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Longitudinal Relations among Child Temperament, Parenting, and Acculturation in Predicting
Korean American Children's Externalizing Problems

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Abstract

Objectives: This study examined the transactional associations among maternal warmth, child temperamental inhibitory control, child externalizing behaviors, and maternal American acculturation in Korean immigrant families with young children across three time points, each 6-months apart. **Methods:** Korean immigrant mothers ($M_{\text{age}} = 35.93$ years, $SD = 3.68$) and their preschool-aged children ($M_{\text{age}} = 4.30$ years, $SD = 0.98$) in the U.S. participated ($n = 199$ at Wave 1, $n = 138$ at Wave 2, and $n = 105$ at Wave 3). Mothers reported on their family demographics, maternal warmth, maternal American acculturation, and children's temperamental inhibitory control. Teachers reported on children's externalizing problems. **Results:** Moderate to strong stabilities within each construct across time and within-time covariations among the constructs were revealed. Transactional relations between parent and child were not found. However, Wave 1 maternal American acculturation significantly influenced their level of Wave 2 maternal warmth. Wave 2 maternal warmth predicted increases in Wave 3 child temperamental inhibitory control. Maternal warmth at Wave 2 statistically mediated the association between Wave 1 maternal acculturation and Wave 3 child inhibitory control. **Conclusions:** Our findings highlight the importance of examining the complex mechanisms driving the associations among child, parenting, and cultural factors in promoting positive child characteristics and parenting practices.

Keywords: Korean immigrant, temperamental inhibitory control, externalizing behaviors, parenting warmth, acculturation

Public Significance Statements: Children's development is influenced by complex interactions involving various socialization processes. Our findings suggest that children's temperamental characteristics are susceptible to parenting influence during early childhood and that maternal acculturation directly influences parenting in immigrant families.

Background

The continuation of adjustment problems in young children is known to be contingent on child characteristics, children's experiences with their parents, and the socio-cultural context in which they are reared (e.g., Hinde, 1987; Rubin et al., 2003). Korean Americans are the fifth largest segment of the Asian American population with a population of about 1.9 million (U.S. Census Bureau, 2020). Despite being portrayed as "model minorities," Korean American adolescents have been found to experience adjustment difficulties (e.g., high levels of social, mental health, and attention problems; Kim et al., 2016). However, little is known about mechanisms that contribute to young Korean American children's adjustment problems, despite the benefits of preventing and intervening in potentially maladaptive developmental processes during the early years (McCabe & Altamura, 2011). The present study focused on child externalizing behaviors (problem behaviors), child temperamental inhibitory control (individual child characteristic), maternal warmth (parenting factor), and maternal acculturation (cultural factor).

The Relations among Child Characteristics, Parenting, and Culture

According to Sameroff and Chandler (1975)'s transactional model, the development of the child is a product of continuous dynamic transactions between the child's own characteristics and experiences provided by the family and the social context (Sameroff & Chandler, 1975; Sameroff & MacKenzie, 2003). Based on the proposition of this model, we conceptualized the development of child adjustment issues (e.g., externalizing problems) as a product of the continuous reciprocal influence between child temperamental characteristic and parenting. Bornstein's (2009) transactional model positing bidirectional associations between culture and parents and between parents and children further highlights the importance of considering culture

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in parent-child relationships. The form and function of parenting practices may vary by cultural contexts because the meaning of different behaviors can be determined by the cultural setting (Bornstein, 2009). In addition, the specificity principle dictates that the distinct experiences parents have and provide for their children at certain times exerts effects in specified ways on specific aspects of child development (Bornstein, 2002, 2006, 2009). Accordingly, we examined how Korean immigrant mothers' specific experience (acculturation) influences specific parenting behaviors (maternal warmth) in relation to specific child characteristics and outcomes (temperamental inhibitory control and externalizing behaviors) in the mainstream cultural context over time.

Korean Immigrant Families

Many Korean immigrant families living in the United States simultaneously experience the more heritage interdependent-focused Korean culture in the home and co-ethnic community as well as the more independent-focused mainstream American culture (e.g., Kim, 2011). Studies have found that Korean immigrant parents who are socialized with Korean interdependent-focused cultural values want their children to maintain at least some aspects of their traditional Korean values and customs (Kim, 2008; Kim & Wolpin, 2008). As a result, Korean immigrant parents socialize their children to be more passive and obedient at home, reflecting collectivistic cultural values (Kim et al., 2012). However, at the same time, Korean immigrant parents recognize the need for their children to socialize within the mainstream American culture at school and in other non-co-ethnic social spheres (Kim & Wolpin, 2008; Kim, 2011). Accordingly, Korean immigrant parents of younger children modify some areas of their parenting that they believe to be necessary and potentially helpful to their children growing up in the mainstream American society, such as expressing more verbal and physical affection (Choi

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& Kim, 2011). First-generation Korean immigrant parents of young children may be willing to reconstruct their parenting because they often times migrate to the United States to seek better opportunities for their children's education (Kim & Min, 1992; Yoon et al., 2010). Korean immigrant mothers are generally expected to support their children's success due to the Korean cultural notion of being a "wise mother and good wife" (Seo et al., 2020). However, little is known about how maternal acculturation, parenting behaviors and practices, and their children's adjustment outcomes are longitudinally associated.

Adjustment Problems in Early Childhood

Socio-emotional and behavioral problems can begin in early childhood (Egger & Angold, 2006). For instance, externalizing forms of behaviors (e.g., aggression, hyperactive, and disruptive behaviors) are present as early as two years of age (e.g., Cummings et al., 1989; Hay et al., 2000). Moreover, physical aggression in kindergarten is found to reflect the continuation of a behavior pattern that began in the preschool years (Côté et al., 2006). Consistent with these findings, Basten et al. (2016) reported that children with problem behaviors at ages 1.5 and 3 were at an increased risk for experiencing similar problems again at age 6. Therefore, we examined children's adjustment problems early on when children's behaviors are most malleable (Webster-Stratton & Reid, 2004), which is important for the development of intervention and prevention strategies.

