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The Influence of Culture and Adoption Status on the Development of Behavioral Inhibition, Anxiety, Temperament, and Parental Control

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A dissertation submitted in partial satisfaction of the

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in Psychology

by

Jennifer Yu Louie

2013

ABSTRACT OF THE DISSERTATION

The Influence of Culture and Adoption Status on the Development of Behavioral Inhibition, Anxiety, Temperament, and Parental Control

by

Jennifer Yu Louie

Doctor of Philosophy in Psychology

University of California, Los Angeles, 2013

Professor Anna S. Lau, Co-chair

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Previous research suggests that child behavioral phenotypes such as behavioral inhibition and aspects of parental control behavior may be shaped by culturally-informed socialization goals. Specifically, in accord with collectivistic values for interpersonal harmony and self-discipline, East Asian parents tend to support children's behavioral inhibition (BI; Chen & French, 2008) and utilize more parental control strategies such as encouragement of moderate emotional expressivity and restrictiveness (P. Wu et al., 2002). In contrast, parents from Western contexts tend to view BI as an indicator of anxiety (Rosenbaum et al., 1993; Schwartz,

Snidman, & Kagan, 1999; Turner, Beidel, & Wolff, 1996) and avoid using parental control methods for fear of intruding on a child's autonomy (e.g., Chao & Tseng, 2002).

Thus, child behavioral inhibition may be associated with other child dispositions such as cognitive control and negative affectivity in distinct ways depending on the cultural context. Likewise, parental control may have different motivational determinants depending on cultural context. In particular, the role of possible evocative effects of child developmental factors such as behavioral difficulties, self-regulation, and cognitive control should be understood within cultural context. In order to better understand the nature of cultural differences in parental control, it is useful to examine a population in which developmental challenges may shape parent orientation toward control. Thus, while Paper 1 focuses on cultural differences in typically developing children and their parents, Paper 2 examines how parenting may shift to non-normative cultural practices in response to more challenging child behaviors as displayed by internationally adopted children.

In Paper 1 we examined whether BI and parental control were differentially related to children's temperament in a sample of 45 Asian American (AA) and European American (EA) preschoolers. Results indicated that AA parents endorsed more parental control (restrictiveness, encouragement of modesty) than EA parents. However, there were no ethnic differences in BI, cognitive control, or negative affectivity. Furthermore, analyses revealed that for AA families, BI was positively correlated with a measure of cognitive control; however, this association was not significant for EA children. This finding is consistent with the notion that BI is a heterogeneous phenotype in which AA children may be intentionally utilizing their cognitive control abilities to display withdrawal from novel situations (Xu et al., 2007). In addition, among AA children, there was no significant relationship between parental control and cognitive

control, whereas this relationship was negative for EA families. This suggests that while parental control may be normative in AA families and not closely tied to children's cognitive control, there may be a different process in EA families. While the direction of influence is not clear, it may be that when EA children struggle with cognitive control, EA parents move outside of their culturally normative approach and utilize more parental control.

In Paper 2 we continued to explore evocative models of development in a sample of 64 preschoolers. We examined the interaction of parental ethnicity (EA, AA) and adoption status (adopted, nonadopted) on parental control and the explanatory effects of child factors (behavioral inhibition, anxiety, and cognitive control). Results indicated that adopted children displayed higher behavioral inhibition and lower parent reported cognitive control. As predicted, cultural differences in parental control emerged among the parents who did not adopt, but there was cultural similarity among the parents who adopted. Furthermore, we found that variation in behavioral inhibition and cognitive control partially explained adoption status by ethnicity interaction effects on parental control.

Taken together, these findings help elucidate the complicated reciprocal influences that flow between a child, their parents, and the larger culture.

The dissertation of Jennifer Yu Louie is approved.

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2013

Table of Contents

List of Tables

Paper 1

Paper 2

List of Figures

Paper 1

Paper 2

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Cultural Differences in the Associations between Behavioral Inhibition Related Child Temperament Factors, and Parental Control in Young Children

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Abstract

Previous research suggests that child behavioral phenotypes such as behavioral inhibition and aspects of parental control behavior may be shaped by culturally-informed socialization goals. As such, child behavioral inhibition and parental control may be associated with other child dispositions such as cognitive control and negative affectivity in distinct ways depending on the cultural context. The present study examined whether BI and parental control were differentially related to children's temperament in a sample of 45 Asian American (AA) and European American (EA) 36 to 60 month olds. Results indicated that AA parents endorsed more parental control (restrictiveness, encouragement of modesty) than EA parents. However, there were no ethnic differences in BI, cognitive control, or negative affectivity. Furthermore, analyses revealed that for AA families, BI was positively correlated with a measure of cognitive control; however, this association was not significant for EA children. This finding is consistent with the notion that BI is a heterogeneous phenotype in which AA children may be drawing upon a capacity for cognitive control when they display social reticence. In addition, among AA children, there was no significant relationship between parental control and cognitive control, whereas this relationship was negative for EA families. This suggests that while parental control in AA families may be normative and not closely tied to impairments in children's cognitive control, there may be an evocative process in EA families such that when EA children struggle with inhibitory control, EA parents may move outside of a culturally modal approach to exert more parental control.

Cultural Differences in the Associations between Behavioral Inhibition Related Child Temperament Factors, and Parental Control in Young Children

Behavioral inhibition (BI) represents a heterogeneous behavioral phenotype marked by responding to novel situations, people, or objects with restraint, withdrawal, avoidance, or distress (Kagan, Reznick, Clarke, Snidman, & Garcia-Coll, 1984). Approximately 15% to 20% of children can be classified as behaviorally inhibited during early childhood(Fox, Henderson, Marshall, Nichols, & Ghera, 2005) and about half of these children continue to show signs of wariness across childhood (Degnan & Fox, 2007). Stable BI is assumed to reflect both genetic predispositions and experiential factors that increase risk for anxiety disorders (Rosenbaum et al., 1993; Schwartz, Snidman, & Kagan, 1999; Turner, Beidel, & Wolff, 1996). By middle childhood, BI is manifest as social withdrawal, which is in turn related to peer rejection and victimization (Boivin, Hymel, & Burkowski, 1995; Hanish & Guerra, 2000), loneliness, low self-esteem, and anxiety (Hymel, Bowker, & Woody, 1993; Rubin & Asendorpf, 1993). Over time, children with stable BI have higher rates of anxiety disorders than children with unstable BI or without BI (Hirshfeld, Rosenbaum, Biederman, & Bolduc, 1992). Thus, BI has been identified as a critical early risk factor associated with the onset of anxiety disorders.

However, disparities in the distribution of BI across cultural groups (Rubin et al., 2006) and variability in developmental outcomes of child BI between individuals and across cultural settings complicates our understanding of BI and its association with later psychopathology (Chen & French, 2008; Chen, Rubin, Li, & Li, 1999; Chen, Rubin, & Li, 1995). Much of the research on the causes, correlates, and consequences of BI has been limited to homogeneous North American and Western European samples (Rubin et al., 2006). Although BI has recently become the focus of study in China (Chen et al., 1995), there have been few systematic cross-

cultural studies of the prevalence of the phenomenon. One such study found that whereas 16.2 – 44.5% of young children in Western countries displayed BI, 32.4 – 60.9% of children from East Asian countries displayed BI (Chen & French, 2008). While the authors offered both temperamental and socialization explanations for these cross-cultural differences, these explanations were not subject to empirical test.

The bulk of previous research investigating cross-cultural differences in BI has focused on extrinsic, cultural socialization explanations. Culture imparts meaning to any given behavior, determines how individuals, including parents and peers, perceive, evaluate, and react to the behavior, and eventually regulates the development of the behavior (Rubin et al., 2006). In Chinese contexts, inhibited behaviors are believed to reflect social competence (Chen et al., 1995). Consequently, BI is positively associated with Chinese children's peer acceptance, teacher-assessed competence, leadership, and academic achievement (Chen & French, 2008; Chen et al., 1999, 1995). In accord with differences in interpersonal goals and values, Chinese parents tend to support children's BI (Chen & French, 2008),whereas North American parents tend to discourage children's BI (Chen et al., 1998). Similarly, Chinese parents expect children as young as 2 years old to master impulse control, whereas U.S. parents tend to expect such mastery years later (Chen et al., 1998; Ho, 1994; D. Y. H. Wu, 1996). In order to instill self-discipline in children, Chinese parenting practices tend to emphasize high levels of parental control, actively overseeing and regulating children's behavior and activities (P. Wu et al., 2002). Measurement of these practices has included multiple dimensions, including the encouragement of modest behavior, shaming, protectiveness, and directiveness (P. Wu et al., 2002). These parental control dimensions may work together to shape a more cautious social approach among children (P. Wu et al., 2002).

In Western contexts, however, permissive or intrusive parenting is associated with toddler inhibition and preschooler social reticence (Hane, Cheah, Rubin, & Fox, 2008; Rubin, Burgess, & Hastings, 2002; Rubin, Cheah, & Fox, 2001; Rubin, Hastings, Stewart, Henderson, & Chen, 1997; Williams et al., 2009) and maternal positivity, acceptance, warmth, sensitivity and responsiveness are associated with less inhibited, more socially adaptive behavior (Park, Belsky, Putnam, & Crnic, 1997; Wood, McLeod, Sigman, Hwang, & Chu, 2003). Previous research examining whether parental control was differentially related to children's behavior on social approach tasks across cultures revealed that for European American families, parental control was negatively correlated with child inhibition; however, the associations were not significant for Asian American and Korean families (Louie, Oh, & Lau, in press).

In contrast to focusing solely on extrinsic socialization factors, some models of BI focus exclusively on intrinsic or endogenous temperament factors. Current models of BI have theorized about the etiologic role of two temperament dimensions of negative affectivity and cognitive control. Research on has implicated negative affectivity, or proneness to experience negative emotions, as a developmental risk factor for BI. Supportive evidence is drawn from methods including parent report (e.g. temperament measures) (Kagan & Snidman, 1991), behavior (e.g., verbal displays of distress in laboratory tasks) (Kagan, Reznick, Snidman, & Gibbons, 1988), and physiological data (e.g. greater autonomic reactivity, elevated baseline cortisol levels) (Fox et al., 2005; Kagan, Reznick, & Snidman, 1989; Kalin, Shelton, Rickman, & Davidson, 1998). Recently, however, theorists have argued for the importance of *multiple* temperament dimensions on risk for psychopathology (Frick, 2004; Muris & Ollendick, 2005; Nigg, 2006). In particular, BI and related anxious phenotypes are seen as resulting from a combination of high negative affectivity and low cognitive control among children (Lonigan,

Vasey, Phillips, & Hazen, 2004; Lonigan & Vasey, 2009). Cognitive control is the ability to behave in accord with rules, goals, or intentions, even when contrary to reflexive or otherwise highly compelling competing responses (Rougier, Noelle, Braver, Cohen, & O'Reilly, 2005).

Individuals who are biased toward experiencing negative affect, and have difficulty employing attentional mechanisms to regulate their emotions, may become overwhelmed and inhibited (Kagan et al., 1984; Lonigan et al., 2004). For example, children high on BI had higher levels of neuroticism and lower levels of attention control according to child self-report data (Muris & Dietvorst, 2006). Using largely questionnaires and some behavioral measures, research has found that cognitive control and negative affectivity interact to predict internalizing symptoms concurrently and longitudinally (N. Eisenberg, Fabes, Guthrie, & Murphy, 1996; N. Eisenberg, Fabes, Guthrie, & Reiser, 2000; N. Eisenberg, Shepard, Fabes, Murphy, & Guthrie, 1998; N. Eisenberg, Smith, Sadovsky, & Spinrad, 2004; Muris & Dietvorst, 2006; Muris, Meesters, & Rompelberg, 2007; Oldehinkel, Hartman, Ferdinand, Verhulst, & Ormel, 2007). Although models have begun to integrate emotion and cognition on different levels of analysis including neural systems, psychological processes, and behaviors (Frick, 2004), these multi-method approaches have rarely been applied in research on children's BI.

