doi:10.1037/dev0000517.

Child Inhibitory Control and Maternal Acculturation Moderate Effects of Maternal Parenting on Chinese American Children's Adjustment

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Abstract

The goals of this study were to examine: (1) bidirectional associations between maternal parenting (physical punishment and guilt induction) and Chinese American preschool children's psychosocial adjustment and (2) the role of maternal cultural orientation and child temperament in moderating parenting effects. Participants were Chinese American mothers and children (N = 163, M_{age} = 4.56, 51% boys). Mothers reported on their parenting practices at both Wave 1 (W1) and Wave 2 (W2), and their cultural orientations and children's inhibitory control at W1. Teachers rated children's prosocial, internalizing, and externalizing behaviors at both W1 and W2. A Bayesian approach to path analysis was utilized to investigate how parenting, child inhibitory control, and maternal cultural orientations work together to predict the development of children's prosociality and psychosocial problems. Results showed that for Chinese immigrant mothers who were highly acculturated towards the American culture and for children with low levels of inhibitory control, maternal use of physical punishment predicted more externalizing problems in children. Child inhibitory control and maternal enculturation were directly associated with less W2 child internalizing and externalizing behaviors. Moreover, physical punishment predicted more internalizing behavior, whereas guilt induction predicted less child internalizing behavior. Maternal guilt induction also prospectively predicted more prosocial behavior but only for children with low levels of inhibitory control. Finally, only one child effect was significant: more W1 internalizing behavior predicted less W2 physical punishment. These effects held after controlling for temporal stabilities of the constructs and demographic covariates. Findings are discussed within the cultural context of the study.

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Keywords

acculturation; guilt induction; physical punishment; child temperament; prosocial behavior; internalizing and externalizing problems

Chinese American children are perceived as succeeding academically, but may be at particular risk for experiencing social-emotional difficulties (Cheah & Leung, 2011). Little attention so far has been paid to the early social-emotional development of Chinese American children and its potential contributors. Accordingly, this study focused on the development of prosociality and psychosocial problems in young Chinese American children. Specifically, we examined the longitudinal associations between two parenting practices (physical punishment and guilt induction) and children's adjustment in school (prosocial, internalizing, and externalizing behaviors). We also explored moderating mechanisms involving individual (child temperament) and cultural (maternal cultural orientations) factors in these associations. Finally, we investigated whether different child behaviors differentially elicited these parenting practices.

Parenting Practices and Child Psychosocial Outcomes

Behavioral and psychological control constructs have framed many studies which have sought to examine how parents regulate their children's behavior through firm and consistent discipline (Hart, Newell, & Olsen, 2003). As noted by Aunola and Nurmi (2005), behavioral control has been operationalized by researchers as positive control that includes monitoring children's activities and setting limits around undesirable behavior, and as negative control that includes harsh, restrictive, or punitive discipline. Alternatively, psychological control (e.g., love withdrawal, guilt induction, invalidating feelings) has typically been operationalized to reflect intrusive strategies that restrict children's emotional and psychological autonomy in order to bring about their conformance to parental expectations (Barber, 1996; Olsen et al., 2002). In the present study, we focused on one form of negative behavioral control (i.e., physical punishment) and one form of psychological control (i.e., guilt induction) in their linkages with negative and positive child psychosocial outcomes. These two parenting practices were chosen because there have been controversial findings in terms of their effects on child development, and they have largely been understudied in young Chinese American children.

Physical punishment represents a harsh form of behavioral control, and is defined as "the use of physical force with the intention of causing a child to experience pain, but not injury, for the purpose of correcting or controlling the child's behavior" (Kwok, Gu, & Cheung, 2017). This discipline strategy has been documented to be utilized by both Chinese and U.S. parents (e.g., Lansford, et al., 2005; Wu et al. 2002), and is also present in samples of immigrant Chinese parents (e.g., Fung & Lau, 2009). Some theorists (e.g., Grusec & Goodnow, 1994) have argued that physical punishment may challenge a child's sense of autonomy and security, arouse anger and hostility in the child with accompanying opposition, and undermine the child's internalization of moral norms. Indeed, a large body of empirical research indicates that physical punishment is related to more internalizing and externalizing problems in both U.S. and Chinese cultural contexts (e.g., Chen, Dong, &

Zhou, 1997; Chang, Lansford, Schwartz, & Farver, 2004; Chang, Schwartz, Dodge, & McBride-Chang, 2003; Lansford, et al. 2005; Ma & Grogan-Kaylor, 2017; D. Nelson, Hart, Yang, Olsen, & Jin, 2006; L. Nelson et al., 2006;). However, in the context of recent clarifying meta-analytic findings, Gershoff and Grogan-Kaylor (2016) point out ways that prior meta-analysis studies have provided inconsistent conclusions regarding the negative effects of physical punishment on children's psychosocial outcomes, including externalizing problems and non-compliance (e.g., Gershoff, 2002; Ferguson, 2013; Larzelere & Kuhn, 2005; Paolucci & Violato, 2004). There is also some evidence suggesting that the strength of associations between physical punishment and child behavior may be culturally/ethnically specific or moderated by other factors such as parent-child relationship quality (e.g., Deater-Deckard, Dodge, Bates, & Pettit, 1996; Lansford, et al. 2014; Polaha, Larzelere, Shapiro, & Pettit, 2004).

Few studies have addressed the influence of physical punishment on children's prosocial behavior. Cross-sectional relations between physical punishment and less prosocial behavior were found among children in Israel and Canada (Regev, Gueron-Sela, & Atzaba-Poria, 2012; Romano, Tremblay, Boulerice, & Swisher, 2005), but unique longitudinal effects of physical punishment on prosocial behavior have not been found (Knafo & Plomin, 2006). Another limitation of previous research is that some studies have blended physical punishment with other forms of harsh discipline such as yelling, scolding, and displaying anger that seem to denote relatively more hostility through parents' expression of negative emotions. In Chinese cultures, the use of physical punishment reflects an emphasis on values portrayed in hierarchical parent-child relationships where strict conformity and obedience is commonly enforced by parents via physical disciplinary means (Kwok et al., 2017). The obedience-demanding component of physical discipline in Chinese cultural context could potentially increase socially acceptable child behaviors (Yagmurlu & Sanson, 2009). Finally, previous studies often relied on cross-sectional designs, which cannot provide evidence for predictive relations between physical punishment and child behavior. Therefore, one aim of this study was to focus only on a measure of physical punishment in a short-term longitudinal design and explore the bidirectional relations between physical punishment and Chinese American children's prosocial and problem behavior.

Guilt induction, in contrast, is used by U.S. parents but more-so by Chinese parents (Wu et al. 2002), and is defined as parenting communications that appeal to the child's guilt potential by pointing out how a child's specific acts have affected others (Yu, Cheah, Hart, Sun, & Olsen, 2015). Guilt induction is often parent-focused (Hoffman & Saltzstien, 1967) and goes beyond inductive reasoning practices that introduce claims and supply rationales that support them (e.g., Brody & Shaffer, 1982; Hart, Ladd, & Burleson, 1990). This is done by personalizing stated consequences associated with child transgressions and making claims in ways that emotionally evoke guilt (e.g., telling children that their actions cause parents to worry or feel embarrassed). Since elements of inductive reasoning are involved, it is conceivable that this practice is not an unhealthy manipulation of the parent-child bond in interdependent cultures since "evoking guilt or inducing a focus on the parent's perspective helps the child acquire empathy and attunement to others' thoughts and feelings" (Fung & Lau, 2012, p. 967)." This acquired social competence may in turn promote prosocial

development and reduce peer and conduct problems if a reasonable amount of guilt associated with wrongdoing is aroused through inductive means (cf. Hoffman & Saltztein, 1967: Kochanska, 1993).