Child Adjustment, Child Temperamental Inhibitory Control, and Maternal Warmth

Externalizing symptoms (e.g., aggression, hyperactive, impulsivity, inattention, and disruptive behaviors) represent the most common forms of childhood maladjustment (Campbell et al., 2000). Children with high externalizing problems tend to have low temperamental inhibitory control, and vice versa (Eisenberg et al., 2001; 2004; Gagne et al., 2011).

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Temperamental inhibitory control, a core aspect of temperamental effortful control, refers to the capacity to suppress inappropriate actions or responses (Gartstein et al., 2012). Direct associations between inhibitory control and better psychosocial adjustment, including lower externalizing behaviors, have been documented cross-culturally (e.g., Eisenberg et al., 2005; Huang et al., 2017; Kochanska et al., 1997; von Suchodoletz et al., 2011; Zhou et al., 2009).

Maternal warmth is critical to children's adaptive behaviors across cultures (e.g., Jones et al., 2008; MacDonald, 1992). Warm parenting behaviors include demonstrations of affection and love, acceptance, involvement and interest in children's activities and lives, and provisions of praise toward children's endeavors and accomplishments (Amato, 1990; Rohner, 2004; Wu et al., 2002). Parental warmth is a key dimension of positive parenting (Deater-Deckard et al., 2011; Schaefer, 1965) and can enhance child temperamental inhibitory control and diminish externalizing problems during early childhood (Eisenberg et al., 2010). Warm parenting has been associated with fewer child externalizing problems across different cultural and socioeconomic groups (e.g., Berkien et al., 2012; Chen et al., 2000; Harrist & Waugh, 2002). Therefore, in this study, we considered maternal warmth to be a potential contributor to lower levels of child externalizing behaviors and higher levels of inhibitory control.

When parents are warm, children also tend to internalize their parents' requests for desirable behavior and are more likely to control their emotions and behaviors (Eisenberg et al., 2005; Reuben et al., 2016). Korean immigrant parents are often characterized as being less expressive in parental warmth due to the traditional valuing of emotional reservedness within the hierarchical Korean familial structure (Kim et al., 2012). However, previous studies have found that Korean immigrant mothers tend to use more praise and engage in more hugging and kissing with their children as they adapt to the American society (Kim et al., 2012; Kim & Hong, 2007;

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Seo et al., 2017). Moreover, Korean immigrant mothers' use of physical affection is positively concurrently associated with their children's social competence (Kim et al., 2010).

Most studies examining associations between maternal warmth and child social behavior in Asian immigrant samples have been cross-sectional in design. Transactional models that examine how child temperament and parenting mutually influence one another to shape child behaviors over time have been less utilized in Asian immigrant studies (Sameroff, 2009; Kiff et al., 2011). Maternal warmth is known to facilitate children's ability and motivation for behavior regulation (von Suchodoletz et al., 2011). Children, in turn, who regulate their behaviors perpetuate increasingly positive and satisfying parent-child interactions (Grusec & Davidov, 2007). Accordingly, child temperamental inhibitory control may elicit warm and positive parenting from Korean immigrant mothers as they perceive this temperamental characteristic to be adaptive in both Asian and Western cultures (e.g., Eisenberg et al., 2005; Kiff et al., 2011; Lee et al., 2012). In interdependent cultures, such as Korean culture, children's inhibitory control is encouraged for fostering relatedness and the maintenance of interpersonal harmony.

Alternatively, inhibitory control is promoted in independent cultures to nurture more autonomy and individual achievement (Trommsdorff, 2012). Moreover, previous research has suggested that maternal warmth may bidirectionally interact with child temperamental inhibitory control to shape lower levels of child externalizing behaviors over time (Kiff et al., 2011; Sameroff, 2009). Accordingly, we examined the transactional relations among maternal warmth, child temperamental inhibitory control, and child externalizing behaviors over time. We expected to find reciprocal influential relations among these variables in the current study.

Maternal Acculturation

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Acculturation involves changes in a person's customs, habits, activities, language, and values over time due to contact between individuals in two or more cultural groups (Bornstein, 2017; Gibson, 2001). Acculturation is a multidimensional construct that involves retention of the heritage culture and acquisition of the receiving culture with respect to the components that are assumed to change (e.g., language use, media preferences, and social affiliations; Berry et al., 2006; Schwartz et al., 2010). In this study, we focused on Korean immigrant mothers' behavioral acculturation toward the American mainstream culture because it has been found to be more strongly related to facilitating Asian immigrant parents' engagement in warm parenting practices than mothers' behavioral maintenance of their heritage culture (Yu et al., 2016; Kim et al., 2014; Yoon et al., 2021).

Indeed, Korean immigrant mothers' behavioral acculturation towards the American culture was found to be positively related to parental warmth, while their Korean cultural orientation was positively related to Korean culture-emphasized parenting (e.g., interdependence; Yoon et al., 2021). Parental warmth is therefore expected to be more strongly associated with American acculturation than Korean cultural orientation, perhaps because parental warmth is more normative and encouraged in Western cultures than in Asian cultures (Cheah et al., 2015). In fact, Korean immigrant mothers with higher levels of acculturation toward the American culture have been found to use more warmth than mothers with lower levels of American acculturation (Kim et al., 2007; Shin et al., 2010). Moreover, Korean immigrant mothers' American acculturation was associated with healthier child socioemotional and behavioral functioning in the North American context (Seo et al., 2017; Shin et al., 2010). Behavioral participation in the mainstream American culture is important to examine as it appears to be associated with immigrants' successful adjustment to their host society (Ren et al., 2021; Seo et

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al., 2018) and has some positive implications for their children's adjustment as well (Kim et al., 2007; Seo et al., 2017).

