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The Relations Among Multiple Risks, Parenting Styles, and Chinese American Children's
Internalizing and Externalizing Problems

By

Xiao Tong Tao

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requirements for the degree of

Doctor of Philosophy

in

Psychology

in the

Graduate Division

of the

University of California, Berkeley

Committee in charge:

Professor Qing Zhou, Chair
Professor Allison Harvey
Professor Emily Ozer

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Abstract

The Relations Among Multiple Risks, Parenting Styles, and Chinese American Children's

Internalizing and Externalizing Problems

by

Xiao Tong Tao

Doctor of Philosophy in Psychology

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Professor Qing Zhou, Chair

This study examined the prospective effects of multiple risks on the internalizing and externalizing problems of 258 1st and 2nd generation Chinese American school-aged children, as well as the mediating and moderating roles of parenting styles. When examining the relations between risk domains and children's behavioral adjustment, children's low self-regulation and negative emotionality, single-parent family structure, and gaps in parent-child cultural orientations were found to be unique predictors of adjustment outcomes two years later. The multiple risk index, which represented the joint effects of uniquely predictive risk variables, was related to higher levels of child-reported internalizing and externalizing problems. Similarly, the cumulative risk index, which represented the number of risk factor exposures, was also associated with increased internalizing and externalizing problems as reported by children. Though we did not find support for parenting styles as mediators, results did indicate that authoritarian parenting interacted with the multiple and cumulative risk indexes. High authoritarian parenting had a tendency to strengthen the relation between the multiple risk index and increased teacher-reported internalizing problems, while low authoritarian parenting had a tendency to attenuate the relation between cumulative risk and parent-reported internalizing problems.

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Introduction

According to ecological systems theory, individuals are nested within layers of environmental systems (e.g. family, school, and neighborhood), and development is shaped by their many influences and interactions (Bronfenbrenner & Morris, 1998). Thus, delineation of trajectories toward psychopathology necessitates understanding how multiple risk factors operate across organismic, proximal, and distal domains. To study the effects of multiple risk factors, researchers may examine two important features: the domain and quantity of multiple risks (Burchinal, Roberts, Hooper, & Zeisel, 2000; Dawson-McClure, Sandler, Wolchik, & Millsap, 2004). Despite ongoing investigation of risk domains spanning individual (e.g. temperament, Rothbart & Bates, 2006), proximal (e.g. exposure to marital conflict, Cummings & Davies, 2002), and distal (e.g. neighborhood characteristics, Leventhal & Brooks-Gunn, 2000) levels, as well as mounting evidence linking the quantity of risk exposures with poorer developmental outcomes (Evans, Li, & Whipple, 2013), there are important limitations to address. First, although numerous risk factors have been identified, little attention has been devoted to understanding how multiple risk domains operate together (see Deater-Deckard, Dodge, Bates, & Pettit, 1998 for an exception). Second, few researchers have examined how modifiable parenting styles and behaviors mediate or alter the impact of multiple risk factors on children's mental health adjustment (see Trentacosta, Hyde, Shaw, Dishion, Gardner, & Wilson, 2008 and Lengua, Honorado, & Bush, 2007 for exceptions). From a prevention and intervention perspective, research that examines the potential mediators and modifiers of multiple risk factors could guide efforts to improve children's adjustment. Third, though the population of children in immigrant families is the fastest growing group of children in in the U.S. (Hernandez & Charney, 1998), very little is known about how this population responds to multiple risks.

To address these critical gaps in the literature, this study utilized data from a two-wave longitudinal study of Chinese American immigrant children. The major goals were: 1) to examine two key features of multiple risks (i.e. domain and quantity) and their prospective relations to children's internalizing and externalizing problem behaviors, and 2) to test the roles of parenting styles as mediators and moderators in the relations between multiple risks and children's problem behaviors. As the first longitudinal study on multiple risks and children's mental health adjustment in Asian American immigrant families, the present study provides valuable implications for mental health prevention services targeting this population.

The Domains of Risk and Children's Developmental Outcomes

To assess how multiple domains of risk factors operate together, this study examined the unique and joint contributions of multiple risk factors from child, socio-demographic, psychosocial, and neighborhood levels. Selection of the specific risk factors was based on two criteria: strong empirical evidence linking the risk factor to poor behavioral outcomes and consistency with variables commonly examined in studies of multiple risk factors.

Temperament Risk Factors: Low Self-Regulation and Negative Emotionality

Temperament, defined by Rothbart and Bates (2006) as "constitutionally based individual differences in reactivity and self-regulation in the domains of affect, activity, and attention" (*p.* 100), is theorized to play a significant role in children's psychological adjustment. Indeed, negative emotionality, which is an aspect of reactivity that represents the tendency toward arousal of negative affect (i.e. fear and frustration), has been linked to internalizing and

externalizing problems (Rothbart & Bates, 2006). Studies suggest that children prone to experiencing negative emotions have higher risk for behavioral problems (Eisenberg, Valiente, Spinrad, Cumberland, Liew, Reiser, et al., 2009) in both US and Chinese contexts (Zhou, Lengua, & Wang, 2009).

In addition, low self-regulation predicts behavioral maladjustment (Rothbarth & Bates, 2006). Specifically, low effortful control, which reflects the self-regulation processes of attention focusing, inhibitory control, and cognitive flexibility, has been linked to children's higher internalizing and externalizing problems (Kochanska, Murray, Jacques, Koenig, & Vandegeest, 2008; Lengua, 2003). Moreover, the relation between low effortful control and maladjustment problems has been found in samples of diverse ethnic and cultural backgrounds, including Chinese children (Zhou et al., 2009; Eisenberg, Ma, Chang, Zhou, West, & Aiken, 2007).

Socio-Demographic Risk Factors: Low SES, Single-Parent Family, and High Household Density

Low socioeconomic status (SES), which reflects low social positioning in the areas of income, education, and occupation (Bradley & Corwyn, 2002), is robustly associated with children's maladjustment (McLoyd, 1998; Bradley & Corwyn, 2002). Because children from low SES families are exposed to more stressors across domains (e.g. insufficient resources, harsh parenting, and hazardous physical conditions), their development may be significantly impeded (Evans & English, 2002; Conger, Ge, Elder, Lorenz, & Simons, 1994). In particular, low SES poses significant challenges for school-aged children, and has been associated with a wide range of developmental difficulties, including reduced prefrontal function (Kishiyama, Boyce, Jimenez, Perry, & Knight, 2009), lower levels of academic achievement (McLoyd, 1998), and increased internalizing and externalizing problems (Dodge, Pettit, & Bates, 1994; Shaw, Keenan, & Vondra, 1994).

Low SES is often accompanied by several other socio-demographic risk factors, such as single-parent family structure and high household density, which have also been linked with children's maladjustment (e.g. Rutter, 1979; Greenberg, Lengua, Coie, Pinderhughes, & The Conduct Problems Prevention Research Group, 1999). For example, children who live with a single parent or within dense households are more likely to demonstrate internalizing and externalizing problems (Thomson, Hanson, & McLanahan, 1994; Evans, Kim, Ting, Tesher, & Shannis, 2007).

Risk Factors in Family Processes: Marital Conflict and Parent-Child Gaps in Cultural Orientations

Marital conflict, characterized as verbal, non-verbal, and physical aggression between couples (Krishnakumar & Buehler, 2000), has been consistently shown to predict children's behavioral problems (Cummings & Davies, 2002). Theoretically, marital conflict may adversely impact children's adjustment by heightening children's experience of negative emotions like fear and anger, and through parental modeling of dysregulated behaviors (Cummings & Davies, 2002; Erel & Burman, 1995). Indeed, empirical studies have supported a positive association between marital conflict and children's elevated internalizing and externalizing problems (Davies & Cummings, 1998; Grych, Fincham, Jouriles, & McDonald, 2000).

Intergenerational or parent-child gaps in cultural orientations are unique psychosocial risk factors for children growing up in immigrant families. Because immigrant families are frequently exposed to two sets of cultural beliefs, norms, and practices, parents and children may

differentially engage in acculturation (i.e. adaptation to mainstream culture) and enculturation (i.e. maintenance of heritage culture). Operationally, ideological and behavioral adherence to a culture may be measured as cultural orientation (Tsai & Chentsova-Dutton, 2002), and intergenerational gaps in cultural orientations are theorized to negatively affect children's adjustment through increased parent-child conflict (Costigan & Dokis, 2006) and decreased parental support (Kim, Chen, Li, Huang, & Moon, 2009). Studies have also shown that intergenerational gaps in cultural orientations are positively associated with children's behavioral and emotional problems (Costigan & Dokis, 2006; Farver, Narang & Bhadha, 2002; Pawliuk et al., 1996).