The contributions of psychologically controlling parenting (including love withdrawal, guilt induction, constraining verbal expressions, invalidating feelings, personal attack, and erratic emotional behaviors) to young children's development are understudied. Significant associations between parental psychological control and maladjustment are consistently found among adolescents from Western cultures (Barber, Stolz, & Olsen, 2005). Some studies involving Asian children have shown negative effects of parental psychological control on child and adolescent development as well (Barber et al., 2005; D. Nelson, et al., 2006; L. Nelson et al., 2006; Olsen et al., 2002; Wang, Pomerantz, & Chen, 2007). However, previous studies tend to mix items from different dimensions, such as love withdrawal, constraining verbal expressions, and invalidating feelings in Barber's (1996) measure, to create an overall psychological control construct and ignore dimensional effects (cf. Nelson, Yang, Coyne, Olsen, & Hart, 2013). When focused on relational induction forms (e.g., guilt induction) that emphasize preserving interpersonal harmony (Fung & Lau, 2012), parental psychological control has typically not been found to be associated with maladaptive child outcomes, especially in interdependent cultures (Fung & Lau, 2012; Rudy & Halgunseth, 2005).

As Barber (1996) noted, some forms of psychological control appear to have positive consequences for children, "as in the use of reasoning to encourage awareness and sensitivity to consequences, p. 3296" (cf. Grusec & Goodnow, 1994; Hart et al., 2003). Unlike harsher forms of psychological control (e.g., invalidating feelings, harsh criticism), guilt induction is considered by some researchers to be a milder form of psychological intervention that may have benign or even positive implications for children's development (e.g., Fung & Lau, 2012). Guilt induction may promote indigenous child rearing goals of maintaining interpersonal harmony, reflect parental commitment to encouraging children to attune to the feelings, needs, and perspectives of others, and is likely associated with less parental rejection in interdependence-oriented cultures (Fung & Lau, 2012; Ho, 1986; Rudy & Halgunseth, 2005; Yu et al., 2015). Although guilt induction applied in disciplinary contexts may promote positive adjustment in children (cf. Hoffman & Saltzstein, 1967), very small sample sizes in some studies (e.g., Rudy & Halgunseth, 2005) and the lack of attention given to differentiating aversive forms of psychological control (e.g., love withdrawal) from guilt induction in the measurement of relational induction (Fung & Lau, 2012) make this conjecture uncertain (Yu et al., 2015). Moreover, most of previous research focused on older children and adolescents, whereas the effects of guilt induction may be more adaptive for young children. In this study, we anticipated guilt induction to be associated with more prosocial behavior and fewer internalizing and externalizing behavior in young Chinese American children.

Child Inhibitory Control and Parenting Effects

Children vary in how responsive they are to parenting practices such that the effectiveness of various parental disciplinary strategies may depend on child's temperamental characteristics

(Kiff, Lengua, & Zalewski, 2011). Inhibitory control is a core aspect of temperamental effortful control, referring to the capacity to suppress inappropriate actions or responses (Gartstein, Putman, & Rothbart, 2012). Direct links between effortful/inhibitory control and better psychosocial adjustment have been documented cross-culturally (e.g., Eisenberg et al., 2005; Kochanska, Murray, & Coy, 1997; Zhou, Lengua, & Wang, 2009).

However, not many longitudinal studies have examined interactions between parenting and effortful/inhibitory control in predicting children's prosocial, internalizing, or externalizing behaviors. Based on a recent meta-analysis on Western studies (Slagt, Dubas, Dekovic, & van Aken, 2016), effortful/inhibitory control was not consistently shown to moderate associations between parenting and child adjustment (e.g., Karreman, Tuijl & van Aken, 2009; Lengua, 2008; Olsen, Lopez-Duran, Lunkenheimer, Chang, & Sameroff, 2011; Van Aken, Junger, Verhoeven, Van Aken, & Deković, 2007). In cases where significant interactions were found, the effects of negative parenting (including physical punishment, harsh discipline, intrusiveness, authoritarian discipline, and hostility) on child externalizing problems were stronger for children with lower levels of effortful/inhibitory control. Nevertheless, effortful/inhibitory control did not modulate effects of negative parenting on children's internalizing problems.

Therefore, we expected child inhibitory control to moderate the effects of physical punishment on children's externalizing problems but not internalizing problems. Specifically, we expected children with lower inhibitory control to be more adversely influenced by mothers' physical punishment as reflected in their display of more externalizing behavior. Poorly regulated children might react more negatively to punishment in this manner because they are less able to internalize parental rules and expectations (Lengua, 2008). We did not have a directional hypothesis for the physical punishment-by-inhibitory control interaction effect on child prosocial behavior. Moreover, as previous research has not examined guilt induction-by-effortful/inhibitory control interactions in predicting children's prosocial, internalizing, or externalizing behaviors, these examinations were largely exploratory in this study. However, our exploratory analyses were guided by the expectation that children with lower inhibitory control would be more strongly influenced by parental discipline as highlighted by previous reviews of empirical studies (Rothbart & Bates, 2006; Slagt et al., 2016). Theoretically, the moral emotion of guilt (e.g., emotional arousal and discomfort associated with transgression and witnessing others' distress) and effortful control (e.g., deliberate regulation of conduct) are two developmental mechanisms that promote conscience and prevent disruptive behaviors (Kochanska et al., 2009). Perhaps only when one mechanism is compromised (e.g., children have difficulty inhibiting their impulses for the sake of rule-compatible behavior), the alternative mechanism of guilt (assumed to be aroused by guilt induction parenting) becomes important in shaping children's prosocial and antisocial behaviors. Therefore, we predicted that effects of guilt induction on children's psychosocial development would be more positive for children with lower levels of inhibitory control.

Maternal Cultural Orientations and Parenting Effects

For Chinese immigrant parents in the U.S., the role of acculturation and enculturation (e.g., greater adoption of the American and Chinese cultural values, respectively) needs to be considered in understanding the characteristics and effectiveness of their parenting. Chinese immigrant parenting was found to be influenced by both the mainstream American and their heritage Chinese cultures (Cheah, Leung, & Zhou, 2013). In general, American culture values independence, assertiveness, and autonomy in individuals (Kim & Sherman, 2007) more than traditional Chinese culture, which instead emphasizes interdependence and emotional restraint to foster harmonious interpersonal relationships and filial piety (Chao & Tseng, 2002). Moreover, Chinese parents have been found to engage in more physical punishment and psychological control than European American parents (e.g., Wu et al., 2002), likely to maintain the values of interdependence and obedience in children. Given these cultural differences, higher maternal acculturation and lower enculturation may be associated with less use of physical punishment and guilt induction (Kim, 2007; Liu, Lau, Chen, Dinh, & Kim, 2009). Mothers' acculturation and enculturation may be both directly linked to more positive psychosocial outcomes in Chinese American children but for difference reasons. Specifically, mothers who are more behaviorally acculturated towards the mainstream culture, which values independence and individuality, may encourage children's emotional expressions, enhance their positive sense of self, thus reinforcing their adaptability and social skills at school (Huang, Calzada, Cheng, Barajas-Gonzalez, & Brotman., 2017). In contrast, mothers who are more enculturated towards their heritage culture, which emphasizes interdependence and respect towards elders, may promote children's socioemotional competencies in peer interactions and lead to fewer problem behaviors and more prosocial behaviors in school (Calzada, Brotman, Huang, Bat-Chava, & Kinston, 2009).