According to the transactional model of culture ↔ parent ↔ child proposed by Bornstein (2009), both the parent and child select, edit, and reconstruct cultural information (e.g., meanings of activities and behaviors). Parents interact with their children using strategies geared towards actualizing socialization goals that are emphasized by their culture's value systems, and children's cultural experiences contribute to shape their characteristics through time (Bornstein, 2009). However, no studies have examined the association between parental acculturation and child inhibitory control in a Korean immigrant sample. Informatively, a study of Chinese immigrant families, who are known to be culturally heterogeneous but also share similar Confucian-based cultural values with Korean immigrant families (e.g., Cheah & Leung, 2011), revealed a positive association between parental American acculturation and children's inhibitory control (Chen et al., 2015). Thus, guided by the transactional model of culture ↔ parent ↔ child (Bornstein, 2009), we expected to find a direct effect of maternal acculturation towards the mainstream (American) culture on maternal warmth as linked to child temperamental inhibitory control and externalizing behaviors.

Overall, transactional processes can be examined by testing bidirectional influences and recursive relations among the constructs (e.g., Roskam et al., 2016). In addition, unique longitudinal relations among constructs can be found when temporal stabilities in each construct and their concurrent covariations are modeled (Bornstein et al., 2013). Previous studies have revealed longitudinal stability in child temperamental inhibitory control (Gagne & Saudino, 2016) and externalizing problems (Burt et al., 2008), maternal warmth (Lee et al., 2013), and

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acculturation (Kim et al., 2014). Thus, we expected significant stability of the constructs across time as well as their covariation at each time point.

The Current Study

Accordingly, the overall purpose of the present study is to evaluate relations among child externalizing behavior problems, child temperamental inhibitory control, maternal warmth, and maternal acculturation during early childhood in a sample of Korean immigrant families across 3 time points. The following three main hypotheses of the present study and an exploratory model were evaluated using a series of nested path analytic models and successive nested model comparisons to determine the most parsimonious and plausible paths among these constructs (see Figure 1): **Hypothesis 1:** We predicted that there would be significant stability of the variables between times one and two and between two and three as well as their covariation at each time point (Model 1). **Hypothesis 2:** We expected to find transactional relations among maternal warmth, child temperamental inhibitory control, and child externalizing behaviors, over and above the stability of each construct across time points and covariation among the constructs at each time point (Model 2). **Hypothesis 3:** Direct effects from context (i.e., acculturation) to parenting behavior, child temperamental inhibitory control, and child externalizing behaviors were expected (Model 3). **Exploratory Model 4:** In order to fully represent the potential cross lagged effects over time in the design of this study, we also examined the direct effects of child and parenting variables on maternal American acculturation despite the absence of conceptual theory that would guide research hypothesis formulations. The statistical purpose was to conduct a full accounting of the possible cross-lagged effects in the design (Model 4).

Methods

Participants

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The sample was taken from a larger two-year longitudinal data set, which includes four assessment waves. In the present study, we used data from the first, second, and third assessments. The project was still ongoing for collecting data at the fourth assessment (W4). Due to the COVID-19 pandemic, data collection for W4 ceased and the sample size at W4 was not large enough to be included in this paper. At Wave 1, the sample included 199 first-generation Korean immigrant mothers ($M_{\text{age}} = 35.93$ years, $SD = 3.68$) with preschoolers ($M_{\text{age}} = 4.30$ years, $SD = 0.98$). Of this sample, 138 mothers responded to the second assessment wave, and 105 mothers responded to all three assessment waves (see Table 1)

Procedures

Participants were recruited from various organizations (e.g., Asian supermarkets, Korean churches, and public libraries) across Maryland-Washington, D.C. in the U.S. The study procedures were approved by the University of Maryland, Baltimore County Institutional Review Board. During home visits, mothers completed the questionnaires in their preferred language. With parents' written approval, teacher ratings on children's externalizing problems were obtained via telephone, fax, or email. Three waves of longitudinal data were collected spaced approximately 6 months apart (Wave1: W1, Wave2: W2, and Wave 3: W3).

Measures

All of the measures originally available in English were forward- and back- translated into Korean by bilingual researchers to ensure that the same meaning was kept in both versions (Peña, 2007). All discrepancies were resolved through discussions between translators.

Family demographics information. The Family Description Measure (FDM; Bornstein, 1991) was used to obtain demographic information on child age and gender, number of children, maternal age and education, and parental marital status.

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Child temperamental inhibitory control. Mothers rated children's temperamental inhibitory control using the Child Behavior Questionnaire (CBQ; Rothbart et al., 2001) at W1, W2, and W3. Mothers rated 10 items that reflect children's inhibitory control abilities on a 7-point Likert-scale (1 = *extremely untrue of your child* to 7 = *extremely true of your child*). Sample items include, "Has a hard-time following instructions," (reverse scored) and "Can wait before entering into new activities if s/he is asked to."

Due to the lack of evidence on validity of the inhibitory control subscale in Korean immigrant samples, confirmatory factor analysis (CFA) was conducted on the 10 items using *Mplus* 8 (Muthén & Muthén 1998–2012) to evaluate the construct validity of the inhibitory control subscale and confirm its adaptation to Korean immigrant population. The initial model indicated that Item 68 ("Is able to resist laughing or smiling when it is not appropriate.") had a low factor loading (-0.03), and thus this item was removed from subsequent analyses. The goodness-of-fit indices from the CFA on the remaining 9 items showed that the inhibitory control factor model fit the data well, $\chi^2(27) = 38.34, p > .05$, CFI (.97), TLI (.95), RMSEA (.05), SRMR (.04), with factor loadings ranged from 0.34 to 0.76. There were 3 items with factor loadings less than 0.4, but we kept them in our model because the factor loadings and their R-squared values were significant. The mean scores of the 9 items were calculated. The reliability coefficient Omega was .76 at W1, .78 at W2, and .81 at W3.