Neighborhood Risk Factors: Neighborhood Disadvantage and Low SES
        Children living in disadvantaged neighborhoods (e.g., those with a high concentration of impoverished families) face additional risks for developing psychological problems compared to children living in advantaged neighborhoods (Leventhal & Brooks-Gunn, 2000; Roosa, Jones, Tein, & Cree, 2003). For example, studies have linked low neighborhood SES to children's externalizing and internalizing problems (e.g. Kupersmidt, Griesler, DeRosier, Patterson, & Davis, 1995; Xue, Leventhal, Brooks-Gunn, and Earls, 2005). As distal risk factors, neighborhood poverty and disorganization may affect children by impairing proximal processes like supportive parenting and family cohesion (Barnett, 2008). Consistent with this hypothesis, studies have shown that harsh parenting and parent-child conflict mediate the relation between neighborhood disadvantage and children's adjustment outcomes (Beyers, Bates, Pettit, & Dodge, 2003; Roosa, Deng, Ryu, Burrell, Tein, & Jones, et al., 2005).

Quantity of Risk Factor Exposures (Cumulative Risk) and Children's Mental Health Outcomes
        To assess quantity of risks, this study utilized a cumulative risk index, which reflects the total number of risk factors present in a child's life (Rutter, 1979). Cumulative risk is typically calculated by tallying the child's "exposure" to dichotomized risk variables (i.e. either the risk factor is present or absent). The variety of risk factors included in cumulative risk indexes spans multiple domains including socio-demographic (e.g. minority status, Sameroff, 2000), child (e.g. temperament, Corapci, 2008), psychosocial (e.g. marital conflict, Rutter, 1979), and contextual (e.g. neighborhood safety, Gerard & Buehler, 2004) domains. Although there is diversity in the number and type of risk factors assessed, a core group of socio-demographic variables are typically included in cumulative risk variables, including family income, parent's martial status, parent's education status, household size, marital discord, and child's minority status (Rutter, 1979; Deater-Deckard et al., 1998; Sameroff, 2000; Gerard & Buehler, 2004; Corapci, 2008). Researchers have found that higher cumulative risk is associated with children's poorer cognitive and academic functioning (Sameroff, Seifer, Baldwin, & Baldwin, 1993; Gutman, Sameroff, & Cole, 2003), as well as increased internalizing and externalizing problem behaviors from early childhood to adolescence (Deater-Deckard et al., 1998; Appleyard, Egeland, van Dulmen, & Sroufe, 2005; Trentacosta et al., 2008; Gabalda, Thompson, & Kaslow, 2010).
        A key advantage of the cumulative risk approach is that multiple predictors are summarized into one index, thereby avoiding the problem of multicollinearity among predictors and allowing for greater ease in testing interactions effects (Burchinal et al., 2000). However, information about the risk domains and degree of risk exposure is lost when continuous variables are dichotomized and each individual risk factor is weighed equally (Evans et al., 2013). To

address this problem while maintaining the parsimony of a single risk index, this study followed an approach used by Dawson-McClure and colleagues (2004) in examining the relations of multiple risks to children's adjustment in divorced families. A *multiple risk index* was created by first identifying the continuous risk variables that uniquely predicted outcomes and then creating a composite of those variables. As a single variable, the multiple risk index summarized the additive influence of multiple risk domains with unique prediction of children's outcomes. It also enabled testing of mediation and moderation models, as well as comparison with the cumulative risk index. Though the cumulative risk index has not been compared with a single index composed of continuous risk variables, two previous studies have tested the predictive power of cumulative risk against that of individual risk variables. Burchinal and colleagues (2000) concluded that a cumulative risk index was somewhat *less* predictive of young African American children's cognitive functioning than models that used continuous risk variables. Similarly, Deater-Deckard et al. (1998) found that the statistical prediction of school-aged children's externalizing problems was lower when a cumulative risk index was used rather than individual risk factors.

Mechanisms of Multiple Risks

Conceptually, parenting styles and practices may transmit the effects of risk as mediators, as well as amplify or buffer the effects of risk as moderators (Masten, 2001). In a mediation model, the impact of multiple risk factors on children's adjustment is transmitted indirectly through parenting, since unfavorable conditions may compromise parenting behaviors (Masten, 2001). Indeed, empirical research has linked child, demographic, and contextual risk factors (e.g. child irritability, economic hardship, and neighborhood disadvantage) with increased parental stress and use of unsupportive or ineffective parenting practices (Lengua and Kovacs, 2005; Middlemiss, 2003; Klebanov, Brooks-Gunn, & Duncan, 1994). Moreover, Trentacosta and colleagues (2008) found that the relation of socio-demographic cumulative risk to two-year-old children's internalizing and externalizing problem behaviors was mediated by parental nurturance and involvement. Similarly, in a study of Mexican American immigrant children, Dumka and colleagues (1997) found that mothers' inconsistent discipline mediated the relation between cumulative risk (based on socio-demographic and psychosocial factors) and children's internalizing and externalizing problems.

Alternatively, in a moderation model, parenting serves as a protective or vulnerability factor (Luthar, Cicchetti, & Becker, 2000). In particular, supportive parenting may buffer children from poor adjustment outcomes despite exposure to multiple risks, whereas unsupportive parenting may exacerbate children's behavioral problems in adverse or high-risk conditions (Luthar et al., 2000). Evidence from the resilience literature indicates that parenting may offer protection for children living in high-risk conditions. For example, using a person-focused approach, Werner and Smith (1982) compared two groups of children who had been exposed to the same risk factors but exhibited different outcomes. Their findings indicated that the "resilient" children (i.e. those who demonstrated favorable developmental outcomes despite adversity) had received more attentive and supportive parenting than their counterparts.

Although there is emerging work on cumulative risk and specific parenting practices (e.g. limit-setting and disciplinary behaviors), parenting *style* has been largely neglected. Theorists have argued that because parenting style is a "context that facilitates or undermines parents' efforts to socialize their children" (Darling & Steinberg, 1993, *p.* 495), the impact of specific parenting practices varies depending on that context. Therefore, parenting style may be a

more efficient predictor of child outcomes. Recent research, including studies examining Chinese American youth, has focused on the authoritative and authoritarian parenting styles, which represent differences in parents' degree of warmth and responsiveness as well as degree of autonomy granting versus restrictive control (Lim and Lim, 2004). In predominantly European American samples, the authoritative parenting style (characterized as high parental warmth, responsiveness, and support of children's autonomy) has been consistently linked to children's positive adjustment across behavioral, social, and cognitive domains (Baumrind, 1991; Lamborn, Mounts, Steinberg, & Dornbusch, 1991; Steinberg, Lamborn, Darling, Mounts, & Dornbusch, 1994). By contrast, the opposite associations have been found for authoritarian parenting style (characterized as low parental warmth and responsiveness, high use of harsh, punitive, and coercive discipline, and restrictive control). Although some researchers have argued that the authoritative and authoritarian parenting styles are not representative of Asian American parenting (e.g. Chao, 1994), recent reviews have suggested that the overall pattern of associations between parenting styles and children's outcomes are consistent across Asian and European American samples (Sorkhabi, 2005; Zhou, Tao, et al., 2012).

Aims and Hypotheses of the Present Study

This study sought to clarify the relations between multiple risks, parenting styles, and behavioral problems of Chinese American children in immigrant families. The first aim was to examine two key features of multiple risks (i.e. domain and quantity) and test their prospective relations with children's internalizing and externalizing problems. To examine the effects of risk by domains, we tested the unique predictions of ten child, socio-demographic, family process, and neighborhood risk factors on children's outcomes. We hypothesized that children's low self-regulation and high negative emotionality would uniquely predict higher behavioral problems in Chinese American children. We also hypothesized that low family income and high marital conflict would uniquely predict children's higher behavioral problems. Regarding parent-child cultural gaps, we predicted that larger discrepancies in acculturation and enculturation would be uniquely related to increased behavioral problems. In general, we expected that single-parent family structure, low parents' education, high household density, and elevated neighborhood disadvantage would be related to poorer child adjustment. However, given that these socio-demographic variables often co-vary (Evans & English, 2002; Evans, 2003), we did not make hypotheses regarding their unique associations with children's internalizing and externalizing problems.