Furthermore, the meanings, normativeness, and acceptability of parental discipline may vary across cultures, suggesting the possible moderating role of maternal cultural orientations. Parental training and discipline in the Chinese cultural context are proposed to be intended to help children fit in with group norms, reflecting *training* ideologies that emphasize the importance of instilling self-discipline in children through parents' sacrifices, strict governance, and continual involvement (Chao, 1994). When parents adhere to *training* ideologies, negative effects of physical punishment on child behavior problems would be attenuated (Fung & Lau, 2009). Cross-cultural evidence also indicates that in cultural communities where parental discipline is more normative and considered a legitimate form of parenting, physical punishment is less strongly associated with child internalizing and externalizing problems (Lansford et al. 2005). The potential moderating role of cultural orientations is further supported by the notion that children with different cultural backgrounds may have different interpretations of parental discipline or control that in turn lead to different parenting effects on child outcomes. Western children are likely to attribute negative meaning to parental discipline (e.g., manifestations of parental hostility and aggression), whereas Asian children are likely to attribute positive meaning to parental discipline (e.g., parental concern, caring, and involvement) (Chao, 1994). Therefore, we expected that for parents more acculturated towards the American culture (or less

enculturated towards the Chinese culture), associations between physical punishment or guilt induction and children's psychosocial outcomes would be more negative.

The Present Study

In sum, we aimed to explore how individual and socio-cultural factors work together to impact Chinese American preschool children's positive (prosocial behavior) and negative (internalizing and externalizing problems) psychosocial adjustment six months later. We focused on young children because early childhood is a developmental period of intense socialization and has greater potential for early intervention. Further, previous research on guilt induction and parenting-by-child temperament interactions during the preschool period is very limited. We examined whether child inhibitory control and maternal cultural orientations moderated the effects of maternal physical punishment and guilt induction on child development. We also examined the bidirectional relations between maternal parenting and child social behavior. Child age, gender, and maternal education were included as demographic control variables that might be related to parental discipline or child psychosocial outcomes (Lau, 2010).

Method

Participants

The participants were 163 first-generation Chinese American mothers (M_{age} = 37.87, SD = 4.66) with young children (M_{age} = 4.56, SD = 0.91, 53% boys). Both parents identified themselves as first-generation Chinese immigrants, with over 90% of the children born in the U.S. (i.e. second generation). Almost all the children were from two-parent intact families (99%). Mothers had been in the U.S. for 10.75 years on average (SD = 6.17), and were originally from Mainland China (81%), Taiwan (13%), or Hong Kong (5%). Few (3%) of mothers had high school degree or lower, 29% had partial college or had a bachelor's degree, and 68% had a graduate or professional degree (e.g., masters or doctoral degree). Mothers immigrated to the U.S. for educational and work reasons (49%), to accompany their spouse or join extended family in the U.S. (43%), or to enhance their life experiences, lifestyle, or other reasons (8%). About 30% of the mothers had one child, 52% had two children, and 18% had three or more children. Half of the mothers were Christian, about 45% had no religious affiliation, and 3% were Buddhist or of another religion.

Procedure

Participants were recruited from diverse locations across the Maryland-Washington DC area, including Chinese churches, preschools, daycare centers, Chinese schools, and grocery supermarkets, in order to improve the representativeness of the sample and capture variances within Chinese immigrant families. Ethical approval for the study "Immigrant Chinese and Korean Preschooler's Social Development: The Role of Parents and Social Context" was obtained from the University of Maryland, Baltimore County Institutional Review Board (Y16CC20229). Research assistants who were fluent in the mothers' preferred language (Chinese or English) collected the maternal data during home visits. With parents' written approval, we obtained teacher ratings by calling, faxing, or emailing daycare and preschool

teachers after the home visits were completed. The first wave of data was collected on children who were 3- to 5-years old, and the second wave of data collection occurred approximately six months after the first visit (cf. Chang et al., 2004). About 6% of participants did not participate in the second wave of data collection (n = 154). The attrition was not related to any of the study variables.

Measures

All measures were available in the English and Chinese language and have been used with Chinese or Chinese American samples with acceptable psychometric properties (Nelson et al., 2006; Olsen et al., 2002: Wu et al., 2002; Yu et al., 2015; Yu, Sun, & Cheah, 2016).

Physical punishment—The revised version of the Parenting Styles and Dimensions Questionnaire (Wu et al., 2002) was used to measure maternal physical punishment at W1 and W2. Mothers described how often they exhibited each parenting behavior on a 5-point Likert scale: 1 (*never*), 2 (*once in a while*), 3 (*half of the time*), 4 (*very often*), and 5 (*always*). The physical punishment scale contains five items (e.g., "Uses physical punishment as a way of disciplining child," "Spanks when child is disobedient"), and the reliability (Cronbach's alpha) was α = .76 for W1 and α = .79 for W2.

Guilt induction—The Parental Psychological Control Measure (Olsen et al., 2002) was used to assess maternal use of guilt induction at W1 and W2. The five items used focused specifically on mothers' expression of how their child's behavior has affected them in ways that subtly induce guilt about their misbehavior. Mothers described how often they exhibited each parenting behavior on a 5-point Likert scale: 1 (*never*), 2 (*once in a while*), 3 (*half of the time*), 4 (*very often*), and 5 (*always*). Sample items include, "Makes child aware of how much I sacrifice or do for him/her," "If you really care for me, you would not do things that cause me to worry," and "Makes child feel guilty when child does not meet my expectations." The reliability of guilt induction was α = .75 for W1 and .77 for W2.

Child inhibitory control—Mothers also rated children's temperamental inhibitory control using the Child Behavior Questionnaire (Rothbart, Ahadi, Hershey, & Fisher, 2001) at W1. Mothers rated 10 items that reflect children's inhibitory control abilities on a 7-point Likert-scale from 1 (*extremely untrue of your child*) to 7 (*extremely true of your child*). Sample items include, "Is good at following instructions," and "Can wait before entering into new activities if s/he is asked to." The reliability for inhibitory control was α = .82 in this study.

Acculturation and enculturation—The Cultural and Social Acculturation Scale (Chen & Lee, 1996) was administered to measure participants' behavioral participation in their heritage Chinese culture (enculturation) and mainstream American culture (acculturation) at W1. The bilinear measure includes two subscales reflecting behavioral participation in heritage and mainstream cultures in the domains of language proficiency, living styles, and social relationships. Sample items include, "How often do you spend time with your American (or Chinese) friends," "How well do you speak in English (Chinese)," and "Do you celebrate American (or Chinese) festivals?" Mothers reported on the frequency of involvement in the described behaviors or degree of proficiency in the language using a five-

point Likert-type scale (e.g., 1 = *almost never* to 5 = *more than once a week* or 1 = *extremely poor* to 5 = *extremely well*). A total of 11 items for each subscale were averaged to create mean scores of mothers' acculturation (α = .75) and enculturation (α = .66).