Maternal warmth. An adapted version of the Parenting Styles and Dimensions Questionnaire (PSDQ; Wu et al., 2002) was used to measure maternal warmth at W1, W2 and W3. This modified version of PSDQ was contrived through a series of multi-sample confirmatory factor analysis on Chinese and the U.S. samples (Wu et al., 2002). This modified measure has been shown to be valid in a sample of Korean immigrant parents (Lee, Keown, &

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Brown, 2018) and has also demonstrated adequate reliability in Korean immigrant samples (Shin et al., 2010), with $\alpha = .79$. Mothers described how often they exhibited each parenting behavior on a 5-point Likert scale (1 = *never* to 5 = *always*). The maternal warmth scale contains seven items (e.g., “I give praise when my child is good,” and “I express affection by hugging, kissing, and holding my child”). CFA results indicated good model fit, $\chi^2(14) = 19.39, p > .05$, CFI (.98), TLI (.97), RMSEA (.05), SRMR (.04), with factor loadings ranging from 0.30 to 0.78. One item, “I show sympathy when my child is hurt or frustrated,” had a factor loading below 0.4, but we retained this item due to its conceptual fit and statistical significance of the factor loading. The mean scores of the 7 items were calculated. The reliability coefficient Omega was .79 at W1, .78 at W2, and .79 at W3.

Maternal acculturation. The Cultural and Social Acculturation Scale (CSAS; Lee 1996) was used to measure mothers’ behavioral acculturation towards the mainstream (American) culture (i.e., American acculturation) in areas of social activities (3 items), language proficiency (4 items), and lifestyle (4 items) at W1, W2, and W3. The American acculturation scale is comprised of 11 items. Sample items include, “How well do you speak in English?”, and “How often do you watch TV in English?” with scales ranging from 1 (e.g., “*Almost never*,” “*Extremely poor*,” or “*Not at all*”) to 5 (e.g., “*More than once a week*,” “*Extremely well*,” or “*Very much*”).

The CFA confirmed the three-factor structure of the American acculturation scale. The chi-square was $\chi^2(41) = 102.54, p < .01$. The CFI (.94) and TLI (.92) and SRMR (.07) indicated acceptable model fit. The RMSEA (.087) was close to the usual criterion for acceptable model fit of .08. Overall, the three-factor model was deemed to have acceptable model fit. Factor loadings ranged from 0.44 to 0.95. Consistent with previous research, the 11 items were summed to create

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an overall scale score to measure the broad concept of maternal American acculturation (Cheah et al., 2016). The reliability coefficient Omega was .79 at W1, .73 at W2, and .79 at W3.

Child externalizing problems. The Strengths and Difficulties Questionnaire (SDQ; Goodman, 2001) was used to measure child's externalizing problems at W1, W2, and W3. The SDQ measure has demonstrated good reliability in Korean immigrant samples (Seo et al., 2017), with $\alpha = .81$. Moreover, this measure has shown to be valid in Korean immigrant samples (Lee et al., 2018). Externalizing scales are comprised of conduct problems (5 items) and hyperactivity symptoms (5 items). Teachers rated child externalizing behaviors on a scale ranging from 1 *not true* to 3 *certainly true*. Sample items include, "Often fights with other children or bullies them," and "Restless, overactive, cannot stay still for long."

The initial CFA model indicated that Item 22 "Steals from home, school or elsewhere" had a factor loading of 0.09 and Item 5 "Often loses temper" had a factor loading of 0.34. Their factor loadings and R-squared values were not significant and were thus removed from subsequent analyses. The chi-square was $\chi^2(19) = 85.58, p < .01$, CFI was .84, TLI was .76, and RMSEA was 0.14. SRMR (.07) and gamma hat index (0.92) calculated by the R function Swain (Boomsma & Herzog, 2013) indicated acceptable model fit. Factor loadings ranged from 0.40 to 0.83. The results were consistent with Lee et al. (2018)'s study. The items were summed to create an overall scale score to measure the broad concept of externalizing problems. The reliability coefficient Omega was .71 at W1, .71 at W2, and .77 at W3.

Statistical Analyses

A series of nested path analytic models was examined using *Mplus* 8 (Muthén & Muthén 1998-2012). The full-information maximum likelihood estimation (FIML; Little et al., 2014) was used to handle missing data in *Mplus*. To test transactional relations among the constructs, we

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included autoregressive paths, cross-lagged paths, and cross-sectional correlations in the models (e.g., Roskam et al., 2016).

First, to test hypothesis 1, we examined the longitudinal stability of maternal acculturation, maternal warmth, child temperamental inhibitory control, and child externalizing behaviors across time and the within-time covariations among them using the baseline model (Model 1). Next, to test hypothesis 2, the second model (Model 2) included the same stability and within-time covariation paths as the baseline model as well as 12 additional longitudinal cross-domain paths between parent and child. Model 3 included 6 additional cross-domain paths over Model 2 to examine direct influences of maternal acculturation on both child and parent functioning (hypothesis 3). Finally, we examined pathways from child and parent to maternal acculturation via the inclusion of 6 additional cross-domain paths in exploratory Model 4 that provided a full statistical accounting of the possible cross-lagged effects in the design.

The overall model fit was evaluated using the following goodness-of-fit indices: A chi-square test of model fit, root mean square error of approximation (RMSEA), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and standardized root mean square residual (SRMR). Statistically non-significant χ^2 value, CFI and TLI value greater than .95, RMSEA value less than .06, and SRMR value less than .08 are all considered good fit (Bollen 1989; Hu & Bentler 1999). The Satorra-Bentler scaled chi-square (a scaling correction factor, *c*) was used to evaluate chi-square difference tests between successive models to determine whether a model with more estimated parameters (i.e., less parsimony) evidenced better fit to the data relative to a more parsimonious model (Bryant & Satorra, 2012). Models were compared sequentially (i.e., nested) until a nonsignificant chi-square value was obtained.