To examine the joint effects of multiple risks across domains on children's adjustment, we used two different approaches to summarize the presence of risk factors: the cumulative risk index (which focuses on the quantity of risk factors) and the multiple risk index (which focuses on risk factors with unique prediction of outcomes). Both cumulative risk and multiple risk indexes were expected to prospectively predict children's higher internalizing and externalizing problems. In addition, we expected that the multiple risk index would be a better predictor of children's outcomes than the cumulative risk index.

The second aim was to examine parenting styles as mediators of the associations between multiple risks (i.e. individual risks by domains, cumulative risk index, and multiple risk index) and children's problem behaviors. We predicted that children's low self-regulation, low family income, and low parental education would be related to decreased authoritative parenting, which in turn would predict increased internalizing and externalizing. By contrast, children's high negative emotionality, low family income, low parental education, high household density, and

high neighborhood disadvantage were expected to predict increased authoritarian parenting, which in turn would predict children's increased behavioral problems. We also expected that both the cumulative risk and multiple risk indexes would be negatively associated with authoritative parenting and positively associated with authoritarian parenting, which in turn would predict higher levels of internalizing and externalizing problems.

The third aim was to examine parenting styles as moderators in the associations between the two risk indexes and children's problem behaviors. We predicted that high authoritative parenting would buffer children from the effects of multiple risks, and confer stability in outcomes despite conditions of elevated risk (i.e. high cumulative or multiple risk indexes). By contrast, we expected that high authoritarian parenting would substantiate the relations between conditions of elevated risk and increased behavioral problems, whereas low authoritarian parenting would confer protection.

Method

Participants

The data came from a longitudinal study of 258 1st and 2nd generation Chinese American children and their parents who were recruited from schools, shopping centers, and community organizations in a large metropolitan area. At W1, children (48.1% girls) were between the ages of 6 to 9 (M = 7.4 years, SD = .71) and in the 1st or 2nd grades. The majority of children (76.4%) were 2nd generation (i.e. born in the U.S.), and those born overseas had spent an average of 50.1% of their lives in the U.S. About 98.8% of mothers and 95.7% of fathers (*M* age = 39.6 years, SD = 5.19, age range = 27.9 – 54.8 years) were 1st generation (i.e. both outside the U.S.)

Average years of parental education were 12.03 years for mothers (SD = 2.47) and 13.19 years for fathers (SD = 3.00), and ranged from 5 to 20 years. Over half of mothers (57%) and most of fathers (76.7%) were employed full time, 17% and 7.7% were employed part-time, and 12.9% and 6.8% were unemployed or homemakers. In accordance with Datta and Meerman (1980), families' per capita income was calculated by dividing the total family income for the past year by the number of individuals living in the household (M = $11,609; SD = $8309).

Procedure

After written consent and assent were obtained from parents and children, participants were asked to complete parent questionnaires, child questionnaires, child cognitive and academic testing, and videotaped parent-child interaction tasks in a university laboratory. Following a script, graduate students and undergraduate research assistants administered the assessment in participants' preferred language (English, Mandarin, or Cantonese). Written materials were available in English and Chinese. Questionnaires originally in English were back-translated into Chinese by bilingual staff members. After completing the assessment, parents were paid $50 and children selected two small gifts. Staff mailed questionnaires to participants' teachers, who were given $20 for their participation.

Measures

This study used a multi-method and multi-reporter approach to assess the following W1 risk variables: children's self-regulation, children's negative emotionality, marital conflict, and neighborhood disadvantage. For these variables, composites were created by taking the average of standardized measure scores (reverse-scored when appropriate).

W1 Child Risk Factors

Low Self-Regulation. Three aspects of children's self-regulation were measured: attention, inhibitory control, and cognitive flexibility. Assessment methods included a questionnaire measure and three laboratory tasks, described below.

The questionnaire measure assessed children's attention and inhibitory control. Parents and teachers completed the Attention Focusing and Inhibitory Control subscales of the Children's Behavior Questionnaire (CBQ; Rothbart et al., 2001), rating items from 1 (extremely untrue) to 7 (extremely true). The alphas for attention focusing were .73 for parents and .87 for teachers; the alphas for inhibitory control were .70 for parents and .80 for teachers.

A challenging puzzle task (Eisenberg, Zhou, et al., 2005) was used to assess children's inhibitory control. Children were asked to solve a puzzle by using their hands and without looking in under 5 minutes. Inhibitory control was assessed as the proportion of time spent on-task (i.e., the number of seconds on-task divided by the total number of seconds). Scores were computed after two trained undergraduate students coded the video for the amount of time children worked on the puzzle without cheating or going off-task. Inter-rater reliability was .97.

A computerized Go/No-Go task was used to assess children's attention and inhibitory control. Consistent with previous literature (e.g. Barkley, 1991), children's attention during the Go/No-Go task was operationalized as their total number of omission errors, while inhibitory control was operationalized as their total number of commission errors. A second, more difficult computerized task was administered to assess children's cognitive flexibility. Developed by Baym and colleagues (2008), this task required children to switch efficiently between different rules in order to respond appropriately to stimuli. Children's cognitive flexibility was operationalized as their overall accuracy score.

Negative Emotionality. Children's negative emotionality was assessed using a questionnaire measure and a laboratory task. For the questionnaire measure, parents and teachers completed the Anger/Frustration subscale of the CBQ (Rothbart et al., 2001), which assesses children's negative affect in response to goal blocking. Alphas were .75 and .89 for the parent and teacher Anger/Frustration subscales. Additionally, the puzzle task (described above) was used to assess children's negative emotionality. Following a coding scheme adapted from Eisenberg and colleagues (2008), two research assistants independently rated the degree of negative affect on a scale of 1 (no signs of anger/frustration) to 5 (at least two intense displays or consistent signs of anger/frustration) at 30-second intervals.

W1 Socio-demographic Risk Factors

Based on parents' responses on a demographics questionnaire, four socio-demographic factors were created: *family structure, parents' education, family per capita income, and household density.* For family structure, parents responded if they were currently living with a spouse, divorced, widowed, never married, or unmarried but living with a partner. For education, parents indicated the extent of their education, and also their partner's highest level of education (if applicable). For family per capita income, the variable was created by dividing the total family income for the past year by the number of individuals living in the household (Datta & Meerman, 1980). The household density variable was calculated as the ratio of the number of people in the home to the number of bedrooms in the home.

W1 Family Process Risk Factors

Marital Conflict. Marital conflict was assessed with two questionnaire measures. On the conflict subscales of the Relationship Questionnaire (Braiker & Kelley, 1979), parents rated from 1 (never) to 7 (very often) the extent to which different aspects of marital conflict (e.g. arguing) had occurred in the past month ($\alpha = .76$). On the O'Leary-Porter Scale (OPS; Porter & O'Leary, 1980), parents rated (from 1= "Never" to 7 = "Very Often") the frequency of overt parental conflict occurring when children are present, including verbal and physical conflicts about financial issues, roles in the family, and personal habits. According to the item-total correlation, one item about physical affection was inconsistent with the overall scale and subsequently dropped. In the present study, the alpha reliability statistic was .85.

Parent-Child Gaps in Cultural Orientations. Parents reported on their own and their children's European American and Chinese cultural orientations using the parent (32 items) and child (31 items) versions of the Culture and Social Acculturation Scale (CSAS; Chen & Lee, 1996). The CSAS European American and Chinese cultural orientation subscales ($\alpha s = .87$ and .73 for parents, $\alpha s = .82$ and .77 for children) assess the level of adherence to each culture, specifically with regard to language fluency, media use, and social affiliations. Consistent with previous studies, acculturation and enculturation gaps were calculated as the absolute value of the difference between parent and child scores (Birman, 2006). Thus, scores reflected the extent of cultural dissonance in each dyad regardless of the direction of the discrepancy.