Prosocialty and psychosocial problems—We assessed Chinese American children's prosocial behavior (five items), internalizing problems (nine items), and externalizing problems (eight items) using the Strengths and Difficulties Questionnaire (Goodman, 2001; Yu et al., 2016) at both W1 and W2. Teachers rated all child behaviors on a 3-point scale. Sample items for prosocial behavior include, "Helpful if someone is hurt, upset or feeling ill," and "Shares readily with other children." Sample items for internalizing behavior include, "Often unhappy, depressed or tearful," and "Rather solitary, prefers to play alone," and externalizing behavior items include, "Often fights with other children or bullies them," and "Easily distracted, concentration wanders." The reliability estimates of W1 prosocial behavior, internalizing behavior, and externalizing behavior were α's = .81, .65, and .80, respectively; and the corresponding W2 reliability estimates of these constructs were α's = 75, .71, and .79, respectively.

Analytic Plan

The path model was examined with Bayesian estimation using M*plus* 7 (Muthén & Muthén, 1998–2012). The Bayesian approach to path analysis has many advantages over frequentist analyses (Schoot et al., 2014; Muthén & Asparouhov, 2012), including more intuitive interpretation of confidence intervals, incorporating uncertainties and prior knowledge, reducing worries about small sample sizes, and providing more accurate results for non-normal parameters (e.g., interaction terms). For instance, the credibility interval (CI) under the Bayesian framework actually reflects a 95% probability that in the population the parameter lies between the lower and upper limits, whereas the correct interpretation for the classic frequentist-based confidence interval is that 95 out of 100 replications of exactly the same study capture the true fixed parameter (Schoot et al., 2014). We used prior knowledge based on studies of physical punishment and effortful/inhibitory control interactions and used the default prior distributions in M*plus* (i.e., normal distributions with a prior mean of zero and an infinitive large prior variance) for other parameters. Less than 6% of data were missing, which were assumed missing completely at random (MCAR) inferred by non-significant Little's MCAR test (Little, 1988), χ^2 (30, N = 163) = 25.04, p = .723. In Bayesian analysis, missing data values are viewed as parameters to be estimated; such Bayesian estimation of missing data like other advanced missing data techniques (e.g., full information maximum likelihood) outperforms traditional deletion methods (Buhi, Goodson, & Neilands, 2008). When there was a significant interaction, the MODEL CONSTRAINT command in M*plus* was used to probe the simple slopes of parental discipline at different levels of child inhibitory control or maternal cultural orientation.

Results

Preliminary Analysis

Table 1 displays descriptive statistics of and the zero-order correlations among the study variables. The temporal stability of parenting practices and child outcomes was revealed by

significant correlations (ranging from .21 to .70) between the same constructs across time. Among the main constructs within W1, maternal physical punishment was positively correlated with enculturation, whereas it was negatively correlated with child inhibitory control. W1 guilt induction was positively correlated with maternal enculturation and child prosocial behavior. Moreover, child inhibitory control was positively correlated with child prosocial behavior at W1, but negatively correlated with child externalizing behavior. Within W2, guilt induction was negatively correlated with child internalizing behavior. The cross-time correlations showed that W1 maternal physical punishment was correlated with more W2 child externalizing behavior, whereas W1 maternal guilt induction was correlated with more W2 prosocial behavior and less W2 internalizing problems. Child inhibitory control at W1 was negatively correlated with both internalizing and externalizing behaviors. W1 child inhibitory control, less maternal enculturation, and internalizing behavior were all significantly related to less W2 physical punishment. Finally, maternal enculturation was positively correlated with W2 guilt induction and negatively correlated with W2 child internalizing behavior.

Bayesian Estimation of the Path Model

The final model converged at a convergence value of 0.05 and achieved adequate model fit, with Posterior Predictive P-Value (*ppp*) equal to .33 (Figure 1). For parenting effects on child prosocial behavior, W1 child inhibitory control interacted with maternal guilt induction (β = −.16, Posterior *SD* = .08, 95% CI [−.32, −0.01]) to predict W2 child prosocial behavior (R^2 = .19, Posterior *SD* = .05, 95% CI [.10, .30]) after controlling for W1 prosocial behavior (β = .20, Posterior *SD* = .07, 95% CI [.06, .34]). We probed the simple effect of W1 maternal guilt induction on W2 child prosocial behavior at low (one *SD* below the mean), mean, and high (one *SD* above the mean) levels of child inhibitory control. As shown in Figure 2, W1 maternal guilt induction was significantly associated with more W2 child prosocial behavior at low (β = .21, Posterior *SD* = .10, 95% CI [.01, .41]) levels of child inhibitory control but not at mean (β = .06, Posterior *SD* = .09, 95% CI [−.10, .23]) or high levels (β = −.08, Posterior *SD* = .12, 95% CI [−.30, .15]) of inhibitory control. No other factors significantly predicted W2 prosocial behavior. There was a gender difference on W1 prosocial behavior, with girls being more prosocial than boys (β = .19, Posterior *SD* = .08, 95% CI [.03, .34]).

For parenting effects on W2 internalizing behavior (R^2 = .21, Posterior *SD* = .06, 95% CI [. 11, .33]), none of the interactions were significant, but there were main effects of maternal use of guilt induction (β = −.22, Posterior *SD* = .09, 95% CI [−.38, . −.04]), maternal physical punishment (β = .19, Posterior *SD* = .09, 95% CI [.01, .36]), child inhibitory control (β = −.18, Posterior *SD* = .08, 95% CI [−.33, −.01]), and maternal enculturation (β = −.21, Posterior *SD* = .08, 95% CI [−.36, . −.04]), after controlling for the temporal stability of the construct (β = .17, Posterior *SD* = .07, 95% CI [.03, .30]).

For parenting effects on child externalizing behavior (R^2 = .36, Posterior *SD* = .06, 95% CI [.24, .48]), there were main effects of maternal acculturation (β = .17, Posterior *SD* = .07, 95% CI [.03, .31]) and child inhibitory control (β = −.26, Posterior *SD* = .08, 95% CI [−.41, −.11]). However, both effects were qualified by their significant interactions with physical

punishment (for Physical Punishment × Maternal Acculturation: $\beta = .14$, Posterior $SD = .06$, 95% CI [.02, .26]; for Physical Punishment × Inhibitory Control: $\beta = -.17$, Posterior $SD = .07$, 95% CI [−.30, −.04]). Because we considered maternal acculturation and child inhibitory control as the moderators of parenting effects theoretically, we probed the simple slopes of physical punishment on child externalizing behavior at low, mean, and high levels of these constructs.

As shown in Figure 3, W1 maternal physical punishment was not significantly associated with W2 child externalizing behavior at low ($\beta = .04$, Posterior $SD = .09$, 95% CI [−.12, .21]) or mean levels ($\beta = .13$, Posterior $SD = .08$, 95% CI [−.02, .29]) of maternal acculturation, whereas at high levels of maternal acculturation, physical punishment was significantly associated with more W2 child externalizing behavior ($\beta = .22$, Posterior $SD = .09$, 95% CI [.05, .40]). As shown in Figure 4, W1 maternal physical punishment was significantly associated with more W2 child externalizing behavior at low levels of child inhibitory control ($\beta = .29$, Posterior $SD = .10$, 95% CI [.10, .48]) but was not significantly associated with externalizing behavior at mean levels ($\beta = .13$, Posterior $SD = .08$, 95% CI [−.02, .29]) or high levels of child inhibitory control ($\beta = -.02$, Posterior $SD = .10$, 95% CI [−.22, .18]). Furthermore, there was a unique negative main effect of maternal enculturation on W2 externalizing behavior ($\beta = -.18$, Posterior $SD = .07$, 95% CI [−.32, −.03]). All these effects held after controlling for the temporal stability of externalizing behavior ($\beta = .28$, Posterior $SD = .06$, 95% CI [.16, .41]).