The aforementioned temperament models emphasize high levels of negative affectivity and low levels of cognitive control as child factors contributing to BI (Lonigan et al., 2004). There is also growing evidence that there are higher rates of BI among children in East Asian cultural contexts than in Western European and North American countries (Lonigan et al., 2004). Given these findings, one might surmise that associated child temperamental differences may show corresponding variability across cultures, such that East Asian children demonstrate higher levels of negative affectivity and lower levels cognitive control than Western children. Yet,

research on each temperament component suggests the opposite pattern, creating a cross-cultural paradox. In terms of negative affectivity, Chinese infants are significantly less active, irritable, and vocal than Western samples, with American infants showing the highest level of negative affectivity (Kagan, 1994; M. Lewis, Ramsay, & Kawakami, 1993). In terms of cognitive control, Chinese and Korean preschoolers have been shown to outperform their European American counterparts on measures of executive functioning indicative of cognitive control (Oh & Lewis, 2008; Sabbagh, Xu, Carlson, Moses, & Lee, 2006).

In order to understand this cross-cultural paradox, socialization can be examined as an explanatory source of between group variance. Xu, Farver, Chang, Zhang, and Yu (2007) assert that the term shyness in Mandarin Chinese not only refers to passive and anxious social restraint, but also includes a self-controlled form of social restraint that may be motivated by a desire to fit in with others. In other words, in Eastern contexts, *BI marked by withdrawal behavior can be either a product of low or high cognitive control*. To use Xu's terms, children with anxious BI may be prone to or are overwhelmed by negative emotions that prevent social approach, whereas East Asian children with regulated BI may limit their approach in an effortful manner to align with socialization goals around self-control and restraint (Xu et al., 2007).Furthermore, research results imply that regulated BI is the type valued by Chinese adults and peers (Xu et al., 2007). For example, teacher reported regulated shyness was positively associated with peers' nominations of social preference and mothers' ratings of self-regulation and negatively associated with children's self-reported loneliness and social anxiety, whereas the reverse was found for anxious BI. However, teachers rated both regulated BI and anxiously BI children as having limited peer contacts and being relatively solitary, which suggested that both types of children may be behaviorally inhibited in their social interactions (Xu et al., 2007).

Although research has started to explore cultural context, parenting, and children's negative affectivity and cognitive control as factors related to the development of BI, the current study brings these disparate literatures together in a single empirical investigation. There is much to be learned about the nature of BI by examining what is associated with BI across different cultural groups, including variation in parents' tendency to control children's behavior, children's sensitivity to negative emotion, or children's ability to regulate their behaviors. In sum, it is important to account for the interrelations between socialization and temperament factors in the expression of a heterogeneous BI phenotype (Rubin et al., 2006). This project provides important data on how culture shapes distinct BI profiles.

The Present Research

In the current study, we examined whether there is variability in the associations between BI in young children and other temperament indicators and socialization factors depending on the child's cultural background. Specifically, we studied whether measures of BI were differentially related to children's cognitive control, negative affectivity, and parenting environment in a sample of typically developing Asian American (AA) and European American (EA) preschool children.

In the preliminary analyses based on prior work, we expected to find group differences in levels of BI, cognitive control, and negative affectivity, such that AA children would display higher levels of BI and cognitive control and less negative affectivity than their EA counterparts, and that AA parents would endorse more use of parental control than EA parents.

In the main analyses, we first examined whether BI would be associated with more cognitive control for AA children, but that the pattern would be reversed for EA children. We expected that BI would be positively associated with cognitive control in AAs, but not

necessarily negative affectivity, because BI may be purposeful and normative in the context of East Asian socialization. In contrast, consistent with prior research and extant conceptual models, we predicted that BI would be associated with poorer cognitive control and greater negative affectivity in European Americans.

Second, we examined whether the associations between children's temperament dimensions and parental control would vary across ethnic groups. In the European American context, parents' specific efforts to encourage reticent behavior run counter to prevailing socialization goals of individual autonomy. Yet, these same parenting responses are congruent with East Asian socialization goals of accommodating to the social context in ways that avoid disrupting relationships. As such, BI may be normative and related to children's ability to down-regulate approach behaviors among Asian origin families. In contrast, these types of parental control may be related to less cognitive control in European American families. This may be the case because deviant child behavior evokes culturally atypical parental control in European American families. Or conversely, European American parents' use of control may engender child dysregulation in a prevailing cultural context where autonomy is stressed.

Thus, based on the literature we expect that among EA families greater use of firm parental control, including aspects of psychological control, may be associated children's BI. However, there may be competing predictions about the association between BI and parental control among Asian American families. On the one hand, one might expect BI to be associated with higher parental control for the AA group because in accord with social attitudes and interpersonal goals, BI may emerge as a function of parental control that encourages child self-regulation and restraint. On the other hand, it may be that BI and parental control are unrelated in

AA families because high levels of parental control may be culturally normative and scripted and may not predict variance in children's BI.

Methods

Participants

We recruited typically developing 36-60 month old children and their primary caregiver, including 30 European American children (43.3% male) and 15 Asian American children (33.33% male). There was no statistical difference in child gender or age across groups (M = 51.40 months old, SD = 9.95). EA children and their parents were born and raised in the United States, and their ancestors were from Northern and Western Europe. AA children were either born in East Asia or in the United States, and their parents were born and raised in East Asia or in the United States (40% Chinese, 40% Korean, 20% other; 27% 1st generation immigrants). Of AA parents, 13% reported an East Asian language as the primary language they speak with their child. While the AA sample was not ethnically identical, previous research has shown that while within group variation is considerable, East Asian (e.g., Chinese, Korean) cultures tend to have similar values and beliefs regarding parenting (Chao & Tseng, 2002). Subjects were recruited through flyering the UCLA campus (including the Early Child Education program), public posting areas, schools, religious organizations, community/recreation centers, professional offices, and after-school facilities with institutions' permission. Parents and children who are a part of the UCLA Developmental Research Subject Pool were also invited. Families agreeing to participate came to UCLA for one laboratory session that lasted approximately 1 hour. While parents filled out questionnaires, children participated in the following tasks: Stranger Approach and Tower of Patience. Families were compensated $30 for their participation.

Measures

Demographics. Participants were asked to provide basic demographic information, including age, gender, ethnicity, family composition, and parents' education, occupation, and income.

Laboratory-based measures.

Child Behavior. Using a version of the Lab-TAB coding system (Goldsmith, Reilly, Lemery, Longley, & Prescott, 1999), observers coded negative and positive emotion arousal behaviors: intensity, bodily, behavioral, and verbal cues. Majdandžić and van den Boom, (2007) found modest to moderate convergence between questionnaires and Lab-TAB observations, and adequate inter-rater reliability and internal consistency of composite scores. In the current study, each component score was standardized into z-scores and then summed to form the composite scores: Behavioral Inhibition and Tower Inhibitory Control Errors (cognitive control). Intraclass coefficients (ICCs) were calculated as a measure of inter-rater reliability for a random subset (n = 12) of video observations of the total sample. There were 2 EA and 4 AA coders who were randomly assigned to EA or AA videos. The inter-rater reliability was excellent for most composites across subgroups in the sample (see below). Internal consistency reliability of the composites was acceptable in the overall sample and across subgroups (see below).

First, to elicit novelty avoidance, an indicator of BI, in "Stranger Approach," an unfamiliar female experimenter (either EA or AA) entered the room and tried to engage the child in a conversation with standardized questions. The Behavioral Inhibition composite included 3 microanalytic codes during the Stranger task: withdrawal from the stranger (e.g., scooting back in chair, putting head down on the table), gaze aversion (e.g., looking down at hands), approach behaviors towards parent (e.g., reaching for parent's hands). The task was divided into epochs based on the stranger's standardized questions. The number of occurrences within each epoch

were summed and then divided by the number of epochs to generate the component scores. Overall, the average measure ICC was .97 (.98 for EA and .90 for AA). The Cronbach alpha for the composite of finalized codes was .68 (.63 for EA and .84 for AA).

Second, "Tower of Patience" was used to elicit inhibitory control, an indicator of cognitive control. In this task, the child and the experimenter took turns adding a block to a tower. During her turns, the experimenter increased delays before adding a block. The Tower Inhibitory Control Errors composite included 2 reverse coded microanalytic codes during the Tower task (higher scores indicate lower cognitive control): anticipatory behavior (e.g., reaching for a block out of turn, touching the tower) and verbalizations (e.g., talking, singing, to self or others). The task was divided into epochs based on the experimenter's turns to put on a block. The number of occurrences within each epoch were summed and then divided by the number of epochs to generate the component scores. Overall, the average measure ICC was .85 (.90 for EA and .83 for AA). The Cronbach alpha for the composite of finalized codes was .62 (.63 for EA and .62 for AA).

Parent report questionnaires.

Child Behavior. The Children's Behavior Questionnaire (CBQ; Rothbart, Ahadi, & Hershey, 1994), a 195-item parent-report measure of temperament for children aged 3 to 8 years, was developed into a very short (36 items, 3 broad scales) form (CBQ-VS; Putnam & Rothbart, 2006). Items are measured on a seven-point Likert scale. Parents' rate how "true" certain behaviors were of their child over the past 6 months. Parents are also given the option of indicating whether a particular item was "not applicable" to their child. The standard CBQ demonstrated both satisfactory internal consistency and criterion validity, and exhibited longitudinal stability and cross-informant agreement. Very short form scales demonstrated

acceptable internal consistency, and confirmatory factor analyses indicated marginal fit of the very short form items to a three-factor model. To measure Negative Affectivity, we used the Negative Affectivity subscale from the CBQ-VS. In the current sample, Cronbach's alpha was .73 across groups (.71 for EA and .76 for AA). To measure Cognitive Control, we used the Inhibitory Control subscale from the CBQ. In the current sample, Cronbach's alpha was .85 across groups (.74 for EA and .91 for AA).Consistent with predictions about construct validity, the CBQ Inhibitory Control subscale was marginally negatively correlated with Tower Inhibitory Control Errors (r = -0.31, p< .10).

Parental Control. We created a Parental Control composite by combining the following two questionnaires. The Child Rearing Practices Report – modified (CRPR; Block, 1981; Rickel & Biasatti, 1982) measured parenting beliefs on the dimensions of restrictiveness and nurturance. The scale ranges from 1 = not-at-all descriptive of me to 6 = highly descriptive of me. The items that comprised these factors have high internal consistency and reliability. This internal consistency and reliability held up across different samples (i.e., parents from an urban center city and a middle-to-upper income community) (Rickel & Biasatti, 1982).

We also administered subscales of a modified version of the Parenting Styles and Dimensions Questionnaire (PSDQ; Robinson, Mandleco, Olsen, & Hart, 2001). This version of the PSDQ has been used with parents in mainland China and in the United States. Parents reported the frequency with which they display parenting behaviors on a five-point scale. The 18 items developed to assess parenting constructs emphasized in China (P. Wu et al., 2002) were administered. These items are comprised of factors including: encouragement of modesty, shaming/love withdrawal, protection, directiveness and maternal involvement. Construct validity is supported by multi-group confirmatory factor analyses, which showed that most of the

factor loadings for the parenting constructs emphasized in China are comparable across the two cultures. For the current study, the wording of the items on the maternal involvement scale was edited to reflect parental involvement.