Results

Preliminary Analysis

Correlations among the main study variables are presented in Table 2. Consistent with previous studies (e.g., Eisenberg et al., 2005; Yoon et al., 2021), the study variables were correlated in the expected direction (e.g., child temperamental inhibitory control was negatively correlated with child externalizing problems), which provided some evidence for the convergent validity of each measure. The attrition rate was 31% for W2 and 24% for W3 ($n = 199$ at W1, $n = 138$ at W2, and $n = 105$ at W3). Data were missing completely at random (Little's MCAR test, $\chi^2(203) = 188.36, p = .76$). A logistic regression analysis revealed that attrition was not related to the sample demographic characteristics and the study variables at W2 (Nagelkerke $R^2 = .05$) and W3 (Nagelkerke $R^2 = .13$).

Path Analysis Models

The Satorra-Bentler scaled chi-square difference test indicated that each successive model fit the data significantly better, except for the final comparison: Model 4 did not fit the data significantly better than Model 3. Evaluations of the CFI, TLI, RMSEA, and SRMR also suggested Model 3 as the overall most plausible model (see Table 3). Figure 2 presents Model 3.

Hypothesis 1. Model 3 revealed that the longitudinal stability paths for all study variables were all positive and significant. Significant within-wave correlations among the variables were only found at W1 and W2 (see Figure 2).

Hypothesis 2. Model 3 showed no reciprocal influential relations between parent and child. W1 child temperamental inhibitory control negatively predicted W2 child externalizing behaviors above and beyond W1 child externalizing behaviors, $\beta = -.19, SE = .09, p < .05, f^2 = 0.03$, controlling for its relations with W1 maternal acculturation, W1 maternal warmth, W1 child externalizing behaviors, and covariates. In addition, W1 child externalizing behaviors

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negatively predicted W2 child temperamental inhibitory control, $\beta = -.16$, $SE = .06$, $p < .01$, $f^2 = 0.05$, above and beyond W1 child temperamental inhibitory control, controlling for its relations with the other W1 study variables and covariates. Only one significant longitudinal cross-domain path emerged from W2 to W3: Controlling for its relations with W2 maternal acculturation, W2 child inhibitory control, W2 child externalizing behaviors, and covariates, W2 maternal warmth positively predicted W3 child temperamental inhibitory control, $\beta = .21$, $SE = .07$, $p < .01$, $f^2 = 0.05$.

Hypothesis 3. Model 3 provided a partial support for this hypothesis. Controlling for potential covariates, autoregressive, and contemporaneous correlates, W1 maternal acculturation predicted W2 maternal warmth above and beyond W1 maternal warmth, $\beta = .19$, $SE = .07$, $p < .01$, $f^2 = 0.04$. The significant paths between W1 maternal acculturation and W2 maternal warmth and between W2 maternal warmth and W3 child temperamental inhibitory control in the final model (Model 3) suggested that maternal acculturation may be a proximal and distal contextual factor for immigrant children's development. Thus, post-hoc analysis using bootstrapping methods with 5000 replicates and bias-corrected confidence intervals in *Mplus* (Muthén & Muthén, 1998–2012) was conducted to examine the mediation of the effect of acculturation on inhibitory control by maternal warmth. This longitudinal indirect effect revealed that maternal warmth mediated the effect of maternal acculturation on child temperamental inhibitory control ($b = 0.004$, $SE = 0.002$, 95% CI [0.001, 0.010], $f^2 = 0.01$).

Exploratory Model 4. The series of path analysis conducted earlier did not provide evidence for direct effects of child and parenting variables on maternal American acculturation, but did provide for a full statistical accounting of the possible cross-lagged effects in the design.

Discussion

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The present study evaluated longitudinal pathways among maternal acculturation, maternal warmth, child temperamental inhibitory control, and child externalizing in a sample of Korean immigrant families. Consistent with previous research, our results demonstrated moderate to strong stabilities within the domains of each study variable across time. The different strengths and patterns of the concurrent relations among the variables found at each time point in our final model suggest that concurrent correlational associations among the variables may vary depending on the time of assessment.

Counter to our expectations, we did not find support for reciprocal relations between parent and child across the three time points. Only one significant transactional association was found between child temperamental inhibitory control and externalizing problems from W1 to W2. The transactional association between child temperamental inhibitory control and externalizing behaviors at earlier waves support the general consensus that temperamental traits may manifest themselves in the form of behavioral difficulties early in life (Abulizi et al., 2017). This transactional association between child temperamental inhibitory control and externalizing behaviors was not significant from W2 to W3, but maternal warmth significantly predicted child temperamental inhibitory control from W2 to W3. This suggests that child temperamental characteristic may become more malleable by environmental experiences (e.g., parenting) over time (Shiner et al., 2012). No child-driven effects on parenting were found in this study. This might be due to young children's greater dependence on their primary caregivers and socializing agents during earlier relative to later developmental stages, which has been found in previous research (Eisenberg et al., 2005; Frick et al., 1999) and/or traditional Confucian-based hierarchical relationships between Korean immigrant parents and children where children are raised to be interdependent and obedient to their parents (Kim et al., 2012).

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Past studies have suggested that mothers' engagement in warm parenting practices may help children to feel secure and develop positive mental representations of their relationship with others thereby decreasing their negative emotional and behavioral reactions (e.g., Alegre et al., 2014). Although there were significant negative cross-sectional correlations between maternal warmth and externalizing problems, no cross-lagged effects between maternal warmth and child externalizing problems were found when the joint effect of all variables was included in one model. The absence of direct effects of maternal warmth on child externalizing problems may be a result of young children being treated with more affection and indulgence because parents believe that children below the age of 6 are incapable of understanding right from wrong in traditional Korean culture (Kim et al., 1997). Therefore, behavioral issues in young Korean immigrant children may not necessarily elicit lower levels of maternal warmth because Korean immigrant mothers may attribute such behavioral issues to the child's developmental stage rather than to specific characteristics that need to be modified based on this cultural belief about the age of understanding.