For child effects on parenting, only W1 child internalizing behavior ($\beta = -.14$, Posterior $SD = .07$, 95% CI [−.28, −.01]) significantly predicted less W2 physical punishment ($R^2 = .47$, Posterior $SD = .06$, 95% CI [.34, .59]) after controlling for W1 physical punishment ($\beta = .64$, Posterior $SD = .05$, 95% CI [.53, .73]). Mothers with higher education were less likely to use physical punishment ($\beta = -.14$, Posterior $SD = .06$, 95% CI [−.26, −.02]). Child age positively predicted maternal guilt induction ($\beta = .13$, Posterior $SD = .06$, 95% CI [.01, .25]), but none of the child behaviors predicted guilt induction ($R^2 = .52$, Posterior $SD = .06$, 95% CI [.39, .63]) after controlling for its temporal stability ($\beta = .61$, Posterior $SD = .06$, 95% CI [.49, .71]).

Discussion

This study examined the short-term longitudinal effects of individual, familial, and cultural factors (i.e., child inhibitory control, parenting, and maternal cultural orientations) on Chinese American children's prosocial development and psychosocial problems as well as child effects on maternal parenting. We found that maternal physical punishment predicted more internalizing problems in children, whereas maternal guilt induction predicted less internalizing behavior in children. Moreover, child inhibitory control and maternal enculturation were both associated with lower levels of child internalizing and externalizing behaviors in children. For interaction effects, mothers' behavioral acculturation and child inhibitory control moderated the effects of maternal physical punishment on children's externalizing behavior. Child inhibitory control also moderated the relation of maternal guilt induction and children's development of prosocial behavior. Finally, more child internalizing behavior was associated with less use of physical punishment over time.

Physical Punishment, Maternal Acculturation, and Child Inhibitory Control

Mothers in our study were first-generation Chinese immigrants whose engagement of physical punishment may be accompanied by different parenting cognitions and emotions as compared with those of their European American peers, depending on how much they were acculturated to the American culture. In Western cultural contexts, power-assertive parenting practices tend to be associated with anger and negative views of the child (e.g., willfully non-compliant), whereas in Chinese culture such practices may be related to more positive long-term parenting goals (e.g., easing their integration into society later) and views of the child (e.g., inherently good and malleable) (Grusec & Kuczynski, 1997). When Chinese immigrant mothers participated less in the mainstream American culture, their use of physical punishment did not predict younger children's externalizing problems, perhaps because these families were largely influenced by the "baggage" they carried over from their heritage Chinese culture where physical discipline is more acceptable (Lau, 2010) and accompanied by more positive parenting cognitions and motivations (Grusec & Kuczynski, 1997).

This finding is consistent with studies that suggest less detrimental effects of physical punishment in conditions of greater perceived normativeness of physical discipline (e.g., Lansford et al., 2005). In contrast, when Chinese immigrant mothers were highly acculturated towards the American culture, their use of physical punishment predicted more externalizing problems in their children over time. Chinese immigrant mothers who reported high behavioral participation in the mainstream culture (e.g., better English language proficiency and engaging in more interactions with European Americans) may be more likely to receive socialization messages from the larger mainstream culture regarding the negative evaluations of physical discipline. If these mothers are aware of the potential harm and unacceptability of physical punishment in the American culture but still engage in such practices, their physical discipline might be accompanied by hostile emotional expressions and motivations, and thus contributing to negative outcomes in children.

The exacerbating effects of physical punishment on child externalizing behavior were also limited to children with low inhibitory control capabilities but not those with high inhibitory control, consistent with the general pattern of parenting-by-effortful/inhibitory control interactions found in previous research (Slagt et al., 2016). The critical role of self-regulation in children's psychosocial development has been revealed in both Western and Eastern cultures (e.g., Zhou et al., 2009). When experiencing punitive discipline, high levels of inhibitory control may protect Chinese American children from developing more externalizing problems. However, young children with low inhibitory control lack competence in regulating their behavioral impulses, and physical punishment may arouse more anger and hostility in these children, leading to opposition, unwillingness to comply with parents, and a display of more externalizing problems (Grusec & Goodnow, 1994). These interaction results may shed some light on previous contradictory findings in the associations between physical punishment and child development within the existing literature.

The positive relation of physical punishment and child internalizing problems was significant, regardless of maternal acculturation or child inhibitory control levels. Physical

punishment may threaten the child's feeling of security and increase helplessness and avoidance in children, leading to more internalizing problems. Although physical punishment has not been consistently found to be associated with more internalizing problems in the Chinese cultural context (e.g., Kwok et al., 2017), our findings are consistent with the larger literature showing detrimental effects of physical punishment on children's development in Western cultural contexts (Gershoff, 2016). Thus, Chinese immigrant parents' use of physical punishment to discipline their children appears to have negative consequences in the U.S.

Guilt Induction and Inhibitory Control

Our finding of the longitudinal association between guilt induction and less internalizing behavior in Chinese American children is inconsistent with previous literature on the detrimental effects of psychological control on Chinese preschool children (e.g., L. Nelson et al., 2006). Parent-oriented guilt induction in this study appears to be a gentler form of psychological control and may foster children's social competence and desire to interact with others (Laible et al., 2017) such that they were less likely to be anxious, unhappy, or withdraw from peer interactions. In line with scholarship suggesting that psychological processes inherent in child socialization may have qualitatively different meanings in specific cultural contexts (e.g., Chao & Tseng, 2002), the use of guilt induction in Chinese families may be a way of teaching children how to comport with collectivistic cultural norms in ways that stimulate filial obligations to respect and care for parents (e.g., Ho, 1986). Guilt induction may thus help children gain an appreciation and understanding of parents' sacrifices and efforts in promoting their well-being, which in turn drive children to reciprocate through proper conduct in school (Fung & Lau, 2012). The finding is consistent with research showing that guilt-proneness is associated with a greater tendency to take responsibility for transgressions, and guilt is more desirable in East Asian cultures where children's guilt-proneness is higher than U.S. children (Furukawa, Tangney, & Higashibara, 2012). However, the positive effects of guilt induction may not go beyond the early developmental period because there is research showing that older children and adolescents, who are developmentally seeking more autonomy and independence, are less accepting of maternal guilt induction and more likely to attribute malicious intentions to this parenting discipline compared to younger children (e.g., Rote & Smetana, 2017).

Furthermore, children's inhibitory control moderated the prediction of mothers' use of guilt induction on their development of prosocial behavior. At low levels of inhibitory control, mothers' use of guilt induction was significantly associated with teacher reports of children's engagement in more prosocial behavior in the classroom. Children low on inhibitory control were more susceptible to the effects of parenting, probably because they had difficulty in managing impulses and could thus benefit more from parenting that provided structure in accomplishing their internalization of sociomoral rules (Karreman et al., 2009). Chinese immigrant mothers may use parent-oriented guilt induction to foster culturally-valued characteristics in their young children, such as being aware of and accommodating to others' thoughts and feelings. Young Chinese American children with low inhibitory control might lack internal control and tend to feel anxiety or discomfort when exposed to the distress of others, and need external guidance from parents to transform

their personal distress to other-oriented empathic concern and accompanying prosocial actions (Eisenberg et al., 1989; Zahn-Waxler, Robinson, & Emde, 1992). Guilt induction appears to be, within this temperamental and cultural context, an effective parental discipline practice for promoting children's engagement in helping, sharing, or comforting, consistent with prior research indicating the importance of other-oriented reasoning and guilt to the development of preschool children's prosociality (Hart, DeWolf, & Burts, 1992; Hart, DeWolf, Wozniak, & Burts, 1992; Kochanska, 1993). Further replications are needed before conclusions can be made regarding the positive effects of guilt induction and to determine if these effects are culturally unique.