Given the focus of the current study on control over children's interpersonal behavior, we examined the Modesty subscale of the PSDQ combined with the Restrictiveness subscale of the CRPR to create the Parental Control composite. For example, the PSDQ Modesty subscale included "I discourage my child from appearing overconfident" and "I discourage my child from strongly expressing his/her point of view." Items from the CRPR Restrictiveness subscale included "I teach my child to keep control of his feelings at all times" and "I believe that scolding and criticism make a child improve." The other subscales of the PSDQ seemed to be unrelated to interpersonal functioning, or to invoke hostile control or psychological control (e.g. Shaming/love withdrawal). In the current sample, Cronbach's alpha for the Parental Control composite was .86 across groups (.78 for EA and .90 for AA).

Results

Missing Data

Missing data was handled using multiple imputation procedures (Graham, Cumsille, & Elek-Fisk, 2003). As shown in Table 1, the level of missingness across variables ranged from 20% to 2%. We imputed the data five times for each ethnic group separately before combining them. We then examined the pooled coefficients from analyses run on each imputed dataset.

Ethnic Differences in Study Variables

As shown in Table 2, after controlling for age, there were significant group differences in parent reports of PSDQ Modesty ($B = 0.42$, $p < .05$), CRPR Restrictive ($B = 0.40$, $p < .05$), and the Parental Control composite ($B = 1.46$, $p < .05$). Specifically, AA parents encouraged modesty

and endorsed restrictive parenting techniques on the parental control measures more than did EA parents (Parental Control composite: M_{AA} = 1.05, SD_{AA} = 2.11; M_{EA} = -0.49, SD_{EA} = 1.50) (See Table 1). However, there were no ethnic differences in BI (*B* = -0.75, *ns*), Cognitive Control ($B_{CBQ\ Inhibitory\ Control}$ = 0.26, *ns*; $B_{Tower\ Inhibitory\ Control\ Errors}$ = -0.83, *ns*), or Negative Affectivity (*B* = -0.38, *ns*).

Ethnic Differences in Interrelations

Behavioral Inhibition. As shown in Table 3, after controlling for age, BI was not correlated with Cognitive Control ($r_{BI\text{-}CBQ\ Inhibitory\ Control}$ = 0.08, *ns*; $r_{BI\text{-}Tower\ Inhibitory\ Control\ Errors}$= -0.04, *ns*), Negative Affectivity (*r* = 0.13, *ns*), or Parental Control (*r* = -0.14, *ns*) for the whole sample. However, when we examined each group separately, the hypothesized pattern emerged (see Table 4). For EA children, there was no significant relationship between Tower Inhibitory Control Errors and BI (*r* = -0.09, *ns*), whereas this relationship was negative for AA children (*r* = -0.61, $p < .05$) (see Figure 1). When we conducted Fisher *r* to *Z* transformations, we found that there was a significant difference between the two partial correlation coefficients (*Z* = -1.59, $p < .05$, one-tailed test). This group difference in associations was not found for CBQ Inhibitory Control (*Z* = 0.21, *ns*), Negative Affectivity (*Z* = 0.98, *ns*), or Parental Control (*Z* = 0.51, *ns*).

We also tested the interactions between ethnic group and Cognitive Control, Negative Affectivity, or Parental Control, in predicting BI. Hierarchical regression analyses were employed as follows: BI was regressed on age in Step 1, and indices of parental control, cognitive control, or negative affectivity and ethnic group were added in Step 2, and interactions between ethnic group and Cognitive Control, Negative Affectivity, or Parental Control were added in Step 3. Results (see Table 5) indicated that there were no main effects of ethnicity, Cognitive Control, Negative Affectivity, or Parental Control on BI. There were no significant

interactions between ethnic group and Cognitive Control, Negative Affectivity, or Parental Control, on BI.

Parental Control. As shown in Table 3, after controlling for age, Parental Control was marginally negatively correlated with CBQ Inhibitory Control (r = -0.27, p< .10) and marginally positively correlated with Tower Inhibitory Control Errors (r = 0.30, p< .10) in the full sample. To examine the possibility that the associations between parents' psychological control and children's behavior differed across the ethnic groups, we examined each group separately (see Table 4). For AA children, there was no significant relationship between Parental Control and CBQ Inhibitory Control (r = -0.12, *ns*), whereas this relationship was negative for EA children (r = -0.43, p< .05). Similarly, for AAs, there was no significant association between Parental Control and Tower Inhibitory Control Errors (r = 0.20, *ns*), while there was a positive relationship for EAs (r = 0.47, p< .05). However, when we conducted Fisher r to Z transformations, we found that there was no significant difference between either pair of partial correlation coefficients: CBQ Inhibitory Control (Z = 0.87, *ns*) and Tower Inhibitory Control Errors (Z = -0.79, *ns*).

In addition, Parental Control was not significantly correlated with Negative Affectivity when examining the whole sample or within each group. The partial correlations between Parental Control and Negative Affectivity for each group were also not significantly different from each other (Z = -0.45, *ns*).

We also tested the interactions between ethnic group and BI, Cognitive Control, and Negative Affectivity, in predicting Parental Control. Hierarchical regression analyses were employed as follows: Parental Control was regressed on age in Step 1, BI, Cognitive Control, or Negative Affectivity and ethnic group were added in Step 2, and interactions between ethnic

group and BI, Cognitive Control, or Negative Affectivity were added in Step 3. Results (see Table 5) indicated that there were main effects of ethnicity on Parental Control in all of the regression models: CBQ Inhibitory Control (B = 1.61, p< .01), Tower Inhibitory Control Errors (B = 1.60, p< .01), Negative Affectivity (B = 1.61, p< .01), and BI (B = 1.40, p< .01). There were also main effects of CBQ Inhibitory Control (B = -0.60, p< .05) and Tower Inhibitory Control Errors (B = 0.38, p< .05) on parental control. There were no main effects of BI or Negative Affectivity on Parental Control. There were also no significant interactions between ethnic group and BI, Cognitive Control, or Negative Affectivity on Parental Control.

Discussion

The present study investigated whether culture influences the associations between BI, parental control, and related temperament factors. For the preliminary analyses, we examined cultural differences in parental control and behavioral inhibition (BI), cognitive control, and negative affectivity in young children. Compared to EA parents, AA parents consistently endorsed higher levels of parental control. Specifically, AA parents' responses suggested a greater tendency to encourage modesty (e.g., discouraging children from appearing overconfident or strongly expressing his/her point of view) and to restrict children's behaviors (e.g., teaching children to keep control of his/her feelings, using scolding and criticism to make a child improve) than reported by EA parents. Overall, these results are in line with the notion that parental socialization goals place relative priority on maintaining social harmony and avoiding conflict in interdependent East Asian contexts (Chao & Tseng, 2002; P. Wu et al., 2002). Whereas, a de-emphasis on parental authority and control may be consistent with goals of promoting children's self-expression, autonomy, and assertion among EA parents in an independent cultural context (P. Wu et al., 2002).

Contrary to predictions, there were no significant ethnic differences in BI, cognitive control, or negative affectivity. In terms of BI, this is surprising given that previous cross-cultural research found that while 16.2 – 44.5% of children in Western countries displayed BI, 32.4 – 60.9% of children from East Asian countries displayed BI when encountering a stranger (Rubin et al., 2006). While our findings diverge from other demonstrations of cultural differences in children's display of BI (e.g., Rubin et al., 2006), previous research has focused on comparing children in different countries. Similar to the current study conducted within a Western context, Chen & Tse (2008) examined ethnic differences in Canadian-born children and found that Chinese Canadian girls, but not boys, were more shy-sensitive than their European Canadian counterparts. Thus, ethnic differences may not be as robust within Western contexts and AAs may be more likely to take on dominant cultural emotion display rules compared to Chinese children in China.

In addition, our methodology differs from previous studies examining parent reports of temperament which may be contaminated by cultural socialization goals and reference group effects (Ahadi, Rothbart, & Ye, 1993; Porter et al., 2005), older children's hypothetical responses to vignettes (Novin, Rieffe, & Mo, 2010), and naturalistic observation where stimuli for BI provocation are less intense (Cole, 1986) or not experimentally controlled (Farver & Howes, 1988). Another reason why our manipulation may not have yielded the expected pattern of greater inhibition among Asian American children is that these children's tendencies to withdraw may be over-ridden by the need to conform to adult expectations for politeness and responsiveness to adults demands for attention. Finally, it is possible that at this young age, children in collectivistic cultures are still developing abilities for managing the display of BI in provocative situations and that cultural differences may not be as robust as they might be in later

childhood (Cole, 1985, 1986; Saarni, Campos, Camras, & Witherington, 2007; Saarni, 1984). In addition, withdrawal from a strange adult might be considered developmentally appropriate behavior for preschoolers, even in Western contexts.

Also inconsistent with study hypotheses, levels of observed and parent-reported cognitive control were similar across ethnic groups. Previous research suggests that children of East Asian descent outperform their U.S. counterparts on measures of effortful control or executive functioning tasks (Carlson & Moses, 2001; C. Lewis et al., 2009; Oh & Lewis, 2008; Sabbagh et al., 2006). For example, Chinese children outperformed European American children in Stroop-like tasks where they are required to inhibit prepotent associations and producing a response the requires cognitive flexibility (e.g., say "day" in response to a picture of a moon in the Day/Night Stroop task) (Sabbagh et al., 2006). In a study of Korean preschoolers, even 3-year-olds were near or at ceiling on tests of inhibitory control (Tower Building and Gift Delay), working memory (the Eight Boxes Scrambled task and Backward Word Span), set shifting (DCCS), and conflict inhibition (Blue-Red task) (Oh & Lewis, 2008).

However, the current research is different from the aforementioned studies in two ways. First, earlier work has focused on children growing up in different countries where differences in not only parenting, but in schooling and other everyday routines, are more apparent all may all contribute to development of cognitive control. For example, Korean teachers use instructional procedures that require children as young as 3 years old to sustain interest in lessons as long as an hour, thus drawing upon and encouraging children's executive function skills to inhibit impulses and maintain attention and concentration (French & Song, 1998; Kwon, 2002). Second, it should be noted that the general pattern of East-West differences in children's cognitive control tends to falter for delay-of-gratification tasks in which East Asian children perform

similarly or even slightly worse than Western children (Carlson & Choi, 2008; Oh & Lewis, 2008; Sabbagh et al., 2006). Carlson (2009) speculates that perhaps these differences dissipate because when given a history of limited resources, it would not be adaptive to cultivate an ability to wait for reward in East Asian contexts. These considerations suggest that we may not necessarily expect cross-cultural differences in these more emotional-motivational "hot" executive functioning tasks (e.g., delay tasks) as we see in "cold" executive functioning tasks (e.g., word interference tasks).

Also, we also did not observe ethnic differences in negative affectivity. Our hypotheses were based on research indicating that Chinese or Chinese American infants are less reactive to negative and positive stimuli than European American babies (Camras et al., 1998; Freedman, 1974; Kagan, Kearsley, & Zelazo, 1980; Kagan, 1994; Kisilevsky et al., 1998; Kuchner, 1989; M. Lewis et al., 1993; M. Lewis, 1989). Our findings may diverge from previous work because our sample is older and preschoolers are more able to regulate their affective reactions in accordance with social norms compared to infants (N. Eisenberg, Cumberland, & Spinrad, 1998). In addition, the current study's measure of negative affectivity was parent reported versus observed behavior in earlier work. Reference group effects in parent report data may be an issue that affects questionnaire responses across different groups, especially across different cultures. Thus, it is always a concern in self-report Likert scale ratings that AA respondents have a different frame of reference for making ratings than EA respondents thus obscuring potential cross-group differences (Heine, Lehman, Peng, & Greenholtz, 2002). Alternatively, we may be observing acculturation effects as AA parents may aim raised their children in accord with EA values and expectations, as such we may expect to see more commonality between East Asian origin and EA parents in socialization goals and practices when conducting research within the

American context (Chao & Tseng, 2002; Cheah, Leung, & Zhou, 2013; Choi, Kim, Kim, & Park, 2013). Indeed our previous work indicated larger differences in parental control between Korean and European American parents than between AA and European American parents (Louie et al., in press).