This developmental focus may also account for some differences in perceptions of young children's behavior problems between Korean immigrant mothers and teachers. In addition, our study did not examine mothers' maintenance of their heritage culture, which might have played a role in the link between maternal warmth and child externalizing behaviors, as mothers with a high orientation toward the Korean culture are known to be less expressive in their parenting warmth due to the traditional hierarchical Korean familial structure and valuing of emotional reservedness (e.g., Kim et al., 2012).

Mothers' initial levels of American acculturation significantly influenced their level of maternal warmth in a subsequent wave, controlling for their concurrent association at W1.

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Consistent with previous research (Kim & Hong, 2007), Korean immigrant mothers may learn more outward demonstrations of warmth (e.g., hugging, kissing, and using more praise) through greater participation in social activities and interacting with different socialization agents (e.g., teachers and other parents) in American society who may value such expressions of warmth (Cheah et al., 2015). Therefore, Korean immigrant mothers appear to modify how they show affection towards their children in order to accommodate the cultural values of the host society and promote their children's positive temperamental characteristics and development in the U.S. (Cheah et al., 2013).

Maternal American acculturation did not directly influence child temperament and externalizing problems. However, post hoc analysis revealed a mediating role of maternal warmth in the association between maternal American acculturation and child temperamental inhibitory control. Consistent with Bornstein's (2009) culture ↔ parent ↔ child model, cultural values of the mainstream culture may influence child outcomes indirectly through parenting practices influenced by maternal American acculturation. Our finding for the mediating role of maternal warmth in the association between maternal acculturation and child temperamental inhibitory control further highlights the importance of examining acculturation as one of the contextual determinants of parenting in immigrant populations (Foss, 1996).

The same mediating mechanism was not found for child externalizing problems. It may be that the benefit of more maternal warmth as a result of maternal American acculturation only plays out in a more adaptive parent-child relationship due to maternal ratings of child inhibitory control or compliance within the home setting. Such maternal ratings may not spill over into how teachers view child externalizing behaviors outside of the home as their view tends to be

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influenced by classroom norms and teacher-child relationship quality (King et al., 2018; Silver et al., 2005).

Adding paths from child and parent variables to maternal American acculturation (Model 4) showed no improvement in the fit of the model. We found large autoregressive coefficients of maternal American acculturation across 3 waves, suggesting little variance over time. These findings suggest that acculturation itself is a slow process that does not change much in a short time frame relative to more rapid changes in parenting behaviors and child outcomes that can occur during a relatively short six-month timeframe, especially during the early childhood developmental period (Lengua et al., 2007). Therefore, a one-year longitudinal study might not be sufficient for examining parent and child effects on parental acculturation.

Limitations and Implications

Several limitations of the present study should be noted. First, the sample consisted of well-educated and middle-class Korean immigrant families within a particular region of the United States. Thus, research on more socioeconomically and regionally diverse Korean immigrant samples is warranted to ensure representativeness and generalizability of the results. Second, self-reported maternal warmth may not accurately reflect actual parenting practices and behaviors. Therefore, observational studies should be considered in the future to more objectively assess parenting behaviors (Bornstein & Cheah, 2017). Third, the current study examined the mothers' American acculturation as a unidimensional construct. Future studies should examine mothers' maintenance of their heritage Korean culture as well as their American acculturation to have a better understanding of acculturation as a bi-dimensional process (Kim et al., 2009) and to better capture the interplay of cultural orientations in Korean immigrant family processes (Choi et al., 2018). Moreover, the acculturation process can be further divided into

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behavioral and psychological (e.g., Berry, 1992; Searle & Ward, 1990) acculturation, which may lead to differential changes in parenting behaviors (Birman, 2006; Gassman-Pines & Skinner, 2018; Phinney, 1995; Tahseen & Cheah, 2012) that should be further explored. Last, the current study examined only maternal warmth. However, previous studies have found the associations between autonomy granting parenting practices and child inhibitory control and adjustment in Asian and Western cultures (e.g., Huang et al., 2017; Oh & Lewis, 2008; Zhou et al., 2009). Thus, it will be informative for future studies to examine how different aspects of parenting are bidirectionally associated with child and cultural factors.

Despite these limitations, our study design had advantages over previous research in that it allowed us to examine the direction of the relations among child, parent, and acculturation across three time points and the plausible mechanisms underlying the development of adjustment problems in young Korean American children. Our evidence for parent-driven effects on children's development over time and the direct effect of acculturation on maternal warmth can inform parenting education efforts. Parents with children who exhibit low inhibitory control or more externalizing behaviors during the early years may benefit from strategies tailored to managing children's difficulties in controlling their emotions and behaviors. Furthermore, young children with low inhibitory control may benefit from parenting interventions or programs aimed at educating Korean immigrant mothers about the importance of engaging in more positive parenting practices, such as expressions of parental warmth, to enhance children's inhibitory control skills.