Child Effects on Parenting

The only child-driven effect was found in the association between W1 child internalizing problems and W2 maternal physical punishment such that the more emotional symptoms and social withdrawal children displayed in school at W1, the less likely their mothers were to use physical punishment at W2 to discipline their children. This finding indicates that these Chinese immigrant mothers were responsive to child characteristics in choosing disciplinary methods. For example, if children are fearful and timid, more feelings of concern and less punishment orientation may be evoked in parents in order not to further challenge their insecure child (Chen et at., 1998). The general pattern of fewer child effects compared to parenting effects is consistent with some previous studies (e.g., Eisenberg et al., 2005; Wang et al., 2007). Therefore, although we found some evidence for the bidirectional relations between parenting and child characteristics, parent-driven effects were more dominant in early childhood, relative to child-driven effects. The stronger parental influence on children versus child effects on parenting during the preschool period might be due to young children' greater dependence on their parents who are highly salient socializers during earlier compared to later developmental stages (Eisenberg et al., 2005; Frick, Christian, & Wootton, 1999).

Maternal Enculturation

Maternal behavioral enculturation did not significantly moderate the effects of any parenting practices on children's developmental outcomes. One possible reason for this result is that most first-generation immigrant mothers have higher levels and less variability in enculturation than acculturation levels (e.g., Costigan & Koryzma, 2011), as was also found in our sample. Therefore, how much mothers acculturate towards the mainstream American culture may be more likely to differentiate first-generation immigrant mothers than the degree to which they maintain their heritage Chinese culture. This finding is also consistent with the larger body of research that has found stronger implications of immigrants' orientation toward the mainstream culture for their psychological adjustment and parenting practices than their orientation towards their heritage culture (e.g., Hwang & Ting, 2008; Yu, Cheah, & Calvin, 2016). Interestingly, however, maternal enculturation was directly associated with lower levels of child internalizing and externalizing problems at W2. These beneficial direct effects of maternal enculturation may reflect the adaptive value of maintaining one's heritage culture in protecting their children from developing social, emotional, and behavioral problems as well as the significance of the biculturalism for immigrant families' adjustment (Nguyen & Benet-Martínez, 2013; Yu et al., 2016). It is

worth noting that other mechanisms not explored in this study may further explain the unique effects of maternal acculturation versus enculturation on the social adjustment of Chinese American children.

Limitations and Implications

There are several limitations of this study that need to be considered. First, our sample was highly educated and small in size, which limited our ability to generalize our findings to other populations or to detect small interaction effects. Research on more socioeconomically diverse and larger Chinese immigrant samples is warranted. The second limitation concerns the research design: the time interval of six months between the two measurements is short and may not have allowed for the bidirectional influence of parenting practices and child behaviors to fully unfold. Future studies should assess these constructs in multiple lags to model different magnitudes of parenting effects as a function of the intervals. Despite this shortcoming, our short-term longitudinal design still allowed us to control for construct stability of parenting and child outcomes. The final limitation concerns the measurement of only maternal parenting practices and cultural orientation. Given that there are potential differences in immigrant mothers' and fathers' cultural adaptation and parenting practices (e.g., Costigan & Dokis, 2006), future research should examine the role of both parents to better understand these processes.

Despite these limitations, the findings from this study highlight specific ways in which maternal physical punishment and guilt induction, in conjunction with child temperament and maternal cultural orientations, are associated with children's prosociality and psychosocial problems. Using a short-term longitudinal design and Bayesian analytic approach, we were able to robustly test the effects of two parenting practices and identify the moderating role of child inhibitory control and maternal acculturation in shaping the effects of parenting on Chinese American children's adjustment. The testing of these moderations provided more specificity in our theoretical understanding of the specific contexts within which physical punishment and guilt inductive parenting can impact children's development.

In practice, the findings can inform parents and service providers that the effects of various maternal disciplinary practices may depend on the child's own characteristics and the broader social-cultural context. In general, there seem to be some positive implications of parent-oriented guilt induction for young Chinese American children, but physical punishment should be used cautiously in the Western context. Moreover, supporting immigrant mothers' behavioral participation in both the mainstream and their heritage cultures may promote ethnic minority immigrant children's positive development. Finally, these findings may raise awareness and understanding of the diverse ways that parents of different cultural and ethnic groups effectively parent their children, which can inform parenting-focused early education and intervention programs in providing culturally sensitive services to immigrant families in the U.S.

Acknowledgments

This research was conducted at the Department of Psychology, University of Maryland, Baltimore County, and was supported by Foundation for Child Development and the National Institute of Child Health and Human

Development (1R03HD052827-01) awarded to Charissa S. L. Cheah, and the Marjorie Pay Hinckley Endowed Chair and the Zina Young Williams Card Professorship at Brigham Young University awarded to Craig H. Hart.

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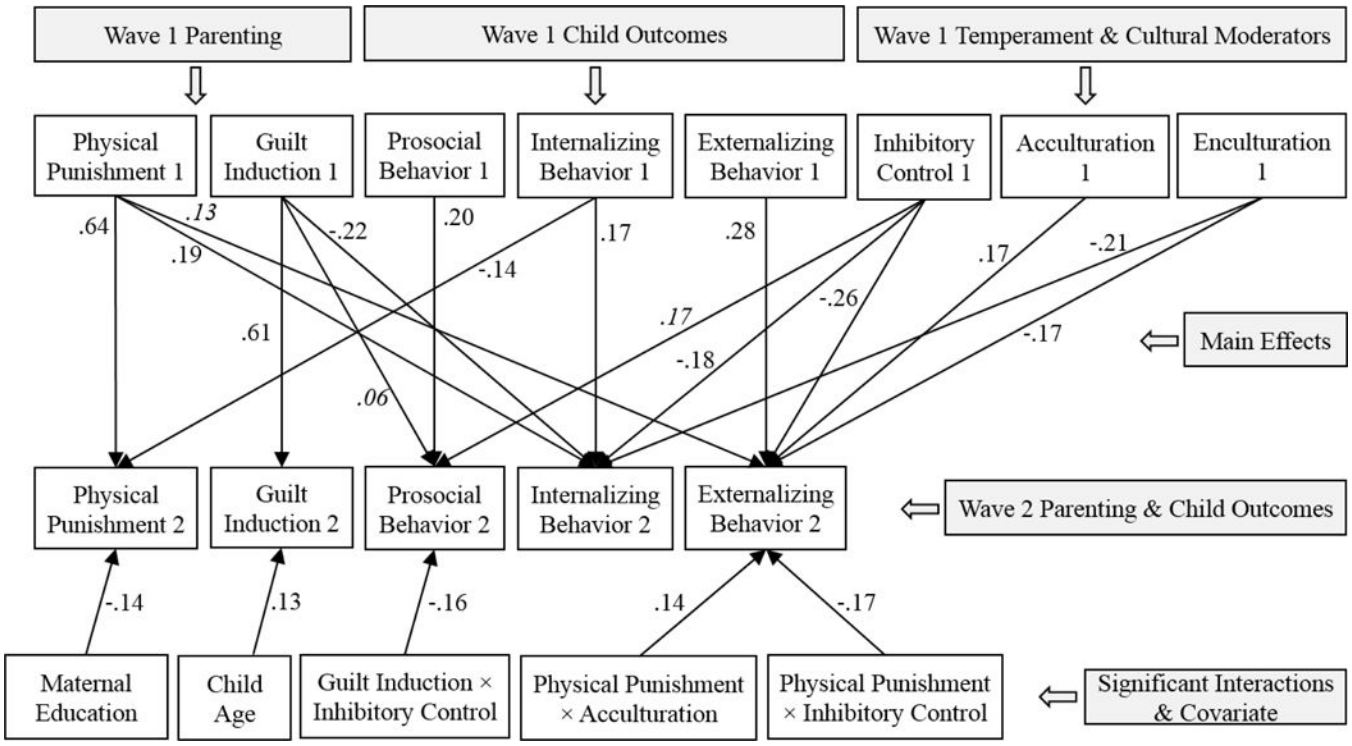

Figure 1.