W1 Neighborhood Disadvantage

Information regarding neighborhood disadvantage was obtained from the 2000 U.S. Census. Following methods commonly used in neighborhood research (e.g. Roosa et al., 2005), each child's home address was linked to a census tract through the process of geocoding. Data were then extracted from the U.S. Census Bureau for every tract in which participants resided. Based on a confirmatory factor analysis performed to reduce census tract variables for the current sample (Lee, Zhou, Chu, Lau, & Tao, *under review*), neighborhood disadvantage comprised of the percentage of residents receiving public assistance, unemployment rate, and poverty rate.

W1 Authoritative and Authoritarian Parenting Styles

Parenting style was assessed using the authoritative and authoritarian scales of the Parenting Styles and Dimensions scale (PSD, Robinson, Mandleco, Olsen, & Hart, 1995). Parents used a 5-point Likert scale (1 = "never" to 5 = "always") to indicate their endorsement of specific parenting behaviors. The authoritative scale measured parents' warmth/acceptance, use of reasoning/induction, use of democratic strategies, and easy-going/responsiveness. The authoritarian scale assessed parents' non-reasoning/punitive strategies, corporal punishment, directiveness, and verbal hostility. The alphas for the authoritative and authoritarian scales were .90 and .78, respectively.

W1 and W2 Children's Internalizing and Externalizing Problems.

Parents completed the externalizing and internalizing subscales of the Child Behavior Checklist (CBCL, Achenbach, 2001), and teachers completed the corresponding subscales of the Teacher Report Form (TRF, Achenbach, 2001). Children also reported on their internalizing and externalizing problems using the Behavior Problem Index (BPI, Zill & Peterson, 1990). In the present sample, the alphas for internalizing and externalizing problems ranged from .51 - .87 for parent, teacher, and child reports.

Results

Descriptive statistics of the primary study variables are presented in Table 1. Given that our linear models assume normally distributed variables, we inspected the distributions of all variables for normality prior to analyses. Using West, Finch, and Curran's (1995) recommended threshold values for high skewness (absolute value ≥ 2) and kurtosis (absolute value ≥ 7), three variables (marital conflict, W1 teacher-reported child externalizing, and W2 teacher-reported child externalizing) were positively skewed and marital conflict also had high kurtosis. To normalize these variables, the square root transformation was applied prior to performing correlation and regression analyses. In addition, Cook's distance was used to screen the data for outliers, and no outliers were found using the cutoff of one (Cook, 1977; Stevens, 1984).

The prevalence of risk status for each risk variable and the distribution of cumulative risk across the full sample are presented in Table 1. The percentage of the sample meeting risk status criteria for the risk variables ranged from 8.5 to 27.5. Of note, the range of the cumulative risk index was rather restricted. Though the potential maximum cumulative risk index was 10, the sample's range was 1 – 5, and only 1.2% of the sample met criteria for 5 risk factors. Over 50% of the sample had cumulative risk indexes of 1 or 2.

Correlation Analyses

Correlations among the continuous W1 risk variables and parenting styles. Correlations were computed to aid interpretation of regression results, especially given the likelihood of multi-collinearity among risk variables (Burchinal et al., 2000). As presented in Table 2, family per capita income was positively and significantly correlated with parents' education and marital conflict. Family per capita was negatively and significantly correlated with household density and neighborhood disadvantage. Parents' education was negatively and significantly correlated with household density and neighborhood disadvantage. Neighborhood disadvantage was positively and significantly correlated with enculturation gap. The cumulative risk index and the multiple risk index were positively correlated. Authoritative parenting was positively correlated with parents' education and family per capita income, and negatively correlated with household density, the cumulative risk index, and multiple risk index. Authoritarian parenting was negatively correlated with children's self-regulation, and positively correlated with household density, marital conflict, the cumulative risk index, and multiple risk index. Significant correlation coefficients ranged from .14 to .63 (absolute values).

Correlations between the continuous W1 risk variables, W1 parenting styles, and W2 child outcomes. As shown in Table 3, self-regulation had the most significant correlations with the W2 child outcome variables (parent-, teacher-, and child-reported internalizing and externalizing). Self-regulation was negatively and significantly associated with W2 parent-reported internalizing and externalizing, teacher-reported externalizing, and child-reported externalizing. Family structure was positively and significantly correlated with W2 teacher-reported internalizing and W2 child-reported externalizing. Household density and marital conflict were positively and significantly correlated with W2 parent-reported internalizing and externalizing. Marital conflict was also positively and significantly correlated with W2 child-reported internalizing. Acculturation gap was positively and significantly associated with W2 child-reported internalizing, and enculturation gap was positively and significantly associated with W2 parent-reported externalizing. Significant correlation coefficients ranged from .13 to 34

(absolute value). The cumulative risk index was positively correlated with all W2 child outcomes except teacher-reported internalizing (rs ranged from .13 to .22). The multiple risk index was positively correlated with all child outcomes except parent- and teacher-reported internalizing (rs ranged from .20 to .24). W1 authoritative parenting was negatively correlated with W2 parent-reported internalizing and externalizing problems, whereas W1 authoritarian parenting was positively correlated with the same outcomes (the absolute values of rs ranged from .14 to .26).

Hierarchical multiple regressions predicting child outcomes from individual risk variables.
To test the unique effects of the continuous risk variables on W2 child outcomes, controlling for demographic variables and W1 child outcomes, six hierarchical multiple regressions were computed using SPSS 19.0. The criteria were the six W2 child outcomes: parent-, teacher-, and child-reported internalizing and externalizing problems. The covariates and predictors were entered in the following steps: (a) Step 1 (demographic covariates), child gender, age, and generation status, (b) Step 2 (baseline child outcome covariate), W1 parent-, teacher-, or child-reported internalizing or externalizing, and (c) Step 3 (W1 continuous risk variables), child self-regulation, child negative emotionality, family structure, parents' education, family per capita income, household density, marital conflict, acculturation gap, enculturation gap, and neighborhood disadvantage.
In all regressions analyses, consistent gender effects were found for W2 teacher- and child-reported externalizing (βs = .17 - .29, p < .05), indicating that male gender predicted more externalizing problems. No significant effects were found for child age or generation status.
The regression results for predicting all W2 outcomes from individual risk variables are presented in Table 4. In summary, for internalizing, there were unique and significant positive predictions by negative emotionality on child ratings (β = .15, p < .05), family structure on teacher ratings (β = .22, p < .01), and acculturation gap on child ratings (β = .15, p < .05), as well as a unique and significant negative prediction by neighborhood disadvantage on parent ratings (β = -.16, p < .05). For externalizing problems, there were unique and significant negative predictions by self-regulation on parent, teacher, and child ratings (βs = -.16, -.19, and -.24, p < .05), and neighborhood disadvantage on parent ratings (β = -.13, p < .05), as well as a unique and significant positive prediction by enculturation gap on parent ratings (β = .12, p < .05).

Hierarchical multiple regressions predicting child outcomes with the cumulative risk index.
Creating the Cumulative Risk Index. Following the method of previous studies that examined cumulative risk in a community sample of young children (Burchinal et al., 2000; Sameroff et al., 1993; Corapci, 2008), each of the 10 individual risk variables was dichotomized as risk-present (i.e. score of '1') or risk-absent (i.e. score of '0'). Children's self-regulation was coded as '1' if the child's score fell 1 SD at or below the sample mean. Family structure was a categorical variable to begin with; thus, '1' represented single mothers or fathers and '0' represented dual parent households. Poverty status was ascertained using the 2009 U.S. Census Bureau poverty thresholds, which considers income, family size, and number of children in its classifications. The family per capita income variable was coded as '1' if poverty status was met. Parents and their spouses' education levels were averaged, except for single-parent households. Risk status was met if parents' mean years of education was less than 12 (i.e. one or both parents did not finish high school), and thus coded '1'. Negative emotionality, household density (ratio of number of people to number of rooms), marital conflict, acculturation gap, enculturation gap,

and neighborhood disadvantage were coded as '1' if the score was 1 SD at or above the sample mean. All scores of '1' were summed. The cumulative risk index had a potential range of $0 - 10$.