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Table 1

Demographic Characteristics

Characteristics	Korean immigrant ($N = 199$)
Age	
Mother	$M = 35.93$ ($SD = 3.68$)
Child	$M = 4.30$ ($SD = 0.98$)
Child gender	
Male	45%
Female	55%
Number of children	
One	18%
Two	53%
Three	25.5%
Four	1.5%
Five	2%
Maternal education level	
10 th or 11 th grade	0.5%
High school graduate or GED	8.2%
Partial college	19.9%
University graduate	44.4%
Graduate degree	27%
Marital status	
Married	98.5%
Married but separated	0.5%
Divorced	0.5%
Remarried	0.5%
U.S. years of residency	$M = 12.08$ ($SD = 8.58$)

Table 2

Means, Standard Deviations, and Correlations for the Main Variables and Potential Covariates

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. W1 ACC	-															
2. W2 ACC	.81***	-														
3. W3 ACC	.69***	.81***	-													
4. W1 Warmth	.38***	.32***	.25***	-												
5. W2 Warmth	.41***	.33***	.27***	.63***	-											
6. W3 Warmth	.23**	.16	.20*	.43***	.70***	-										
7. W1 IC	.10	.08	.07	.28***	.20**	.13	-									
8. W2 IC	.14	.09	.08	.32***	.30***	.20*	.73***	-								
9. W3 IC	.09	.01	-.00	.31***	.38***	.26**	.53***	.73***	-							
10. W1 EXT	-.19**	-.16**	-.13**	-.12	-.20*	-.09	-.35***	-.40***	-.29***	-						
11. W2 EXT	-.09	.03	.02	-.19*	-.28***	-.12	-.39***	-.45***	-.36***	.57***	-					
12. W3 EXT	-.13	-.08	.02	-.19**	-.27**	-.14	-.23**	-.28**	-.22**	.31***	.51***	-				
13. Child age	.02	.01	.01	.00	.00	.00	.17**	.17*	.11*	.00	-.03	-.02	-			
14. Child gender	.01	.01	.01	.00	.00	.00	.00	.10	.02	.00	.00	-.00	.02	-		
15. Maternal age	.15*	.05	.10	.00	.03	.02	.04	.03	.02	.00	.00	-.01	.21	.00	-	
16. Maternal EDU	.17**	.10	.19*	.00	.03	.02	-.02	-.01	-.02	.00	.02	-.00	-.09	.04	.01	-
<i>M</i>	32.24	32.56	32.39	4.07	3.96	4.02	5.17	5.15	5.27	4.00	3.50	3.52				
<i>SD</i>	8.25	7.60	8.20	0.56	0.57	0.56	0.83	0.83	0.82	3.43	3.29	3.43				

Note. W1 = Wave 1; W2 = Wave 2; W3 = Wave 3; $n = 199$ at W1, $n = 138$ at W2, and $n = 105$ at W3; ACC = Acculturation; IC = Inhibitory control; EXT = Externalizing; EDU = Education. Maternal education was measured by a seven-point ordinal scale that ranged from “1 = Less than 7th grade” to “7 = Graduate/professional degree (MA, MS, MSW, PhD, MD, LLB, JD).” Potential covariates considered in this study included child age, child gender, maternal age, and maternal education. To qualify as a covariate in the path model, a candidate variable had to correlate significantly ($p < .05$) with the main study variables. We added these covariates to each path model consistently throughout model comparisons. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 3

Model Fit Indices and Comparisons for Nested Path Models

Model	Satorra-Bentler scaled chi-square statistic	CFI	TLI	RMSEA	SRMR	Model comparison	Satorra-Bentler scaled chi-square difference test
1	S-B $\chi^2(70) = 120.56, p < .05$	.93	.91	.06	.10	2 vs. 1	$\Delta\chi^2(12) = 30.01, p = .003$
2	S-B $\chi^2(58) = 90.45, p < .05$	.96	.93	.05	.05	3 vs. 2	$\Delta\chi^2(6) = 12.64, p = .049$
3	S-B $\chi^2(52) = 77.82, p < .05$	.97	.94	.05	.05	4 vs. 3	$\Delta\chi^2(6) = 6.39, p = .381$
4	S-B $\chi^2(46) = 71.43, p < .05$	.97	.93	.05	.04		

Note. Model 3 was the best fitting model.