Beyond main effects of ethnic group on study variables, we examined the correlates of BI in the whole sample and by ethnic group. As predicted, we found that BI was associated with the tower measure of cognitive control for AA but not for EA. These findings are consistent with Chen and Xu's assertions that in Chinese culture, inhibited behaviors are believed to reflect social maturity and understanding, and are associated with modesty, cautiousness, and self-control (Chen et al., 1995; Xu et al., 2007). Specifically, this link between BI and cognitive control in AA children is consistent with Xu's research suggesting that Chinese children with regulated BI, may limit their approach in an effortful manner to align with socialization goals around self-control and restraint (Xu et al., 2007). Similar to our findings, previous work on Chinese children found that teacher reported regulated shyness was positively correlated with mother reported child self-regulation and peers' nominations of social preference and negatively correlated with children's self-reported loneliness and social anxiety, whereas the opposite was found for anxious shyness (Xu et al., 2007).

However, we did not find evidence of cultural differences in associations between BI and the parent report measure of cognitive control, negative affectivity, or parental control. The ethnic differences may have been more robust for associations between Tower Inhibitory Control Errors and Stranger Avoidance because they are both behavioral measures. Contrary to predictions, BI was not associated with negative affectivity in the whole sample or by group, which may suggest that across groups, BI is a heterogeneous phenotype with either low or high

negative affectivity. Additionally, AA children may effortfully display BI regardless of their levels of negative affectivity due to social norms. Finally, stranger avoidance in young children may not be an indicator of negative affectivity even in the American context.

Investigators interested in children's temperament have proceeded under the premise that children influenced by adult efforts to socialize culturally appropriate displays of behavior (Cole, Bruschi, & Tamang, 2002; Cole, Tamang, & Shrestha, 2006; Cole & Tamang, 1998). However, we examined the possibility that there may be differences in the associations between parental control and children's behavior across cultural contexts due to the meanings attached. Our results provided some support for the contention that aspects of parental control were differentially linked to children's behavior or temperament depending on the ethnic group.

In our study, we found that BI was not associated with parental control in the whole sample or within each group. It may be that within a collectivistic familial context, parental control may be normative regardless of the child's BI. These measures may thus reflect East Asian parents' general child-rearing philosophy, while explaining relatively little variance in children's observed BI. Consistent with reasons for similar rates of BI across groups in the current study, perhaps regardless of their parents' efforts, AA children at this young age are still developing abilities for regulating BI and that cultural variation may not be as clear as when children are older (Cole, 1985, 1986; Saarni et al., 2007; Saarni, 1984). In addition, for AA and EA families alike, withdrawal from a strange adult might be considered developmentally appropriate behavior for preschoolers and not a target for parental socialization. However, further research is needed to determine whether these strategies lead prospectively to the development of children's BI.

Likewise, there was no association between parental control and negative affectivity in the full sample or by group. These findings diverge from previous research on the role of parental control on children's emotionality in western contexts (e.g., Louie et al., in press) and the evocative effects of child affectivity on parenting, in general. For example, in a study with 4- to 6-year-olds, mothers reported that they were relatively punitive and avoidant in reaction to children's negative emotions if they viewed their children as high in negative emotionality or low in the ability to regulate attention (an aspect of emotion regulation). In contrast, mothers tended to report more supportive reactions to negative emotions if they believed their child to be attentionally well regulated (i.e., able to voluntarily shift and focus attention; Eisenberg & Fabes, 1994).

However, as predicted, greater parental control as indexed by restrictive strategies and modesty training was related to less cognitive control in children in EA families but these associations were not apparent for AAs. Specifically, EA parents who endorsed using high levels of parental control over children's behaviors tended to have children who displayed less inhibitory control during an elicitation task and as reported by parents. In a Western context, these forms of parental control may function as either an antecedent or consequence of children's cognitive control. Perhaps EA children may be more likely to develop a tendency to react to evocative situations with increased impulsivity when their parents' have been more restrictive. Alternately, EA parents may respond to children's impulsivity, with increased parental control tactics. In both cases, parental deviance from prevailing EA cultural norms about autonomy are associated with greater impulsivity in children. However, for AAs, adherence to culturally normative socialization patterns emphasizing parental control appeared unrelated to children's cognitive control. It may be that within an interdependent cultural context, parental control may

be normative regardless of the child's cognitive control or negative affectivity. Previous research examining whether parental control was differentially related to children's emotional expressivity across cultures revealed that in European American families, greater reports of reliance on parental control were found when children displayed more high arousal exuberant and angry affect; however, the associations were not observed among Asian American and Korean families (Louie et al., in press).

The study limitations reveal potential directions for future research. First, with a small sample size, it is difficult to determine whether insignificant results indicate a true null finding or insufficient power to detect an existing difference. Thus, future work should include more participants or other cultural groups who have high levels of collectivism, such as young children in East Asian countries, to examine the likely gradation in cultural differences in BI, cognitive control, negative affectivity, and parental control. While cultural differences in adult expectations and parenting may shape variation in children's temperament, research has yet to delineate environmental from temperamental contributions to these differences. Relatedly, the use of observational measures of child behavior precludes disentangling behavior response from subjective affective experiences of the child. Thus, future work should explore other measures of emotional experience including child report and physiological measures. Furthermore, future research should explore cultural differences in the correlates of BI in a variety of more naturalistic, yet controlled scenarios.

Another limitation of this study concerns the cross-sectional design of the study. For further clarification of the links between BI, child temperament, and parent socialization, prospective studies are needed. Our alternative interpretations of findings left open the question of whether parental control functioned as either an antecedent or a consequence of children's

cognitive control. Thus, future work should explore both directions of causality. In addition, while this study benefited from observational measures of children's behavior, parental control was only assessed by parent report, which may, to some extent, reflect aspirational goals shaped by cultural values. Future research should assess parental control with multiple methods, including naturalistic or laboratory observation.

In sum, this study highlights the importance of examining the cultural context in which child and parental behaviors occur when exploring associations with children's socio-emotional development. Future research should also examine the functional significance of differences in parental control and observed BI in children from diverse family backgrounds. Specifically, it would be important to understand the implications of cultural differences in parenting and observed BI for the long-term development of other processes such as coping and resilience, biological and emotional responses to stress, and social adjustment.

Table 1

Sample Descriptives by Ethnicity

	Original Data								
	Full Sample			European American			Asian American		
	M	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Parental Control									
PSDQ Modesty	2.57	0.55	44	2.42	0.50	29	2.87	0.55	15
CRPR Restrictive	2.78	0.62	44	2.64	0.48	30	3.08	0.78	14
Parental Control Composite (Sum of *Z*-scores)	0.00	1.85	43	-0.49	1.50	29	1.05	2.11	14
*Child Behavior (*Sum of *Z*-scores*)*									
Behavioral Inhibition	-0.27	2.28	37	-0.10	2.46	24	-0.59	1.96	13
CBQ Inhibitory Control	4.94	0.98	43	4.89	0.92	28	5.03	1.12	15
Tower Inhibitory Control Errors	-.20	1.66	36	-0.08	1.80	24	-0.43	1.39	12
CBQ Negative Affectivity	3.73	0.90	43	3.84	0.88	28	3.54	0.93	15

Table 2
Ethnic Differences in Study Variables

	Parental Control								
	PSDQ Modesty			CRPR Restrictive			Parental Control Composite		
Variable	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2
Step 1: Covariate									
Age	-0.01	0.01	0.06	-0.01	0.01	0.05	-0.04	0.03	0.06
Step 2: Main Effect									
AA[a]	0.42*	0.17	0.13*	0.40*	0.19	0.09*	1.46*	0.57	0.13*

	Child Behavior (Z-scores)											
	Behavioral Inhibition			CBQ Inhibitory Control			Tower Inhibitory Control Errors			CBQ Negative Affectivity		
Variable	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2	*B*	*SE*	ΔR^2
Step 1: Covariate												
Age	-0.03	0.04	0.02	0.02	0.02	0.05	-0.01	0.03	0.08	-.01	.02	0.01
Step 2: Main Effect												
AA[a]	-0.75	0.88	0.02	0.26	0.31	0.01	-0.83	0.39	0.02	-0.38	0.31	0.03

Note. AA = Asian American
[a] Asian American = 1, European American = 0
*† p<0.10. * p< 0.05. ** p< 0.01. *** p< 0.001.*

Table 3

Correlations between Study Variables

		1	2	3	4	5
Covary Age	1. Behavioral Inhibition	1.00				
	2. Parental Control	-0.14	1.00			
	3. CBQ Inhibitory Control	0.08	-0.27†	1.00		
	4. Tower Inhibitory Control Errors	-0.04	0.30†	-0.31†	1.00	
	5. CBQ Negative Affectivity	0.13	0.13	-0.42*	-0.19	1.00

*† p<0.10. * p< 0.05. ** p< 0.01. *** p< 0.001.*

Table 4

Correlations between Study Variables by Ethnicity

		1	2	3	4	5
Covary Age	1. Behavioral Inhibition	1.00	-0.15	0.07	-0.09	-0.03
	2. Parental Control	0.05	1.00	-0.43*	0.47*	0.28
	3. CBQ Inhibitory Control	0.15	-0.12	1.00	-0.26	-0.44*
	4. Tower Inhibitory Control Errors	-0.61*	0.20	-0.43	1.00	0.33
	5. CBQ Negative Affectivity	0.34	0.11	-0.35	-0.31	1.00

Note. Top right = European American, Bottom left (shaded) = Asian American.

*† p<0.10. * p< 0.05. ** p< 0.01. *** p< 0.001.*

Table 5

Parental Control and Temperament Measures and Ethnicity Predicting Children's Behavioral Inhibition and Parental Control

	Behavioral Inhibition		Parental Control	
Variable	*B*	*SE*	*B*	*SE*
Step 1: Covariate				
Age	-.03	.04		
Step 2: Main Effect				
AA[a]	-.54	.91		
Parental Control	-.13	.30		
Step 3: Interaction				
AA[a] x Parental Control	.28	.57		
Step 1: Covariate				
Age	-.03	.04	-.04	.03
Step 2: Main Effect				
AA[a]	-.81	.90	1.61**	.55
CBQ Inhibitory Control	.25	.47	-.60*	.26
Step 3: Interaction				
AA[a] x CBQ Inhibitory Control	.17	1.14	.22	.55
Step 1: Covariate				
Age	-.03	.04	-.04	.03
Step 2: Main Effect				
AA[a]	-.76	.90	1.60**	.52
Tower Inhibitory Control Errors	-.09	.32	.38*	.18
Step 3: Interaction				
AA[a] x Tower Inhibitory Control Errors	-1.04	.65	.11	.40
Step 1: Covariate				
Age	-.03	.04	-.04	.03
Step 2: Main Effect				
AA[a]	-.63	.93	1.61**	.56
CBQ Negative Affectivity	.29	.74	.39	.28
Step 3: Interaction				
AA[a] x CBQ Negative Affectivity	.60	1.18	-.11	.63
Step 1: Covariate				
Age			-.04	.03
Step 2: Main Effect				
AA[a]			1.40**	.55
Behavioral Inhibition			-.06	.14
Step 3: Interaction				
AA[a] x Behavioral Inhibition			.16	.27