To test the unique effects of the cumulative risk index on W2 child outcomes, controlling for demographic variables and W1 child outcomes, six hierarchical multiple regressions were computed. The independent variables were entered in the following steps: (a) Step 1 (demographic covariates), child gender, age, and generation status, (b) Step 2 (baseline child outcome covariate), W1 parent-, teacher-, or child-reported internalizing or externalizing, and (c) Step 3, cumulative risk index. The regression results for predicting all W2 outcomes are presented in Table 5. In sum, the cumulative risk index significantly and positively predicted W2 child-reported internalizing ($\beta = .21$, p < .01) and externalizing problems ($\beta = .19$, p < .01).

Hierarchical multiple regressions predicting child outcomes from the multiple risk index.

Creating the Multiple Risk Index. Based on the regression results, six W1 continuous risk variables were identified as unique predictors of child internalizing and externalizing: self-regulation, negative emotionality, single-parent family-structure, acculturation gap, enculturation gap, and neighborhood disadvantage. Each variable had demonstrated at least one significant association with one W2 child outcome variable. Despite its significant association with W2 parent-reported internalizing and externalizing, W1 neighborhood disadvantage was not included in the multiple risk index due to issues of multi-collinearity (i.e. high correlations among independent variables leading to appreciable changes in individual regression coefficients and difficulty with interpretation; Cohen, Cohen, West, & Aiken, 2003, page 419). As reported in Table 2, neighborhood disadvantage was significantly correlated with W1 family per capita income and W1 household density, which are in turn significantly correlated with each other and W1 parents' education. Indeed, when these variables were removed from the regression equation, neighborhood disadvantage ceased to demonstrate a significant relation with W2 parent-reported internalizing or externalizing. Thus, the multiple risk index was calculated as the sum of the standardized scores of the following risk variables: self-regulation (reversely scored), negative emotionality, single-parent family structure, acculturation gap, and enculturation gap.

To test the unique effects of the multiple risk index on W2 child outcomes, controlling for demographic variables and W1 child outcomes, six hierarchical multiple regressions were computed. The independent variables were entered in the following steps: (a) Step 1 (demographic covariates), child gender, age, and generation status, (b) Step 2 (baseline child outcome covariate), W1 parent-, teacher-, or child-reported internalizing or externalizing, and (c) Step 3, multiple risk index. The regression results for predicting all W2 outcomes are presented in Table 6. In sum, the multiple risk index significantly and positively predicted W2 child-reported internalizing problems ($\beta = .22$, p < .01) and externalizing problems (βs = .24, p < .01)

In order to control for type 1 error, a false discovery rate procedure (Benjamini & Hochberg, 1995) was applied to the regressions testing the cumulative and multiple risk indexes as predictors. All significant findings remained significant after applying this procedure.

Testing the Unique Prediction of the Cumulative Risk and the Multiple Risk Indexes

Given that both the cumulative risk and multiple risk indexes were significant predictors of W2 child-reported internalizing and externalizing problems, two hierarchical multiple regressions were computed to test the unique predictions by the two indexes. Three steps were included in each regression: (a) Step 1 (demographic covariates), child gender, age, and generation status, (b) Step 2 (baseline child outcome covariate), and (c) Step 3, the cumulative

risk index and multiple risk index. The regression results for predicting W2 child-reported internalizing and W2 child-reported externalizing are presented in Table 7. In summary, neither index was uniquely predictive of W2 child-reported child internalizing, but the multiple risk index uniquely and positively predicted W2 child-reported externalizing (β = .19, p < .01).

Testing Parenting Styles as Mediators in the Relations between Risk and Child Adjustment

        Using the Baron and Kenny (1986) approach to testing mediation, no significant meditational effects were found in examining W1 parenting style (authoritative or authoritarian parenting) as a mediator of relations between W1 risk predictors (individual risk variables, cumulative risk index, or multiple risk index) and W2 outcomes (parent-, teacher-, or child-reported internalizing or externalizing problems). Although the individual risk variables, cumulative risk, and multiple risk indexes predicted authoritative and authoritarian parenting, neither parenting style uniquely predicted child outcomes after controlling for risk and covariates. Thus, the mediation hypothesis was not supported.

Testing Parenting Styles as Moderators in the Relations between Risk and Child Outcomes

        Twenty-four hierarchical multiple regressions were computed to test interaction effects between W1 risk indexes and W1 parenting styles in predicting W2 outcomes. All predictor variables were centered prior to computing multiplicative interaction terms. Variables were entered in the following steps: (a) Step 1 (demographic covariates), child gender, age, and generation status, (b) Step 2 (baseline child outcome covariate), W1 parent-, teacher-, or child-reported internalizing or externalizing, (c) Step 3 (risk predictor), cumulative risk or multiple risk index, (d) Step 4 (moderator variable), authoritative or authoritarian parenting style, and (e) Step 5, the interaction terms of parenting style x risk. Two significant interaction effects were found.

        The cumulative risk index by W1 authoritarian parenting style interaction was significant in the model predicting W2 parent-reported internalizing (β = .15, p < .01). Following recommendations by Aiken and West (1991), the interaction was probed by conducting simple slopes analyses. Relations between the cumulative risk index and parent-reported internalizing were observed at low (1 SD below the mean), mean, and high (1 SD above the mean) levels of authoritarian parenting, controlling for covariates. Results are plotted in Figure 1. Specifically, at the low level of authoritarian parenting, the cumulative index marginally and negatively predicted parent-reported internalizing: unstandardized simple slope = -.54, t (df = 225) = -1.86, p = .06. Mean and high levels of authoritarian parenting were unrelated to parent-reported internalizing problems: unstandardized simple slopes = -.09 and .36, t (df = 225) = -.43 and .81, ps = .67 and .42.

        The multiple risk index by W1 authoritarian parenting style interaction was significant in predicting W2 teacher-reported child internalizing (β = .21, p < .01) and plotted in Figure 2. Specifically, at the high level of authoritarian parenting, the multiple risk index marginally and positively predicted teacher-reported internalizing: unstandardized simple slope = .36, t (df = 170) = 1.85, p = .07. Low and mean levels of authoritarian parenting were unrelated to teacher-reported internalizing problems: unstandardized simple slopes = -.20 and .08, ts (df = 170) = -.93 and .52, ps = .35 and .60.

Discussion

The present research is characterized by novel approaches and findings, as it is the first to comprehensively examine multiple risks and psychological functioning in a sample of immigrant Chinese American children. Though it is important to consider both the domain of risk as well as the quantity of risk exposures, studies have rarely utilized both approaches to characterize children's response to multiple risks (Burchinal et al., 2000). In examining ten risk variables from different domains, we found that low self-regulation, negative emotionality, single-parent family structure, acculturation gap, and enculturation gap were prospectively and uniquely related to increased behavioral problems in children. In examining the quantity of risk factors, we found that cumulative risk was associated with higher child-reported internalizing and externalizing problems at W2. In testing a new approach to measuring the joint effects of multiple risk domains, we found that the multiple risk index was related to higher levels of child-reported internalizing and externalizing problems. When comparing the cumulative and multiple risk indexes, we found that only the multiple risk index remained a unique predictor of child-reported externalizing problems. Though findings did not support the mediating role of parenting styles, we did find evidence for an interaction effect occurring between the risk indexes and authoritarian parenting style in the prediction of children's internalizing problems.

The Unique Relations between Child, Socio-demographic, Family Process, and Neighborhood Risk Factors and Children's Internalizing and Externalizing Problems

Consistent with our hypothesis, children's temperament was related to their later internalizing and externalizing problems in the expected directions. Increased self-regulation during the 1st and 2nd grades was predictive of favorable outcomes at the 3rd and 4th grades, while the opposite was true for negative emotionality. Specifically, self-regulation was negatively associated with all reporters' (parents, teachers, and children) ratings of children's externalizing problems, and negative emotionality was positively related to child-reported internalizing problems. These results suggest that while self-regulation may be of particular importance in the etiology of externalizing problems, it may not play a central role in the development of internalizing problems for Chinese American children. Similarly, in a study examining European American children, results indicated that children with externalizing problems had low self-regulation while those with internalizing problems did not (Eisenberg, Sadovsky, et al., 2005). Contrary to our findings, previous studies have reported connections between negative emotionality and externalizing problems during early and middle childhood in both European American and Chinese samples (Eisenberg et al., 2005; Eisenberg et al., 2009; Zhou, Wang, Deng, Eisenberg, Wolchik, & Tein, 2008). However, despite the noted differences, findings from this study generally echo previous theoretical and empirical work on temperament dimensions and behavioral outcomes (Rothbart & Bates, 2006).