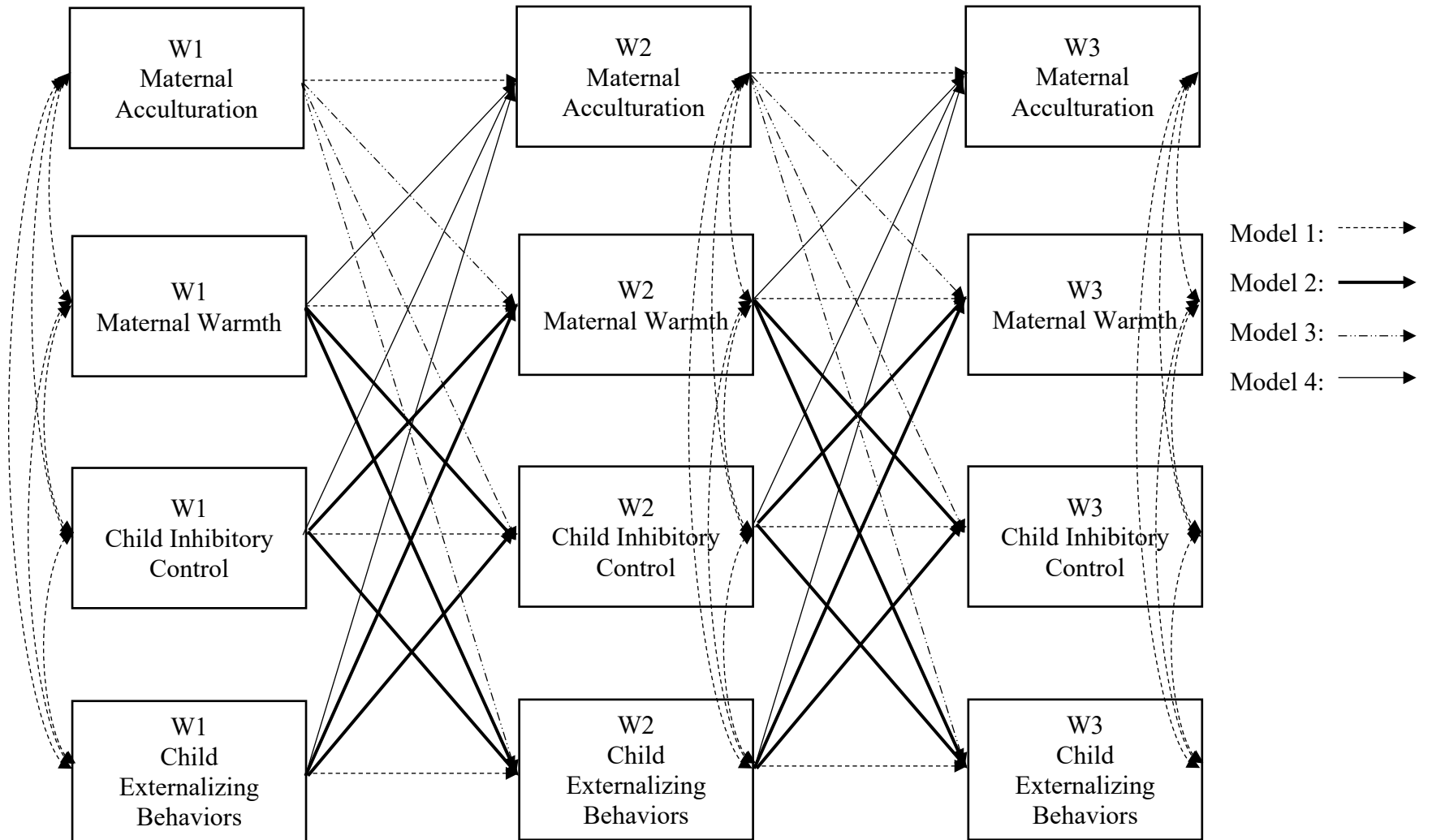


Figure 1. A summary of the freely estimated nested path models. All models include paths from prior models in sequence.

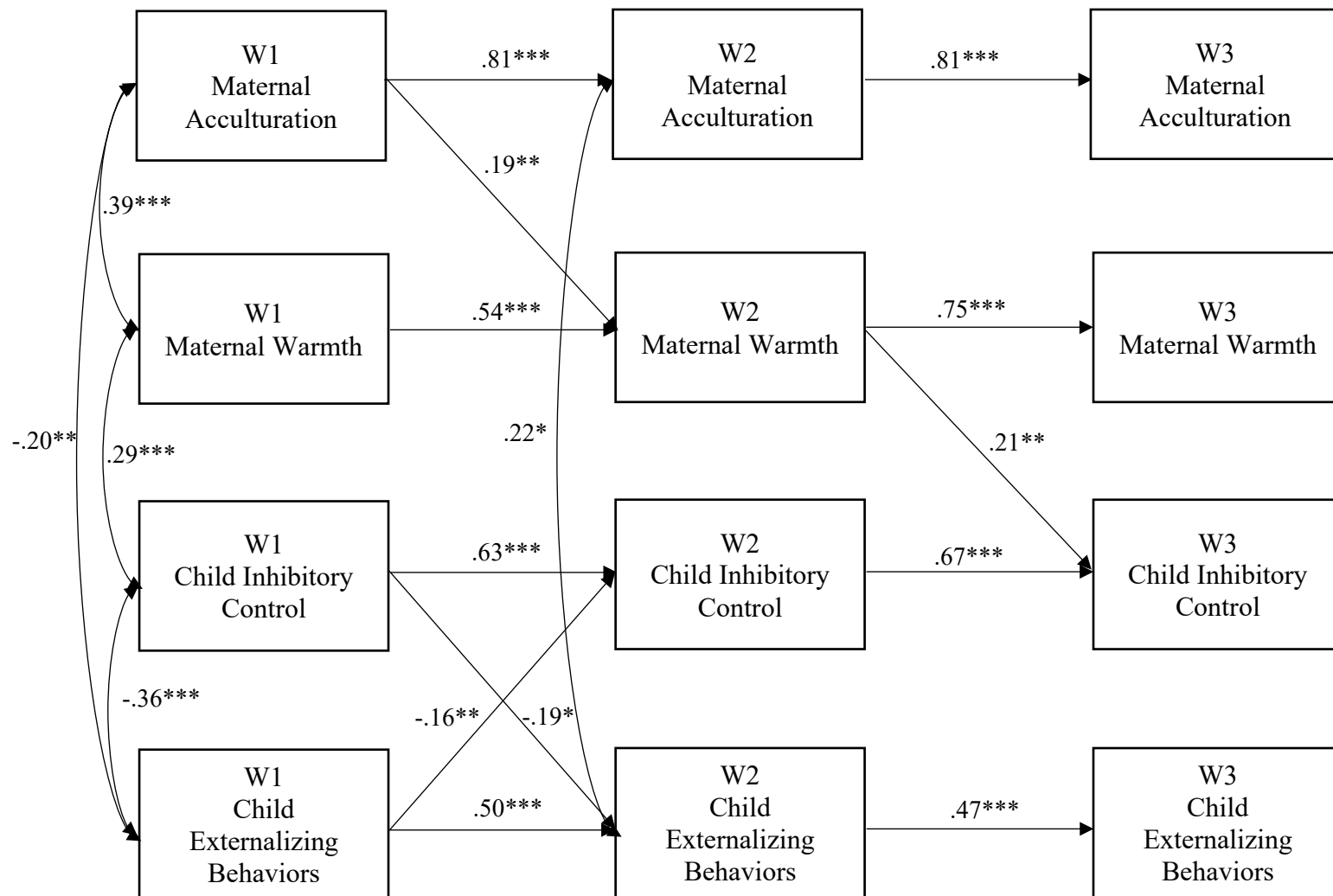


Figure 2. The best fitting model (i.e., Model 3). Numbers represent standardized path coefficients. To facilitate visual readability, only significant standardized coefficients are presented and covariates are not included in the figure. * $p < .05$, ** $p < .01$, *** $p < .001$.