Note. AA = Asian American

[a] Asian American = 1, European American = 0

*† p<0.10. * p< 0.05. ** p< 0.01. *** p< 0.001.*

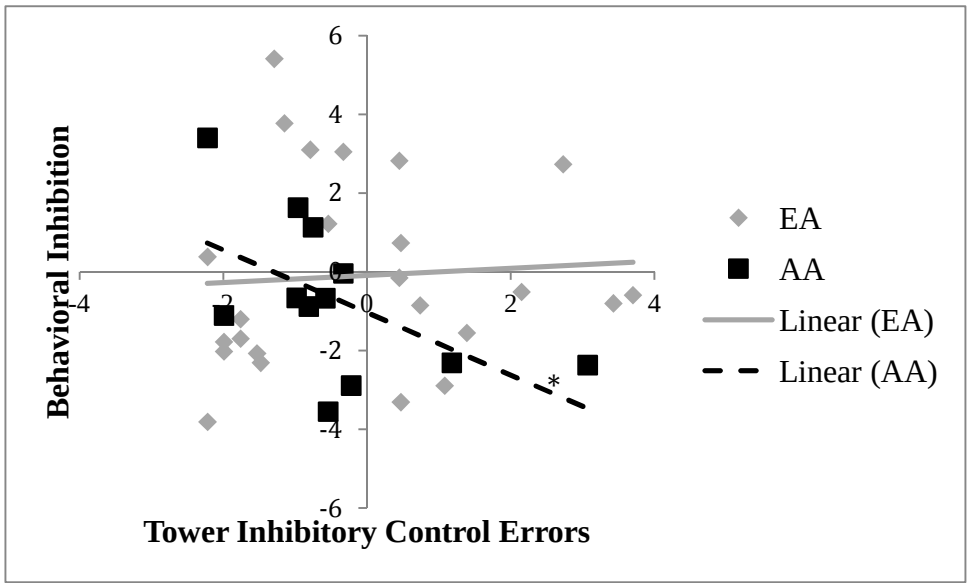

Figure 1. The interaction effects of Ethnicity and Tower Inhibitory Control Errors on Behavioral Inhibition. EA = European American, AA = Asian American.* $p < 0.05$.

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The Interaction of Parental Ethnicity and International Adoption History on Parental Control:

An Examination of the Evocative Effects of Children's Behavior

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Abstract

Previous research suggests that parents from East Asian contexts tend to be more controlling than parents from Western contexts (Pomerantz & Wang, 2009). Such findings are generally attributed to cultural differences in socialization goals and beliefs about what children need to cultivate competence (Keller et al., 2006). As such, it may further elucidate the role of culture to examine variability in parenting in populations where children evince developmental challenge, such as children who have been internationally adopted. Transactional models of child and parent interactions suggest that child behavior may evoke variation in parental behavior. As such we investigated whether commonly observed cultural differences in parental control would generalize to parents of internationally adopted children. In a sample of 64 preschoolers, we examined the interaction of parental ethnicity (European American (EA), Asian American (AA)) and adoption status (adopted, nonadopted) on parental control and the explanatory effects of child factors (behavioral inhibition, anxiety, and cognitive control). As predicted, results indicated that adopted children displayed higher behavioral inhibition and lower parent reported cognitive control. Examination of parenting behaviors showed that cultural differences in parental control emerged among the parents in the comparison group as anticipated, but there were no cultural differences in parental control in the adoption group. Under conditions of developmental challenge, EA parents may respond to children with poorer self-regulation by increasing control whereas AA parents may decrease reliance on controlling parenting. Taken together, these findings suggest that characteristics of the child can modify culturally influenced parenting behaviors.

The Interaction of Parental Ethnicity and International Adoption History on Parental Control: An Examination of the Evocative Effects of Children's Behavior

Transactional models of parenting and child behavior

Child development takes place via reciprocal interactions between the child, other persons, and objects located within a set of "nested" environments, including the family, immediate community, and larger culture (Bronfenbrenner & Morris, 2006; Parke & Buriel, 2008). Thus, parenting both affects children's behavior and is itself affected by the child's behavior, cultural norms, and other factors (e.g., family socioeconomic status, stressful life events). While it has long been theorized that children's adjustment may be influenced by such nested environmental factors, transactional models also discuss the evocative effects of child behavior on parenting. Due to the correlational nature of much of this parent-child research, it is difficult to determine directionality. However, there are some findings consistent with the notion that parenting may be, in part, in response to child characteristics. For example, parental reports of their reactions to children's negative emotions sometimes are correlated with their assessments of their children's emotional intensity and regulation (Eisenberg et al., 1999).

Indeed, parenting is often viewed as a determinant of behavioral adjustment in children, but attention should also be paid to potential evocative effects of child behavior, particularly in the case of children at heightened risk of behavioral problems. Among typically developing samples, some research that suggests that parenting may be in reaction to child behaviors. In a study with 4- to 6-year-olds, mothers reported that they were relatively punitive and avoidant in reaction to children's negative emotions if they viewed their children as high in negative emotionality or low in the ability to regulate attention (an aspect of emotion regulation). In contrast, mothers tended to report more supportive reactions to negative emotions if they

believed their child to be attentionally well regulated (i.e., able to voluntarily shift and focus attention; Eisenberg & Fabes, 1994). Similarly, Grolnick, McMenamy, Kurowski, and Bridges, (1997) found that mothers of 1- to 3-year-olds who used more reassurance had children who tended to be more distressed in a frustrating situation than were children of less reassuring mothers. These correlations dropped to nonsignificance when age and child distress in another context were controlled, suggesting that children's proneness to distress may have partially accounted for the correlations between parental comforting and child distress. Thus, children with increased vulnerability to emotional and behavioral disturbance may precipitate different patterns of caregiving.

Parenting in Cultural Context

Another well-studied determinant of parenting behavior is cultural context that shapes values and goals for child socialization. There are robust findings of cultural differences in parental control, particularly between European Americans and parents of East Asian descent (e.g., Chao & Tseng, 2002). Previous research has examined cultural variation in parents' attitudes and behaviors that could affect their children's socioemotional development (e.g., Bornstein & Cote, 2004; Greenfield & Suzuki, 1998). These differences in parenting have been understood within the framework of cultural psychology and the distinction between individualistic and collectivistic values and norms for appropriate social behavior. Although the nature of collectivism varies across cultures (Triandis, 1995), maintaining personal relationships and interpersonal harmony with close others are key values in collectivistic cultures (Markus & Kitayama, 1991; Oyserman, 1993; Triandis, 1995). Thus, the socialization of children's emotion and behavioral regulation in East Asian collectivistic contexts differs from socialization in individualistic societies (e.g. United States), which emphasize individuals' own needs, interests,

achievements, independence, and self-initiative (Markus & Kitayama, 1991). Children in collectivistic cultures are expected early on to learn to conform to group norms in terms of modulating intense affect and suppressing emotional behavioral display, so that they behave in a way that promotes group harmony and avoids conflict (Tsai, Louie, Chen, & Uchida, 2007).

In order to instill self-discipline in children, East Asian parenting practices tend to emphasize high levels of parental control, actively overseeing and firmly regulating children's behavior and activities (Wu et al., 2002). Characterizations of East Asian parenting include practices tend encompassing encouragement of modest behavior (i.e. reinforcing humility and discouraging self-promotion), shaming (i.e. inducing negative affect to orient the child to the relational consequences of misbehavior), and directiveness (i.e., emphasis on adult directives over child exploration). These parental control dimensions may work together to shape a more interdependent socially attuned approach and potentially greater self-regulation (Wu et al., 2002). In Western contexts, however, these parenting approaches may run counter to the cultural priorities of protecting children's self-esteem, instilling confidence, and promoting child autonomy and expressiveness (Rudy & Grusec, 2006). In Western samples, facets of parental psychological control have been associated with emotional and behavioral adjustment difficulties in children (Barber, 1996; Hane, Cheah, Rubin, & Fox, 2008; Rubin, Burgess, & Hastings, 2002; Williams et al., 2009).

While previous work shows that parenting can vary as a function of ethnic background, with East Asian parenting often characterized by more strict or controlling styles than parents from European descent, some research suggests that these differences emerge after the infant period and once childhood begins. Prior to this "age of reason," East Asian parenting is characterized by close, nurturant care when their children are in infancy and early childhood,

(Suzuki, 1980). Similarly, Kim and Choi (1994) describe Korean mothers who appear to anticipate and appease young children's wants with indulgence. Generally, as children matriculate into school environments, East Asian parental orientations toward expectations for self-control and discipline emerges. This age-related change suggests that the use of controlling practices depends on parents' perceptions of the developmental capabilities of the child (Young, 1972; Suzuki, 1980). Therefore, if parents perceive an older child to be a special-needs child, we would anticipate that the normally high controlling behaviors may attenuate for parents of East Asian descent. In contrast, parents of European descent may increase their normally low levels of controlling behaviors with the attempt to mollify a special-needs child's dysregulated behavior. In this special circumstance, we might anticipate that ethnic differences in parenting behaviors may be eliminated.

It may be that there are culturally modal forms of parenting that govern parental control in typically developing populations, but developmental challenge may introduce culturally non-normative parenting through child evocative effects. Studying parenting among families with distinct cultural backgrounds rearing children with and without a history of early adversity may help to shed light on environmentally mediated associations between cultural background and parenting. In particular, in the case of international adoption, children tend to have significant behavioral and emotional challenges due to exposure to early life stress (e.g., Tottenham et al., 2011; Tottenham et al., 2010), which may shape caregiver parenting behaviors (e.g., Brown, McIntyre, Crnic, Baker, & Blacher, 2011). It may be that under conditions of parenting children with special needs, the patterns of cultural differences observed in parenting in children with typical development may not generalize. Rather, taking an evocative perspective, it may be that children's seemingly dysregulated behaviors evoke parental control differently across cultures.

Previous research examining whether parental control was differentially related to children's self-regulation across cultures revealed that for European American families, parental control was positively correlated with children's display of anger and exuberance in emotionally evocative tasks; however, these associations were not apparent for Asian American and Korean families (Louie, Oh, & Lau, in press). It is possible that among the families of Asian descent, high levels of parental control may have been normative, indeed there were the typically observed main effects of cultural group on parental control. However, when faced with children's challenging and dysregulated affective display, EA parents may move to a more culturally non-normative orientation of emotional control to suppress children's emotional display. Due to the cross-sectional nature of this study, an alternative interpretation is that parental control leads to greater emotionality in EA families. However, prospective research with predominantly EA families suggests that developmental delay and behavioral dysregulation at age 3 are strong predictors of later intrusive and controlling parenting behavior (Brown et al., 2011). Thus, examining patterns of cultural differences in parenting of typically developing children and children who have experienced early adversity may help to illuminate the transactions between ethnic cultural context and child behaviors in shaping parenting.

Emotional and Behavioral Adjustment of Children who have been Internationally Adopted

Peaking in the past decade, approximately 20,000 infants and children were adopted into the United States from abroad each year (US State Department, 2008). Children who are adopted internationally not only experience the adversity of maternal separation, they are also often exposed to several other early environmental risk factors for behavioral maladjustment of children including inadequate prenatal and perinatal medical care, psychological deprivation, insufficient health services, neglect, abuse, and malnutrition in orphanages or in disadvantaged

family settings (e.g., foster care) before adoptive placement (Gunnar, Bruce, & Grotevant, 2000; O'Connor, Rutter, Beckett, Keaveney, & Kreppner, 2000; Verhulst, Versluis-den Bieman, Van der Ende, & Berden, 1990). Due to these stressful pre-adoption experiences, the behavioral adjustment of internationally adopted (IA) children has been extensively investigated. Although many IA children function within the normal range, they also have been shown to be at increased risk for developing behavior problems (Jacobs, Miller, & Tirella, 2010; Juffer & van IJzendoorn, 2005; MacLean, 2003; Merz & McCall, 2010; Verhulst et al., 1990). In a meta-analysis, Juffer & van IJzendoorn (2005) found that compared with nonadopted controls, international adoptees showed more total behavior problems (*d*, 0.11; 95%CI, 0.08-0.14), externalizing problems (*d*, 0.10; 95%CI, 0.05-0.12), and internalizing problems (*d*, 0.07; 95%CI, 0.04-0.11); in addition, international adoptees were overrepresented in mental health referrals (*d*, 0.37; 95%CI, 0.17-0.57).