Of the four socio-demographic variables we tested (family structure, parents' education, family per capita income, and household density), only family structure demonstrated unique associations with an outcome. Namely, children who were living in a single-parent home demonstrated more teacher-reported internalizing problems. In previous studies, family structure has been linked to children's behavioral and emotional problems, though when family processes (e.g. family conflict and parental stress) were likewise considered, few differences were found between children of single and dual parent homes (Lansford, Ceballo, Abbey, & Stewart, 2001). In this study, though socio-demographic variables typically theorized to be related to family

structure (e.g. SES) were assessed, data on family warmth or parental stress were not available. Thus, our finding that family structure demonstrated a unique effect on an outcome (albeit only teacher-reported internalizing) is not attributable to SES discrepancies, though differences in family processes cannot be ruled out.

Quite notably, the three other socio-demographic variables (family per capita income, parents' education, and household density) were unrelated to outcomes in both correlation and regression analyses. This was a surprising finding given that a large body of work has linked low SES with unfavorable developmental outcomes, including elevated internalizing and externalizing problems (McLoyd, 1998; Bradley & Corwyn, 2002). The null findings in this study are not due to limited range of SES variables given the sample was diverse on various SES indicators. Thus, a critical question emerges from this study: what factors and processes protected children in this sample from the effects of low SES?

One possible explanation highlights the protective effects of children's self-regulation strategies and adults' socialization practices. In particular, Chen and Miller (2012) have proposed a model in which children facing adversity develop adaptive "shift and persist" strategies through positive socialization experiences with adults that support the growth of emotion regulation abilities and future orientation. The "shift and persist" strategies include acceptance and reappraisal of stress (i.e. shifting) in combination with enduring adversity by maintaining meaning and optimism about the future (i.e. persisting). Though this model was advanced to explain why some children maintain good physical health despite low SES, it is likely also applicable to mental health outcomes. First of all, to identify effective coping strategies in the context of adversity, the authors drew immensely from the child resilience literature, which focuses on mental health outcomes. Second, shift and persist strategies are theorized to reduce physiological stress responses, which are not only related to physical consequences but psychological adaptation as well (Bauer, Quas, & Boyce, 2002).

Though the shift and persist model was not directly tested in this study, there are reasons to believe that the self-regulation and socialization strategies inherent to the model may account for the uncompromised functioning of the low SES children in the present study. First, SES variables were unrelated to children's self-regulation, suggesting that children's attention, inhibitory control, and cognitive flexibility did not vary as a function of SES. Thus, intact self-regulation may have protected children from the adverse mental health outcomes typically concomitant with impoverished conditions. Second, it is possible that Chinese immigrant parents may socialize children to adopt cultural beliefs that emphasize the value of facing adversity, in accordance with Confucian principles that commend inner strength and perseverance (Yip, 1998). A positive perspective on adversity may help children accept and reappraise the stressors associated with impoverished conditions. Indeed, one study found that Chinese adolescents who endorsed positive cultural beliefs about the value of adversity had better mental health outcomes than those who did not (Shek, 2004). It is possible that the low SES children in our sample were exposed to positive cultural beliefs about hardship through the socialization practices of their parents, which in turn shaped their ability to self-regulate when faced with stressors. Given that Confucian beliefs also stress that strength of character is cultivated through facing adversity, such cultural values may also help youth find meaning in difficult circumstances.

Consistent with our hypothesis, cultural dissonance between parents and children uniquely predicted increased behavioral problems. Specifically, acculturation gaps between parents and children were associated with child-reported internalizing and enculturation gaps were associated with parent-reported externalizing. These findings are especially important

because they indicate that current models of multiple risks do not fully capture the salient culture-related risk factors that are integral to the adjustment of immigrant children.

Finally, the unique effect of neighborhood disadvantage could not be assessed given the presence of multi-collinearity. As discussed in the introduction, a primary drawback of examining multiple continuous risk variables in one model is the problem of multi-collinearity. Indeed, this problem emerged in the present data, which precluded interpretation of partial regression coefficients for neighborhood disadvantage.

Cumulative and Multiple Risk Indexes as Predictors of Children's Internalizing and Externalizing Problems

Unlike most studies of cumulative risk, the present study used a community sample rather than a high-risk one. Notably, in this sample, though the potential range of the cumulative risk index was 0-10, scores did not exceed 5. In fact, about 80% of the sample had a score of 2 or lower, meaning that most children had exposure to only two or fewer total risk variables that met risk status criteria.

Both the cumulative and multiple risk indexes predicted increased child-reported internalizing and externalizing problems, suggesting that both the quantity and domains of risk factors exert harmful effects on Chinese American children's mental health outcomes. It is interesting that the two risk indexes only significantly predicted child-reported outcomes. Based on the correlation analysis, coherence of children's ratings with those of parents and teachers was minimal (rs ranged from .10 to .27). Discrepancies in child, parent, and teacher ratings of childhood psychopathology are common (De Los Reyes & Kazdin, 2005), and may vary as a function of child characteristics (e.g. ethnicity and age), parent characteristics (e.g. SES and stress), and setting (e.g. home and school). Thus, though this study aimed to detect changes in children's outcome as a function of increasing multiple risks, it might have also captured the impact of multiple risks on parents' stress and subsequent perception of children's problem behaviors. After all, every risk variable measured in this study is also likely to impact parents' stress, which has been empirically linked to greater parent-child discrepancies in ratings of internalizing and externalizing problems (De Los Reyes & Kazdin, 2005). Discrepancies between child and teacher ratings of outcomes may be due to setting and occupation. Teachers monitor many children on a daily basis in the more structured setting of school, which may provide them with a baseline understanding of normative and clinically significant problem behaviors. In sum, our study demonstrated that children's ratings of their own problem behaviors were more sensitive to changes in multiple risks than those of their parents and teachers.

As a novel and exploratory aspect of this study, we tested the unique effects of the cumulative and multiple risk indexes in one model. When tested individually, both the cumulative and multiple risk indexes had shown significant positive relations with child-reported internalizing and externalizing problems. However, for child-reported internalizing problems, neither the cumulative nor multiple risk index retained significant relations with the outcome. For child-reported externalizing problems, only the multiple risk index remained significantly predictive of the outcome. This suggests that for child-reported externalizing, the domains of risk factors and degree of exposure to those risks may be more strongly related to maladjustment than the quantity of risk factors. Future studies may consider the use of a multiple risk index to predict the impact of adversity on children's outcomes, at least in conjunction with use of a cumulative risk index.

Relations Between Multiple Risks, Parenting Styles, and Children's Internalizing and Externalizing Problems

To understand the mechanisms through which multiple risks operate, the authoritative and authoritarian parenting styles were examined as both mediators and moderators of the relations between multiple risks and outcomes. No evidence was found for mediation, indicating that neither the authoritative nor authoritarian parenting style transmitted the effects of multiple risks onto children's problem behaviors.

On the other hand, two significant interaction effects were found for the analyses examining authoritarian parenting style as a moderator. In particular, authoritarian parenting style moderated the impact of the cumulative risk index on parent-reported internalizing. For low levels of authoritarian parenting, there was a tendency for cumulative risk to be negatively associated with parent-reported internalizing; for mean and high levels of authoritarian parenting, cumulative risk was unrelated to children's internalizing. Additionally, authoritarian parenting was found to have moderated the impact of the multiple risk index on teacher-reported internalizing problems. Specifically, for high authoritarian parenting, there was a tendency for the multiple risk index to be positively associated with teacher-reported internalizing; for mean and low levels of authoritarian parenting, the multiple risk index was unrelated to internalizing. Overall, these findings suggest that high authoritarian parenting strengthens the relation between the multiple risk index and internalizing, while low authoritarian parenting may protect children from increased internalizing problems when the quantity of risks is high. It is interesting that there were no moderation effects found for authoritative parenting. This suggests that in community samples of Chinese American children, protection from risky conditions does not necessitate parenting behaviors associated with the authoritative style. Instead, protection may be gained through low levels of authoritarian parenting behaviors.