The Final Results of the Cross-Lagged Model. Numbers represent standardized path coefficients. To facilitate visual readability, only significant standardized coefficients based on 95% CI or non-significant main effects (*italicized*) that are part of the significant interactions are presented in the figure.

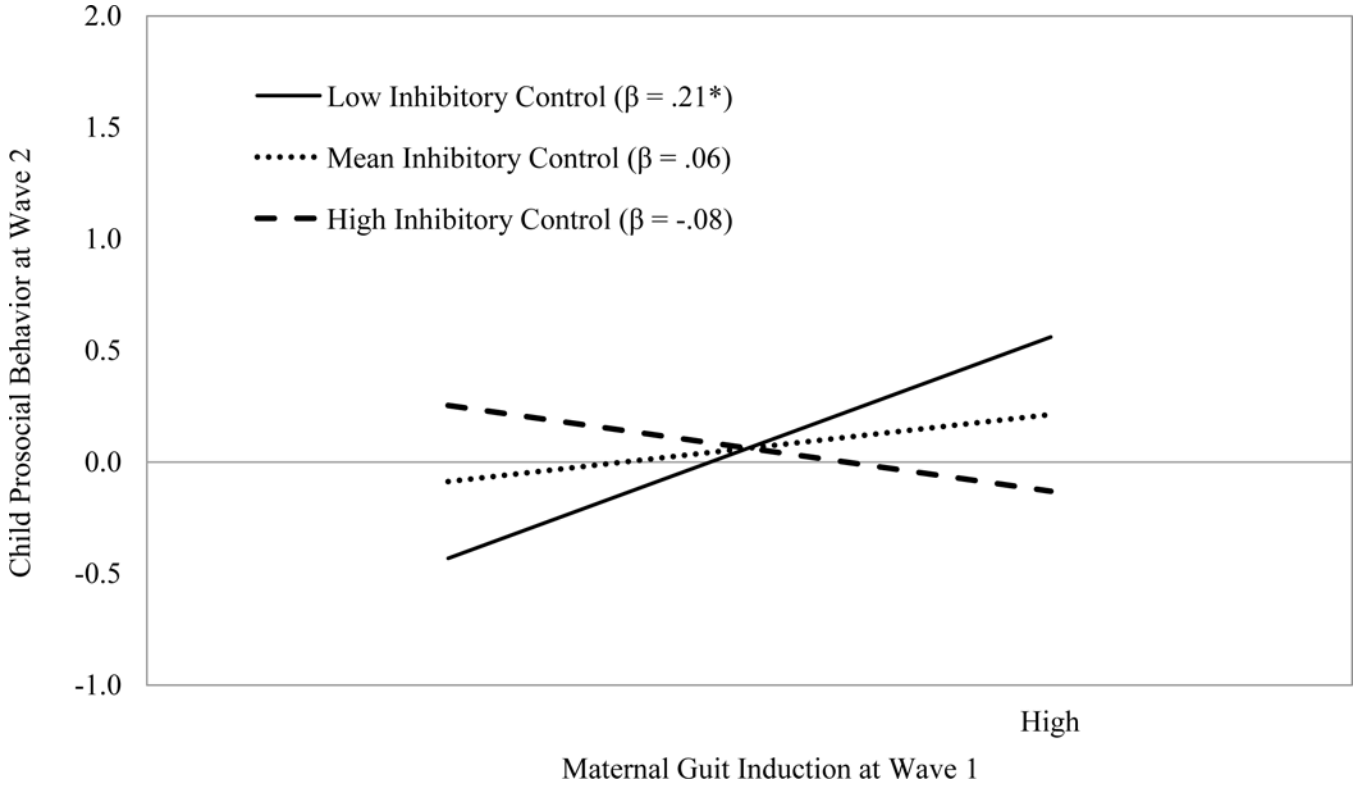

Figure 2.
The simple slopes of W1 maternal guilt induction predicting W2 child prosocial behavior for children with different levels of inhibitory control abilities.