Underlying these emotional and behavioral difficulties, research has found that previously institutionalized children exhibit elevated emotional reactivity (Colvert et al., 2008), more anxiety (Casey et al., 2009; Zeanah et al., 2009), internalizing problems (Juffer & van IJzendoorn, 2005) and difficulty regulating behavior in emotionally arousing contexts (Tottenham et al., 2010). It stands to reason that the presence of these regulatory difficulties may shape child rearing behavior among parents of some internationally adopted children.

One related area of persistent difficulty for IA children is cognitive development in general, and cognitive control in particular (Tottenham et al., 2011; Tottenham et al., 2010; Van Ijzendoorn, 2005). Cognitive control is the ability to behave in accord with rules, goals, or intentions, even when contrary to reflexive or otherwise highly compelling competing responses (Rougier, Noelle, Braver, Cohen, & O'Reilly, 2005). In one study conducted in British

Columbia, Canada, a third of international adoptees exhibited attention deficits (Ames, 1997). The behavioral and cognitive developmental difficulties observed among children who have been IA are likely related and mutually amplified. Colvert et al (2008) found that higher levels of emotional disturbance in institution-reared Romanian adoptees at age 11 were strongly related to cognitive impairment and inattention/overactivity at age 6. As proposed by MacLean 2003, regulatory abilities may underlie disinhibited behavior, also known as indiscriminate friendliness. It stands to reason that behavioral inhibition (i.e., restraint, avoidance, or distress, a response to novel situations, people, or objects), at the other end of the spectrum, would also be affected by diminished cognitive control (Kagan, Reznick, Clarke, Snidman, & Garcia-Coll, 1984; Lonigan, Vasey, Phillips, & Hazen, 2004; Lonigan & Vasey, 2009). Some IA children might lack the required inhibitory control abilities to regulate their social behavior despite their awareness of the inappropriateness of their behavior.

Early adverse experiences in the pre-adoption period have been directly linked to both behavioral and cognitive developmental outcomes among children who have been IA. Research has indicated that longer periods of institutional rearing are related to more socioemotional problems (Ames, 1997; Rutter, 1998), and in turn, difficulties in cognitive functioning (Ames, 1997; Colvert et al., 2008). In a study on children adopted from institutional care in Russia, Merz and McCall (2010) found that prolonged but not brief exposure to institutional care was associated with later executive functioning problems. In contrast, poor birth circumstances (prematurity, low birth weight) were not correlated with executive functioning deficits. Bruce, Tarullo, and Gunnar (2009) found that inhibitory control mediated the relation between length of time in institutional care and disinhibited social behavior.

Pre-adoption environmental factors have been implicated in patterns of neural development among children who have been IA, with specific implications for socioemotional behavior and inhibitory control. Previous research with IA children who experienced institutional care has revealed decreased metabolic activity in the frontostriatal regions of the prefrontal cortex implicated in inhibitory control abilities (Casey, Castellanos, Giedd, & Marsh, 1997; Chugani et al., 2001). Recent functional neuroimaging research suggests that early adversity among IA children may induce changes in the amygdala, weakening amygdala- prefrontal cortex connections and resulting in decreased ability to regulate arousal with cognitive control (Tottenham, 2012). Overall, these results point toward specific neural systems with behavioral consequences that may be impacted by adverse conditions in institutional care experienced by children who are IA.

The Current Study

European American and Asian American parents, who have and have not adopted internationally, serve as potentially theoretically interesting contrasts in parental control by considering the following dimensions simultaneously: (1) Cultural contexts that shape values and practices related to parental control, and (2). Risk contexts associated with a history of international adoption that may drive child evocative effects on parenting. In the current study, we examined the interaction of adoption status (adopted, nonadopted) and race/ethnicity (European American (EA), Asian American (AA)) on parenting across groups. Based on expectations of the evocative effects of children's behavior on parenting, we were interested in whether ethnic differences in parental control seen in typically developing samples generalize to IA samples. We contend that culturally modal parenting would shift in the IA context, such that cultural differences in parental control observed in the literature on typically developing children

would be shifted so that EA parents of IA children would find themselves exerting more control because of evocative child behavior. In contrast, AA parents may view their IA children as developmentally vulnerable and respond with less controlling or demanding parenting (Young, 1972; Suzuki, 1980). Thus, we first expected that compared to their nonadopted counterparts, adopted children would be at greater risk for poor developmental outcomes: higher behavioral inhibition, higher anxiety, and lower cognitive control. Next, we anticipated that ethnic differences in parenting would be mitigated in parents of internationally-adopted children relative to parents of a comparison group. Furthermore, we expected that this variation in child behaviors would account for the observed interaction between parent ethnicity and adoption status on parental control.

Overall, the unique characteristics associated with internationally adopted children's pre-adoption experience call for a closer examination of the adjustment of these children in relation to parenting experience in the post-adoption period. Demonstrating links between parental cultural background, parenting, and child behavioral profiles in families with adopted children may provide support for theories that emphasize the important reciprocal interaction between the socialization environment and children's development (Bronfenbrenner & Morris, 2006).

Methods

Participants

We recruited typically developing 36-60 month old children and their primary caregiver, including 30 European American children (43.3% male) and 15 Asian American children (33.33% male). We also recruited 36-60 month old children who were internationally adopted and their ethnically matched primary caregiver: 10 European American (70% male) and 9 Asian American (22.22% male). A strength of the current study design is that the ethnicity of the

children is held constant (AA parents adopted AA children and same for EA). Therefore, we have greater experimental control over the single factor of adoption, not conflated with child parent ethnicity match. There was no statistical difference in child gender or age across groups (M = 51.66 months old, SD = 10.37 months).

For the adopted sample, the mean age at adoption was 16.68 months (SD = 11.79). There was a significant ethnic difference in age at adoption ($t(16) = 3.20$ $p < .01$), with EA children being adopted later in life (M = 23.83, SD = 12.40) than and AA children (M = 9.52, SD = 5.15) for AA. Of the adopted AA sample, 66.67% had foster care experience and 33.33% had orphanage experience prior to adoption, whereas 100% of the adopted EA sample were adopted from orphanage care. Of those who were institutionalized, the mean length of stay in an orphanage prior to adoption was 17.03 (SD = 8.95) months in the full sample of adopted children. However, if foster care is coded as 0 months, the mean amount of time in orphanage in the adopted sample was 11.36 (SD = 10.96). This is the variable we used in the current study. There was a significant racial/ethnic difference in length of stay in orphanage care ($t(16) = 3.38$, $p < .01$), with EA adopted children having been in care longer (M = 18.22, SD = 10.07) than AA adopted children (M = 4.49, SD = 6.91).

The non-adopted EA children and their parents were born and raised in the United States, Canada, or a European country (16.7% of parents were 1st generation immigrants). The adopted EA children were born in Russia (70%), or another European country, and their parents were born and raised in the United States or Canada (10% of parents were 1st generation immigrants). The non-adopted AA children and their parents were born and raised in East Asia or in the United States (40% Chinese, 40% Korean, 20% Other; 27% of parents were 1st generation immigrants; 13% reported an East Asian language as the primary language they speak with their

child). The adopted AA children were born in Korea (66.66%), or another East Asian country, and their parents were born and raised in East Asia or in the United States (40% Chinese, 40% Korean, 20% Other; 44% of parents were 1st generation immigrants; 22% reported an East Asian language as the primary language they speak with their child). While the AA samples were not frequency matched on ethnicity, previous research has shown that while within group variation is considerable, East Asian (e.g., Chinese, Korean) cultures tend to have similar values and beliefs regarding parental control shaped by shared Confucian influence (e.g., Chao & Tseng, 2002) (see Table 1 for sample characteristics).

Subjects were recruited through flyering the UCLA campus (including the Early Child Education program), public posting areas, schools, religious organizations, community/recreation centers, professional offices, and after-school facilities with institutions' permission. Parents and children who were part of the UCLA Developmental Research Subject Pool, international adoption family networks (e.g., Mission to Promote Adoption in Korea, Holt International, Dillon International) or online adoption family support groups (e.g. Adoption Family China Yahoo Group) and adoption agencies (e.g., Holt International) were also invited. Families agreeing to participate came to UCLA for one laboratory session that lasted approximately 1 hour. While parents filled out questionnaires, children participated in the following tasks: Stranger Approach and Tower of Patience. Families were compensated $30 for their participation.

Measures

Demographics. Participants were asked to provide basic demographic information, including age, gender, ethnicity, family composition, and parents' education, occupation, and

income. Parents of IA children provided international adoption related information (e.g., time spent in an orphanage, age of adoption).

Laboratory-based measures.

Child Behavior. Using a version of the Lab-TAB coding system (Goldsmith, Reilly, Lemery, Longley, & Prescott, 1999), observers coded negative and positive emotion arousal behaviors: intensity, bodily, behavioral, and verbal cues. Majdandžić & van den Boom (2007) found modest to moderate convergence between questionnaires and Lab-TAB observations, and adequate inter-rater reliability and internal consistency of composite scores. In the current study, each component score was standardized into z-scores and then summed to form the composite scores: Behavioral Inhibition and Tower Inhibitory Control Errors (cognitive control). Intraclass coefficients (ICCs) were calculated as a measure of inter-rater reliability for a random subset (n = 18) of video observations of the total sample. There were 2 EA and 6 AA coders who were randomly assigned to EA or AA videos. The inter-rater reliability was excellent for most composites across subgroups in the sample (see below). Internal consistency reliability of the composites was acceptable in the overall sample and across subgroups (see below).

First, to elicit novelty avoidance, an indicator of BI, in "Stranger Approach," an unfamiliar female experimenter (either EA or AA) entered the room and tried to engage the child in a conversation using a set of standardized questions. The Behavioral Inhibition composite included 3 microanalytic codes during the Stranger task: withdrawal from the stranger (e.g., scooting back in chair, putting head down on the table), gaze aversion (e.g., looking down at hands), approach behaviors towards parent (e.g., reaching for parent's hands). The task was divided into epochs based on the stranger's standardized questions. The number of occurrences within each epoch were summed and then divided by the number of epochs observed to generate

the component scores. Overall, the average measure ICC was .74. The Cronbach alpha for the composite of finalized codes was .65.

Second, "Tower of Patience" was used to elicit inhibitory control, an indicator of cognitive control. In this task, the child and the experimenter took turns adding a block to a tower. During her turns, the experimenter increased delays before adding a block. The Tower Inhibitory Control Errors composite included 2 reverse coded microanalytic codes during the Tower task (higher scores indicate lower cognitive control): anticipatory behavior (e.g., reaching for a block out of turn, touching the tower) and verbalizations (e.g., talking, singing, to self or others). The task was divided into epochs based on the experimenter's turns to put on a block. The number of occurrences within each epoch were summed and then divided by the number of epochs to generate the component scores. Overall, the average measure ICC was .92. The Cronbach alpha for the composite of finalized codes was .67.

Parent report questionnaires.