Limitations

This study has several limitations. First, as mentioned earlier, this study examined a community-based sample rather than an at-risk sample. As a result, the cumulative risk index was restricted in range. To explore the full range and intensity of multiple risks, it may be necessary to study a high-risk Asian American population. Second, there was increased likelihood of Type I error given the large number of tests that were computed. However, the longitudinal methods allowed for more stringent tests since baseline levels of children's outcomes were established and controlled for in the analyses. Third, our particular blend of risk variables is not identical to those examined in other studies of multiple risks, which may obscure meaningful comparisons with previous studies. This is a common limitation in this area, because cumulative risk indexes frequently differ by the type and number of risk factors included. Fourth, not all risk variables were measured using a multi-method and multi-reporter approach. For example, only parents reported on marital conflict, even though children's endorsements may have been a more valid reflection of their own exposure to conflict between parents.

Implications and Future Directions

The results of this study are highly relevant for intervention development and delivery. In particular, there are important implications for researchers and clinicians who aspire to support the development and well-being of ethnic minority immigrant children. First, although our findings were largely consistent with previous research on European American children, this study also demonstrated that Chinese American children have distinctive responses to particular

risk factors. Notably, intergenerational cultural gaps between parents and children were predictors of children's maladjustment. Thus, future studies examining multiple risks in immigrant children should include this unique cultural phenomenon. Therapists providing treatments to immigrant children would benefit from assessing and addressing intergenerational cultural gaps as well, especially since interventions across modalities involve both patient and parent involvement.

Although the results showed that Chinese American children in immigrant families were vulnerable to multiple risks, some interesting strengths appeared as well. Surprisingly, low SES did not worsen children's internalizing and externalizing problems. Replication of this finding in a different Chinese American sample is necessary, and if replicated, further work is imperative for the identification of the protective factors that buffer Chinese American children against the effects of socioeconomic adversity. Specifically, more research is needed to examine the unique cultural understanding of and values about adverse conditions, socialization practices associated with those values, and the relations between values about adversity and children's ability to regulate emotions and behaviors. By clarifying how these processes operate in Chinese American families, intervention scientists can then leverage these protective factors for the benefit of all children.

This study also underscores authoritarian parenting as a target for intervention programs focused on the prevention or reduction of internalizing problems. Since low levels of authoritarian parenting was a protective factor and authoritative parenting showed no interactive effects with risk, it may be prudent for programs and clinicians to help caregivers reduce their harsh and punitive behaviors rather than increase their warmth and responsiveness. Future studies should examine the efficacy of reducing authoritarian parenting practices for children with internalizing problems who face adverse circumstances. Additionally, the relations between multiple risks and other parenting styles may be investigated. In particular, it may be important to examine psychological control, which represents the degree to which parents attempt to control children's internal processes (e.g. emotions and thoughts) rather than behaviors (Barber, 1996). In addition to being conceptually different from the authoritative and authoritarian parenting styles, psychological control has also been linked to children's internalizing problems across cultures (Barber, 1996), which makes it an important construct to examine in relation to multiple risks.

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Table 1

Descriptive Statistics for the Full Sample (n = 258)

Variables	Mean	SD	Min	Max	Skewness	Kurtosis	Risk Status Criterion	% of Sample At-Risk
W1 Risk Factors								
Self-Regulation	-.004	.57	-2.34	1.31	-.64	1.15	≤ 1 SD below M	16.3
Negative Emotionality	.63	.86	.00	3.00	1.25	.69	≥ 1 SD above M	15.5
Family Structure [a]	.09	.28	.00	1.00	2.97	6.89	Single parent family	8.5
Parents' Education	13.10	2.44	5.50	20.00	.55	.96	< 12 years	27.5
Family Per Capita Income	11608.68	8309.17	625	50000	1.34	2.02	≤ Federal poverty cutoff	20.2
Household Density	1.81	.82	.50	5.00	1.56	2.85	≥ 1 SD above M	11.2
Marital Conflict	-.001	.92	-1.05	6.00	2.09	8.00	≥ 1 SD above M	11.6
Acculturation Gap	.68	.51	.01	2.49	.96	.45	≥ 1 SD above M	15.9
Enculturation Gap	.82	.64	.00	3.57	1.21	1.67	≥ 1 SD above M	15.5
Neighborhood Disadvantage	.00	.93	-1.21	3.98	1.61	3.61	≥ 1 SD above M	13.6
W1 MRI	.00	2.19	-4.68	7.86	.55	.07	--	--
W1 CRI	1.56	1.16	0	5	.50	-.19	--	--
W1 AT Parenting (P)	4.07	.48	2.00	4.93	-.60	1.37	--	--
W1 AR Parenting (P)	2.15	.43	1.26	4.61	1.40	4.54	--	--
W2 INT (P)	3.68	4.20	.00	22.00	1.69	3.36	--	--
W2 EXT (P)	4.50	5.00	.00	24.00	1.59	2.48	--	--
W2 INT (T)	3.37	4.48	.00	20.00	1.95	3.69	--	--
W2 EXT (T)	1.93	3.67	.00	19.00	2.51	6.38	--	--
W2 INT (C)	.46	.30	.00	1.13	.30	-.84	--	--
W2 EXT (C)	.39	.27	.00	1.18	.51	-.41	--	--

CRI	0	1	2	3	4	5	6	7	8	9	10
Distribution within sample (%)	19.8	31.8	27.9	15.1	4.3	1.2	0	0	0	0	0

Note. [a] Family Structure was coded as: 0 = two parent family, 1 = one parent family. SD = standard deviation, INT = Internalizing, EXT = Externalizing, MRI = Multiple Risk Index, CRI = Cumulative Risk Index, AT = Authoritative Parenting, AR = Authoritarian Parenting, P = parent report, T = teacher report, and C = child report.

Table 2
Correlations among the W1 risk variables and W1 parenting styles

W1 Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Child Self-Regulation	--												
2. Child Negative Emotionality	.002	--											
3. Family Structure [a]	-.03	-.001	--										
4. Parents' Education	.08	-.11	-.01	--									
5. Family Per Capita Income	.01	-.12	-.04	.63***	--								
6. Household Density	-.02	.01	.06	-.24***	-.36***	--							
7. Marital Conflict	-.11	.07	.06	.09	.18**	-.05	--						
8. Acculturation Gap	-.10	-.06	.08	-.04	-.02	-.02	-.02	--					
9. Enculturation Gap	.06	.02	-.07	.05	.02	.06	.07	-.08	--				
10. Neighborhood Disadvantage	-.07	-.08	-.08	-.28***	-.27***	.07	.08	.06	.14*	--			
11. Cumulative Risk Index	-.27***	-.27***	.24***	-.45***	-.41***	.40***	.21**	.29***	.21**	.39***	--		
12. Multiple Risk Index	-.48***	.44***	.47***	-.09	-.08	.06	.12	.47***	.37***	.05	.57***	--	
13. Authoritative Parenting	.89	-.04	-.03	.17**	.13*	-.15*	-.07	-.09	-.10	-.10	-.18**	-.16*	--
14. Authoritarian Parenting	-.22***	.10	.07	-.10	-.08	.13*	.14*	.02	-.004	.04	.16*	.18**	-.08

Note. [a] Family Structure was coded as: 0 = two parent family, 1 = one parent family. * p < .05, ** p < .01, *** p < .001.