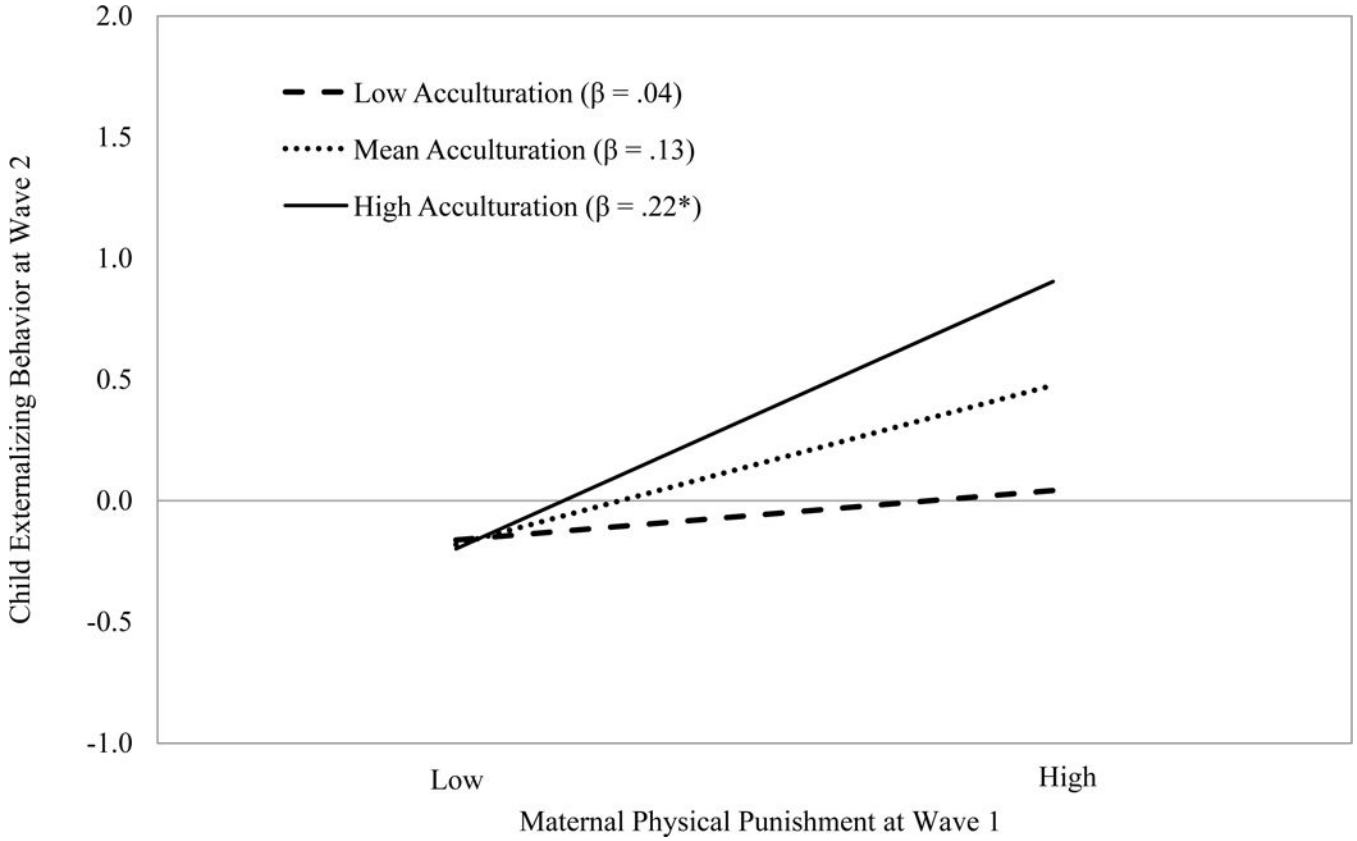

Figure 3.

The simple slopes of W1 maternal physical punishment predicting W2 child externalizing behavior at different levels of maternal acculturation.

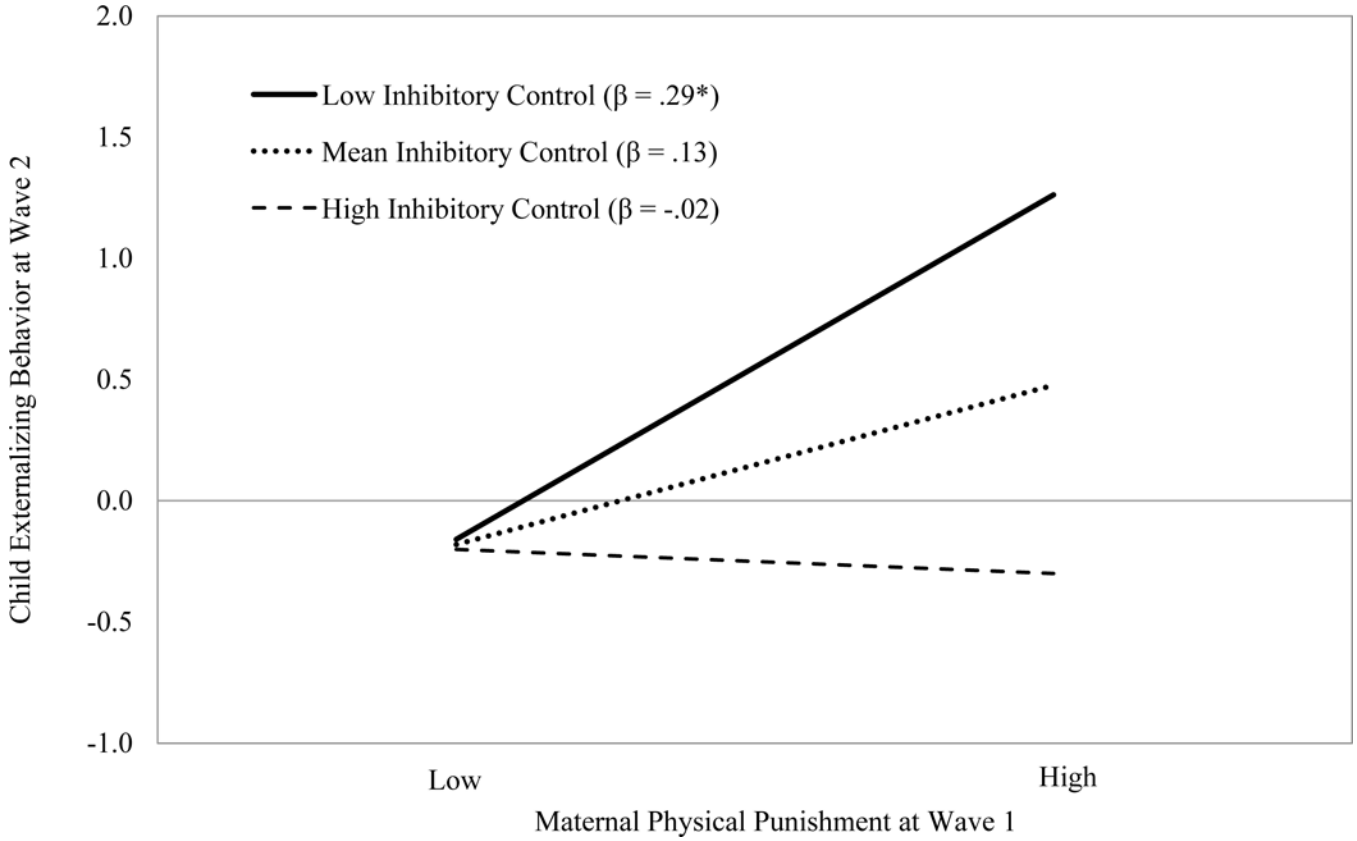

Figure 4.

The simple slopes of W1 maternal physical punishment predicting W2 child externalizing behavior at different levels of child inhibitory control.

Table 1

Descriptive Statistics and Correlations of the Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. W1 Physical punishment	–															
2. W1 Guilt induction	.37***	–														
3. W1 Inhibitory control	−.25**	−.11	–													
4. W1 Acculturation	.02	.002	.10	–												
5. W1 Enculturation	.21**	.17*	−.01	.13	–											
6. W1 Child age	.05	.17*	.09	−.02	−.18*	–										
7. W1 Child gender	−.01	.004	.10	−.02	.08	−.02	–									
8. W1 Maternal education	−.02	−.19*	.02	.36***	−.01	.05	.06	–								
9. W1 Prosocial	.08	.18*	.25**	−.02	.04	.08	.20*	−.02	–							
10. W1 Internalizing	−.11	−.09	−.08	−.12	−.09	−.02	.01	−.14	−.36***	–						
11. W1 Externalizing	.03	−.08	−.36***	−.05	.01	−.23**	−.15	.01	−.39***	.34***	–					
12. W2 Physical punishment	.63***	.48***	−.20**	−.01	.16*	.08	−.03	−.12	.04	−.18*	.02	–				
13. W2 Guilt induction	.29***	.70***	−.14	−.04	.20**	.22**	.02	−.06	.20*	−.13	−.08	.43***	–			
14. W2 Prosocial	.13	.15*	.06	−.05	.12	.04	.07	−.01	.29**	−.12	.01	.10	.15*	–		
15. W2 Internalizing	.08	−.17**	−.19*	.01	−.21*	−.13	−.11	−.09	−.26*	.20*	.05	.02	−.15*	−.35**	–	
16. W2 Externalizing	.18*	−.01	−.39***	.08	−.11	−.08	−.18*	.01	−.27**	.15	.36***	.06	−.03	−.21**	.43***	–
Mean	1.74	1.89	4.82	3.00	3.71	4.56	0.50	6.58	7.54	1.18	1.57	1.66	1.96	6.27	1.12	1.67
SD	0.53	0.68	0.89	0.65	0.56	0.97	0.50	0.72	2.31	1.19	1.65	0.50	0.68	1.86	1.22	1.63

Note.

* $p < .05$.

** $p < .01$.

*** $p < .001$.