Child Behavior. The Children's Behavior Questionnaire (CBQ; Rothbart, Ahadi, & Hershey, 1994), a 195-item parent-report measure of temperament for children aged 3 to 8 years, was developed into a very short (36 items, 3 broad scales) form (CBQ-VS; Putnam & Rothbart, 2006). Items are measured on a seven-point Likert scale. Parents' rate how "true" certain behaviors were of their child over the past 6 months. Parents are also given the option of indicating whether a particular item was "not applicable" to their child. The standard CBQ demonstrated both satisfactory internal consistency and criterion validity, and exhibited longitudinal stability and cross-informant agreement. Very short form scales demonstrated acceptable internal consistency, and confirmatory factor analyses indicated marginal fit of the very short form items to a three-factor model. To measure Cognitive Control, we used the

Inhibitory Control subscale from the CBQ; Cronbach's alpha was .84 across groups. Consistent with predictions about construct validity, the CBQ Inhibitory Control subscale was negatively correlated with Tower Inhibitory Control Errors (r = -0.43, p< .01).

The Child Behavior Checklist for Ages 1.5-5 (CBCL 1.5-5; Achenbach & Rescorla, 2000) assessed internalizing and externalizing symptoms. It asks parents/caregivers to rate specific child behaviors (e.g., Clings) as 0 (Not True of the child), 1 (Somewhat or Sometimes True), or 2 (Very True or Often True). Based on extensive psychometric analyses, which have included exploratory and confirmatory factor analyses, Achenbach & Rescorla (2000) identified the following seven clusters representing common problems or syndromes from 67 of the items on the CBCL/1.5–5: Emotionally Reactive (9 items), Anxious/Depressed (8 items), Somatic Complaints (11 items), Withdrawn (8 items), Sleep Problems (7 items), Attention Problems (5 items), and Aggressive (19 items). In addition to these seven syndrome scores, the CBCL/1.5–5 produces an Internalizing Problems score as well as an Externalizing Problems score. A Total Problems score is derived from the 67 items that form the seven syndromes, 32 items that represent other problems (e.g., Chews inedibles), and up to one open response item that the parent/caregiver may complete. Previous research has replicated the factorial validity of the CBCL/1.5–5 and supports its use with Chinese girls adopted into North American families (Tan, Marfo, & Dedrick, 2007). Given the focus of the current study on anxiety, we examined the Anxiety/Depression subscale of the CBCL/1.5–5. In the current sample, Cronbach's alpha for the Anxiety/Depression subscale was .74 across groups.

Parental Control. We created a Parental Control composite by combining the following two questionnaires. The Child Rearing Practices Report – modified (CRPR; Block, 1981; Rickel & Biasatti, 1982) measured parenting beliefs on the dimensions of restrictiveness and nurturance.

The scale ranges from 1 = not-at-all descriptive of me to 6 = highly descriptive of me. The items that comprised these factors have high internal consistency and reliability. This internal consistency and reliability held up across different samples (i.e., parents from an urban center city and a middle-to-upper income community) (Rickel & Biasatti, 1982).

We also administered subscales of a modified version of the Parenting Styles and Dimensions Questionnaire (PSDQ; Robinson, Mandleco, Olsen, & Hart, 2001; Wu et al., 2002) This version of the PSDQ has been used with parents in mainland China and in the United States. Parents reported the frequency with which they display parenting behaviors on a five-point scale. The 18 items developed to assess parenting constructs emphasized in China (Wu et al., 2002) were administered. These items are comprised of factors including: encouragement of modesty, shaming/love withdrawal, protection, directiveness and maternal involvement. Construct validity is supported by multi-group confirmatory factor analyses, which showed that most of the factor loadings for the parenting constructs emphasized in China are comparable across the two cultures. For the current study, the wording of the items on the maternal involvement scale was edited to reflect parental involvement.

Given the focus of the current study on control over children's interpersonal behavior, we examined the Modesty subscale of the PSDQ combined with the Restrictiveness subscale of the CRPR to create the Parental Control composite. For example, the PSDQ Modesty subscale included "I discourage my child from appearing overconfident" and "I discourage my child from strongly expressing his/her point of view." Items from the CRPR Restrictiveness subscale included "I teach my child to keep control of his feelings at all times" and "I believe that scolding and criticism make a child improve." The other subscales of the PSDQ seemed to be unrelated to interpersonal functioning, or to invoke hostile control or psychological control (e.g.

Shaming/love withdrawal). In the current sample, Cronbach's alpha for the Parental Control composite was .85 across groups.

Results

Means, standard deviations, and sample sizes for study measures are presented in Tables 2 and 3. Bivariate partial correlations are shown in Table 4. After controlling for age, CBQ Inhibitory Control was negatively correlated with Parental Control (r = -0.27. p< .05*)*, Anxiety (r = -0.31, p< .05*)*, and Tower Inhibitory Control Errors (r = -0.43, p< .01*)* for the whole sample.

Child Behaviors

Behavioral Inhibition. After covarying for age, group differences in observed behavioral inhibition emerged for Adoption Status (F(1, 50) = 3.82, p< .05) with Adopted children exhibiting more behavioral inhibition than Non-Adopted children (See Table 2).

Anxiety. After controlling for age, our analysis revealed that while the trends were in the predicted directions, there was no significant main effect of adoption on parent reported CBCL anxiety (See Table 2).

Cognitive Control.

Observed Tower Inhibitory Control Errors. As shown in Table 2, when covarying for age, there was no significant main effect of Adoption status on inhibitory control during the tower task despite trends in the predicted directions (Note that higher scores indicate less Inhibitory Control).

Parent Reported Inhibitory Control. When controlling for age, there was a main effect of Adoption status (F(1, 56) = 4.30, p< .05) on a parent reported measure of inhibitory control. Compared to Non-Adopted children, children who were adopted had lower levels of parent-reported Inhibitory Control (See Table 2).

Parental Control

The effects of Parental Ethnicity and Adoption status on Parental Control are illustrated in Figure 1. As shown in Table 2, when controlling for child age, there was a significant interaction between ethnicity and adoption status in parent reports of Parental Control ($F(1, 56) = 5.94$, $p < .05$). Post hoc analysis of simple effects indicated that among non-adoptive families, AA parents ($M = 1.05$, $SD = 2.11$) endorsed more control over children's behavior on the parental control measures than did EA parents ($M = -0.49$, $SD = 1.50$) ($F(1, 40) = 6.05$, $p < .05$). However, among families with adopted children, levels of parental control were not different between AA ($M = -0.43$, $SD = 2.10$) and EA parents ($M = 0.43$, $SD = 1.24$).

Covary for Child Behavior on Parental Control

To explore whether group differences in child behavioral vulnerability may as attenuate the observed Adoption by Ethnicity interaction effects in predicting Parental Control, we entered each child behavior variable as a covariate (see Table 4). First, when we covaried for BI, we found that the interaction on Parental Control was diminished and not longer significant ($F(1, 45) = 3.61$, $p < .10$). We also found that the effects on Parental Control attenuated ($F(1, 42) = .17$, *ns*) when we covaried for Tower Inhibitory Control Errors, suggesting these child factors are explaining some of the variance in the interaction. Covarying for CBQ Inhibitory Control or Anxiety did not change the interaction effects on Parental Control.

To formally test BI, Anxiety, Tower Inhibitory Control Errors, and CBQ Inhibitory Control as separate mediators for the Parent Ethnicity by Adoption status interaction on Parental Control, we employed a bootstrapping method for mediated moderation. We found a significant indirect effect of CBQ Inhibitory Control on the interaction (*Effect* = -.51, *SE(Boot)* = .38, *boot 95% CI* -1.70 to -.01). Simple effect analyses revealed that the conditional indirect effect of

Adoption Status on Parental Control for the mediator CBQ Inhibitory Control was significant for EAs (*Effect* = .48, *SE(Boot)* = .30, *boot 95% CI* .04 to 1.23) and not for AAs (*Effect* = -.03, *SE(Boot)* = .23, *boot 95% CI* -.57 to .37).[1] We did not find significant effects for rest of the proposed mediators.

Discussion

The present study investigated the whether typically observed ethnic differences in parental control were modified in the presence of potential child evocative behavior and developmental challenge. We studied EA and AA parents and further explored a contrast between comparison non-adoptive families and families with internationally adopted children who have previously been found to have impairments in cognitive control, and elevated risk of behavioral and emotional problems. As such, we examined whether the effect of parental ethnicity on parental control was moderated by a history of international adoption. While there has been extensive research on cultural differences in parental control, there has been a lack of work looking at the child factors that may alter culturally normative parenting practices.

First, we examined the main effects of adoption status on children's behavioral inhibition, anxiety, and cognitive control. These analyses were meant to establish that our sample of IA children represented a vulnerable group for whom developmental challenges may set the stage for culturally atypical parenting elicited by child evocative effects. We found that children who were internationally adopted exhibited more avoidance in response to a stranger than nonadopted children. Previous research suggests that internationally adopted children are more likely than nonadopted children to display dysregulated behavior when confronted with a novel adult (Bruce et al., 2009). In contrast, our examination of parent reported anxiety across groups revealed findings inconsistent with our predictions. We found that while the trend was in the predicted

[1] Age was not a covariate for this moderated mediation analysis.

direction, levels of anxiety did not significantly differ between adopted and nonadopted children. It may be that at this young age, anxiety, especially stranger anxiety, is considered developmentally appropriate behavior and the two groups don't differ as much as when they are older. Some previous research on internationally adopted children suggests that difficulties with emotion regulation more generally are more prominent in older children compared to preschoolers (Rutter et al., 2007).

In terms of cognitive control, parents reported that adopted children had lower levels of inhibitory control compared to their nonadopted peers. These findings are consistent with extensive previous research linking early life stress to deficits in cognitive control and emotion regulation (Bruce et al., 2009; Tottenham et al., 2011; Tottenham et al., 2010). Interestingly, adopted and nonadopted children performed similarly on a laboratory task requiring they wait to take turns with the experimenter to put a block on a tower. Although the trend was in the expected direction, there may have been methodological factors that created a divergence between the two cognitive control measures. First, the participation of the experimenter, and the child's motivation to follow an adult's rules, may have made the task relatively easy for both groups, as opposed to the variety of scenarios presented to parents in the inhibitory control questionnaire. Another possible explanation is the difference in valence of emotion involved. While eliciting some amount of frustration, the tower task more generally elicited positive emotion, which may have been regulated equally across the preschoolers.

Next, we explored group differences in parental control. Based on theories about the evocative effects of children's behavior on parenting, we were interested in whether cultural differences in parental control seen in EA and AA general population samples would generalize to IA samples. Consistent with previous cross-cultural work (e.g., Chao & Tseng, 2002; P. Wu

et al., 2002), we found that within the nonadopted group, AA parents endorsed more parental control than EA parents. Also as hypothesized, this pattern shifted for the caregivers with adopted children such that EA and AA parents' responses were not significantly different from each other. Furthermore, each group switched in their tendencies (i.e., EA parents appeared more controlling, AA parents appeared less controlling) and gravitated toward the mean.

Finally, we examined whether factoring in child behavior variables accounted for the observed interaction on parental control. Given previous research findings that suggest higher risk for behavioral and emotional challenges among IA children due to their pre-adoptive history (e.g., Tottenham et al., 2010), we wanted to explore the possible evocative effects of child factors on parenting. First, when we covaried for BI, we found that the interaction on parental control was diminished. We also found that the effects on parental control attenuated when we covaried for inhibitory control during a tower task, suggesting these child factors are explaining some of the variance in the interaction. Furthermore, mediated moderation analyses revealed that parent reported inhibitory control was a significant mediator of the parent ethnicity by adoption status interaction effects on parental control. In contrast, covarying for anxiety did not attenuate the interaction effects on parental control. This may be because anxiety is considered more acceptable than a lack of inhibitory control and is less influential on parent's controlling behaviors (Matsumoto, Takeuchi, Andayani, Kouznetsova, & Krupp, 1998)

Taken together, these findings are consistent with the notion that variation in parenting may be elicited by child behavior. It is possible that in response to some of the challenging child behaviors, including higher BI as well as lower cognitive control, EA parents of adopted children developed a non-culturally normative parenting approach. Similar to previous research findings, parental control may function as either an antecedent or consequence of children's behaviors for

EA families (Brown et al., 2011; Louie et al., in press). It may be that EA parents may respond to adopted children's challenging behavior with increased parental control tactics. For AA parents, we saw a shift in the opposite direction. Rather than adherence to culturally normative script of demanding and controlling parenting patterned by expectations of self-regulation, AA parents of vulnerable adopted children resulted in lower parental control. This pattern may shed light on parents' beliefs about what special needs children require: EA parents may think that children who have trouble with self regulation may need more parental control as opposed to AA parents who believe that children with less developmental competence may not tolerate firm control and require a different type of nurturance.

The study limitations reveal potential directions for future research. First, with a small sample size, it is difficult to determine whether insignificant findings indicate insufficient power to detect an existing difference or a true null result. Thus, future research should include more participants, or other cultural groups with high levels of collectivism (e.g., parents and children in East Asian countries), to examine the expected progression in differences in parental control. Furthermore, research using adopted groups matched on ethnicity but different in terms of child's exposure to early institutional care, or IA children raised by parents of the same or different ethnicity (e.g., AA children with EA parents), could address interesting questions about cultural differences in adult expectations and parenting that may shape variation in children's temperament and attempt to disentangle environmental and temperamental factors. Likewise, the use of observational measures of child behavior does not separate behavior response from the child's subjective experiences. Thus, future work should explore other measures of emotional experience including child report and physiological measures.

Second, it is also unknown whether there are selection factors at work leading to differences in parental characteristics among parents with adopted and nonadopted children. The third variable problem cannot be ruled out. For example, it is also worth considering how AA parents who adopt AA children may be more liberal or acculturated thereby holding different values about parental control compared to AA parents whose children were not adopted. However, in the current sample adoptive AA parents were actually likely to be 1st generation immigrants and to speak an East Asian language as the primary language they speak with their child.

Another limitation of this study is the cross-sectional design. For further clarification of the links between BI, child temperament, and parent socialization, prospective studies are needed. Our alternative interpretations of findings do not answer the question of whether parental control was either an antecedent or a consequence of children's behaviors. Perhaps when EA parents have been more restrictive or invalidating, their adopted children may be more likely to develop a tendency to react to difficult situations with increased intensity. Thus, future work should explore both directions of causality. In addition, while one of the study's strengths was the use of observational measures of children's behavior, parental control was only measured by parent report, which may reflect aspirational goals and cultural values. Future research should assess parental control using naturalistic or laboratory observation, or qualitative interviews.

In summary, this study aims to examine the context in which child and parental behaviors occur when exploring their reciprocal effects on children's socio-emotional development. Future research should also investigate the functional significance of differences in parental control and observed BI, anxiety, and cognitive control in children from diverse family backgrounds. It

would be important to explore the implications of variation in child behaviors and their evocative effects on parenting for the long-term development of other processes such as coping and resilience, biological and emotional responses to stress, and social adjustment.

Table 1
Sample Characteristics

Variable	Non-Adopted		Adopted	
	European American (n = 30)	Asian American (n = 15)	European American (n = 10)	Asian American (n = 9)
Child gender	43.3% male	33.33% male	70% male	22.22% male
Child age in months (*M*(*SD*))	52.37(9.55)	49.47 (10.78)	56.40 (11.70)	47.67 (10.11)
Child country of origin			70% Russia	66.66% Korea
Parent ethnicity		40% Chinese, 40% Korean, 20% Other		40% Chinese, 40% Korean, 20% Other
Parent 1st generation immigrant	16.7%	27%	10%	44%

Table 2

Parent Ethnicity by Adoption Status on Parental Control

Variable	Non-Adopted						Adopted						F (1, 56)			
	European American			Asian American			European American			Asian American						
	M	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	Age	Adoption Status	Parent Ethnicity	Adoption x Ethnicity
Parental Control	-0.49	1.50	29	1.05	2.11	14	0.43	1.24	10	-0.43	2.10	9	0.08	0.27	0.31	5.94*

*† p<0.10. * p< 0.05. ** p< 0.01. *** p< 0.001.*

Table 3

Adoption Status on Child Behavior

Variable	Non-Adopted			Adopted			F	
	M	*SD*	*N*	*M*	*SD*	*N*	Age	Adoption Status
Behavioral Inhibition	-0.27	2.28	37	0.87	1.51	16	0.91	3.82*
Anxiety	1.95	2.22	42	3.00	3.29	18	0.27	1.94
Tower Inhibitory Control Errors	-0.20	1.66	36	0.43	1.85	18	2.02	1.84
CBQ Inhibitory Control	4.94	0.98	43	4.39	0.96	16	1.45	4.30*

*† p<0.10. * p< 0.05. ** p< 0.01. *** p< 0.001.*

Table 4

Correlations between Study Variables for Full Sample

		1	2	3	4	5
Covary Age	1. Parental Control	1.00				
	2. Behavioral Inhibition	0.04	1.00			
	3. Anxiety	0.15	0.05	1.00		
	4. Tower Inhibitory Control Errors	0.20	-0.06	0.12	1.00	
	5. CBQ Inhibitory Control	-0.27*	0.10	-0.31*	-0.43**	1.00

*† p<0.10. * p< 0.05. ** p< 0.01. *** p< 0.001.*

Table 5

Parent Ethnicity by Adoption Status on Parental Control: Covary for Child Behavior

Variable	Non-Adopted						Adopted						F				
	European American			Asian American			European American			Asian American							
	M	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	Age	Parental Control	Adoption Status	Parent Ethnicity	Adoption x Parent Ethnicity
Parental Control (covary for Behavioral Inhibition)	-0.34	1.51	23	1.03	2.19	13	0.52	1.29	8	-0.19	2.36	7	0.31	0.20	0.09	0.14	3.61†
Parental Control (covary for Anxiety)	-0.72	1.39	26	1.05	2.11	14	0.43	1.24	9	-0.43	2.10	9	0.00	0.42	0.20	0.97	5.49*
Parental Control (covary for Tower Inhibitory Control Errors)	-0.34	1.51	23	0.84	2.18	12	0.52	1.29	8	-0.43	2.10	9	0.04	2.14	0.41	0.39	2.70
Parental Control (covary for CBQ Inhibitory Control)	-0.57	1.51	27	1.05	2.11	14	0.43	1.24	9	-0.65	1.91	7	0.00	4.15	1.24	1.03	4.35*

*† p<0.10. * p< 0.05. ** p< 0.01. *** p< 0.001.*

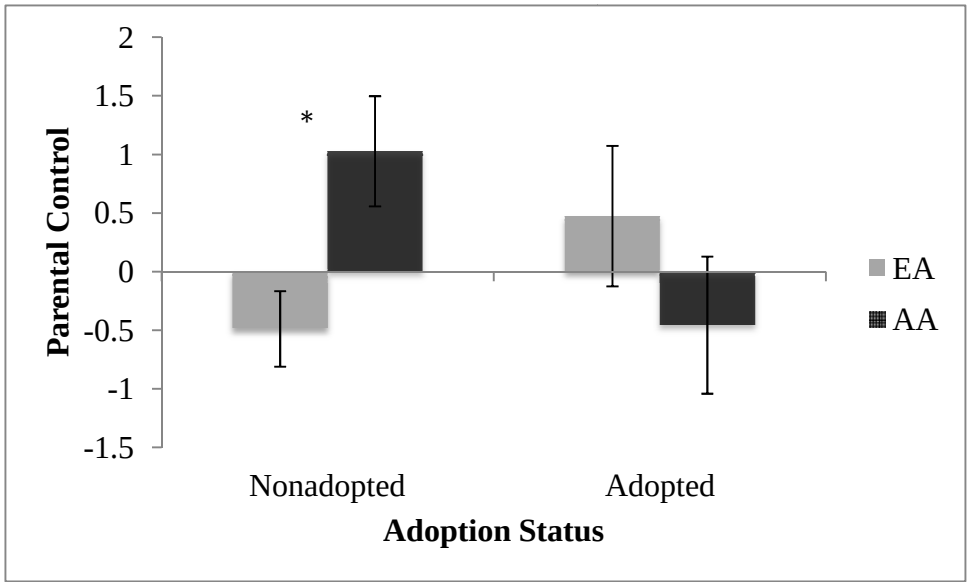

Figure 1. Parent Ethnicity and Adoption Status on Parental Control. EA = European American, AA = Asian American.
** p< 0.05.*

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Appendix

Coding System

Stranger Approach Guide

Epoch 1: Begins when Stranger (S) knocks on door and ends when S begins to ask 1st question ("have you been here before?")
Epoch 2: Begins when S asks 1st question ("have you been here before?") and ends when S begins to as 2nd question ("Are you having fun here today?")
Epoch 3: Begins with 2nd question ("Are you having fun here today") and ends when S begins 3rd question.
Epoch 4: Begins with 3rd question ("Are you playing with lots of toys?") and ends when S begins 4th question.
Epoch 5: Begins with 4th question ("What was your favorite toy?") and ends when S begins "I came to pick up papers…"
Epoch 6: Begins with "I came to pick up some papers. Was there a woman here?" and ends with "I'll go look in the hall."
Epoch 7: Begins with "I'll go look in the hall." and ends after Child's (C) reaction to Experimenter's (E) line

Withdraw/Avoidance: Peak intensity of withdrawal behaviors is noted in each epoch and rated on the following scale:

0 = No withdrawal. Sits in place
1 = Low withdrawal. Turns or leans away from stranger.
2 = Medium withdrawal. Scoots back in chair away from stranger.
3 = High withdrawal. Hides face in parent, puts head down, moves away from table, or jumps away from stranger.

Gaze Aversion: Peak intensity of gaze avoidance is noted in each epoch and rated on the following scale:

0 = No aversion.
1 = Briefly averts gaze.
2 = Averts gaze for two to three seconds or focuses on object other than stranger for two or three seconds.
3 = Averts eye contact with stranger for nearly all of the time.

Approach Parent: A measure of how much C interacts with their parent

0 = No interaction with parent at all
1 = Low, looks at parent
2 = Medium, touches or speaks to parent
3 = High, leans toward parent/ hugs/ conversation with parent

Tower Of Patience Guide

Epoch 1: Begins as soon as C's hands leave the first block- ends immediately after C's hands leave the second block

Epoch 2: Begins as soon as C's hands leave the second block- ends immediately after C's hands leave the third block

Epoch 3: Begins as soon as C's hands leave the third block- ends immediately after C's hands leave the forth block

Epoch 4: Begins as soon as C's hands leave the forth block- ends immediately after C's hands leave the fifth block

Epoch 5: Begins as soon as C's hands leave the fifth block- ends immediately after C's hands leave the sixth block

Epoch 6: Begins as soon as C's hands leave the sixth block- ends immediately after C's hands leave the last block

Anticipatory behavior: The peak intensity of anticipatory behavior is scored for each epoch using the following:

0 = No anticipatory behavior.

1 = Low anticipatory behavior (e.g., looks at blocks or E or tower).

2 = Moderate anticipatory behavior (e.g., touches, reaches or leans towards blocks or tower).

3 = High anticipatory behavior (e.g., picks up block, plays with tower, moves blocks around on tower after told not to, gives block to E)

4 = Extreme anticipatory behavior (e.g., puts block on tower)

Verbalizations: Talking (not including prompts)

0 = No verbalizations, waits quietly

1 = Low verbalizations, including some talking/ singing/ making noises, less than half of waiting time

2 = Medium verbalizations including some talking/ singing/ making noises, about half of waiting time

3 = High verbalizations, including talking/ singing/ making noises for greater than half of waiting time