Table 3
Correlations between the W1 individual continuous risk variables and W2 child outcomes

W1 Variables	W2 INT (P)	W2 EXT (P)	W2 INT (T)	W2 EXT (T)	W2 INT (C)	W2 EXT (C)
Child Self-Regulation	-.19**	-.30***	-.09	-.34***	-.12	-.25***
Child Negative Emotionality	.004	.03	-.06	.02	.09	.05
Family Structure	-.05	-.01	.16*	.07	.09	.13*
Parents' Education	-.06	-.05	.05	.11	-.05	-.05
Family Per Capita Income	-.001	-.01	.06	.12	.04	.00
Household Density	.13*	.20**	-.02	.01	-.05	.05
Marital Conflict	.16*	.22*	-.08	.06	.14*	.03
Acculturation Gap	-.02	-.01	-.04	.08	.16*	.11
Enculturation Gap	.06	.14*	-.05	.01	.07	-.003
Neighborhood Disadvantage	-.02	.02	-.10	-.06	.05	.01
Cumulative Risk Index	.13*	.22**	.03	.14*	.21**	.22**
Multiple Risk Index	.08	.20**	.05	.24***	.23***	.24***
Authoritative Parenting	-.18**	-.19**	.06	.02	-.03	-.03
Authoritarian Parenting	.14*	.26***	-.003	.08	.10	.08

Notes. [a] Family Structure was coded as: 0 = two parent family, 1 = one parent family. INT = Internalizing, EXT = Externalizing, P = parent report, T = teacher-report, and C = child report. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 4
W1 Risk Factors Predicting W2 Outcomes

Predictor	W2 INT (P)			W2 EXT (P)			W2 INT (T)			W2 EXT (T)			W2 INT (C)			W2 EXT (C)		
	B	β	R^2	B	β	R^2	B	β	R^2	B	β	R^2	B	β	R^2	B	β	R^2
Step 3																		
Child sex [a]	.07	.01		.33	.03		.39	.04		.41	.26**		.04	.08		.09	.17*	
Child age	-.13	-.02		-.35	-.05		.43	.07		.06	.05		-.01	-.03		.05	.13	
Child generation	.82	.08		.23	.02		.29	.02		.28	.13		.01	.02		.01	.02	
W1 Child Adjustment	.49	.57***		.52	.54***		.39	.37***		.06	.30***		.10	.12		.21	.26***	
Self-Regulation	-.52	-.07		-1.40	-.16*		-.53	-.06		-.26	-.19*		-.01	-.01		-.12	-.24**	
Negative Emotionality	-.15	-.03		.15	.03		-.33	-.06		.07	.07		.05	.15*		.03	.10	
Family Structure [b]	-.32	-.02		.10	.01		3.90	.22**		.14	.05		.12	.11		.10	.10	
Parents' Education	-.10	-.06		-.11	-.05		.07	.04		.02	.08		.00	-.01		.01	.07	
Family Per Capita Income	2.57E-5	.05		3.23E-5	.05		6.36E-6	.01		5.54E-6	.06		1.10E-6	.03		7.84E-7	.03	
Household Density	.54	.11		.68	.12		.08	.02		.15	.16		-.01	-.01		.04	.14	
Marital Conflict	-.11	-.02		.11	.02		-.36	-.07		.02	.02		.04	.14		.004	.01	
Accul. Gap	-.77	-.09		-.59	-.06		-.55	-.06		-.02	-.01		.09	.15*		.02	.05	
Encul. Gap	.04	.01		.95	.12*		.23	.03		.02	.02		.03	.08		.03	.08	
Neighborhood Disadvantage	-.74	-.16*		-.66	-.13*		.01	.001		.02	.02		.02	.05		-.02	-.06	
			.38			.45			.23			.33			.11			.22

Note. [a] Child sex was coded as: 1= girls, 2 = boys; [b] Family Structure was coded as: 0 = two parent family, 1 = one parent family; * p < .05, ** p < .01, *** p < .001. INT = Internalizing, EXT = Externalizing, P = parent report, T = teacher report, and C = child report.

Table 5. *W1 Cumulative Risk Index Predicting W2 Outcomes*

Predictor	W2 INT (P)			W2 EXT (P)			W2 INT (T)			W2 EXT (T)			W2 INT (C)			W2 EXT (C)		
	B	β	R²	B	β	R²	B	β	R²	B	β	R²	B	β	R²	B	β	R²
Child sex[a]	.13	.02		.23	.02		.93	.10		.46	.29***		.03	.05		.10	.18**	
Child age	-.09	-.02		-.35	-.05		.33	.05		-.01	-.01		-.04	-.09		.02	.05	
Child generation	.27	.03		-.36	-.03		.40	.03		.11	.06		.06	.09		.01	.01	
W1 Child Adjustment	.51	.56***		.54	.55***		.39	.36***		.06	.34***		.08	.09		.18	.23***	
W1 Cumulative Risk Index	-.01	.002		.27	.06		.11	.03		.08	.12		.06	.21**		.04	.19**	
			.31			.34			.15			.28			.08			.14

Table 6. *W1 Multiple Risk Index Predicting W2 Outcomes*

Predictor	W2 INT (P)			W2 EXT (P)			W2 INT (T)			W2 EXT (T)			W2 INT (C)			W2 EXT (C)		
	B	β	R²	B	β	R²	B	β	R²	B	β	R²	B	β	R²	B	β	R²
Child sex[a]	.15	.02		.24	.02		.92	.10		.47	.29***		.03	.05		.09	.17**	
Child age	-.09	-.02		-.31	-.05		.34	.05		.00	.00		-.03	-.07		.03	.07	
Child generation	.25	.03		-.42	-.04		.38	.03		.09	.05		.04	.06		-.01	-.01	
W1 Child Adjustment	.51	.56***		.53	.55***		.39	.36***		.06	.31***		.08	.09		.19	.24***	
W1 Multiple Risk Index	-.04	-.02		.21	.09		.07	.03		.05	.13		.03	.22*		.03	.24***	
			.31			.34			.15			.28			.08			.17

Table 7. *W1 Risk Indexes Predicting W2 Outcomes*

Predictor	W2 INT (C)			W2 EXT (C)		
	B	β	R²	B	β	R²
Child sex[a]	.03	.04		.09	.17**	
Child age	-.04	-.09		.02	.06	
Child generation	.06	.08		-.001	-.002	
W1 Child Adjustment	.07	.08		.19	.24***	
W1 Multiple Risk Index	.02	.15		.02	.19*	
W1 Cumulative Risk Index	.03	.13		.02	.08	
			.09			.17

Note. [a] Child sex was coded as 1 = girls, 2 = boys; * p < .05, ** p < .01, *** p < .001. INT = Internalizing, EXT = Externalizing, P = parent report, T = teacher-report, and C = child report.

Figure 1. *The interaction between W1 cumulative risk index and W1 authoritarian parenting in predicting W2 parent-reported internalizing*
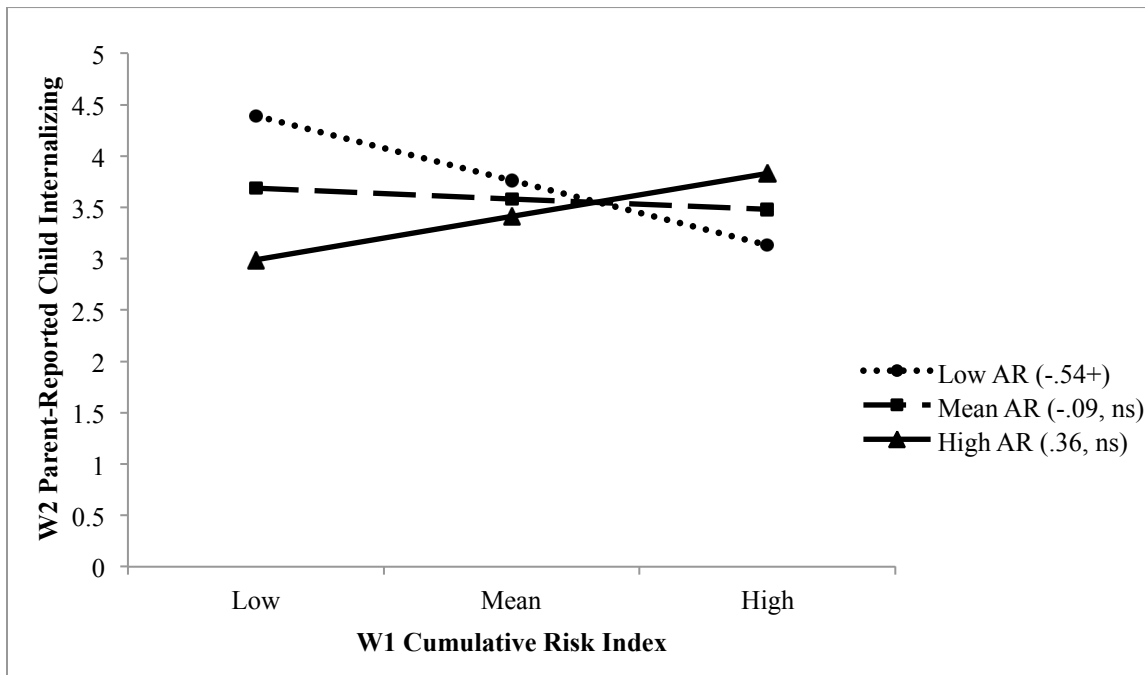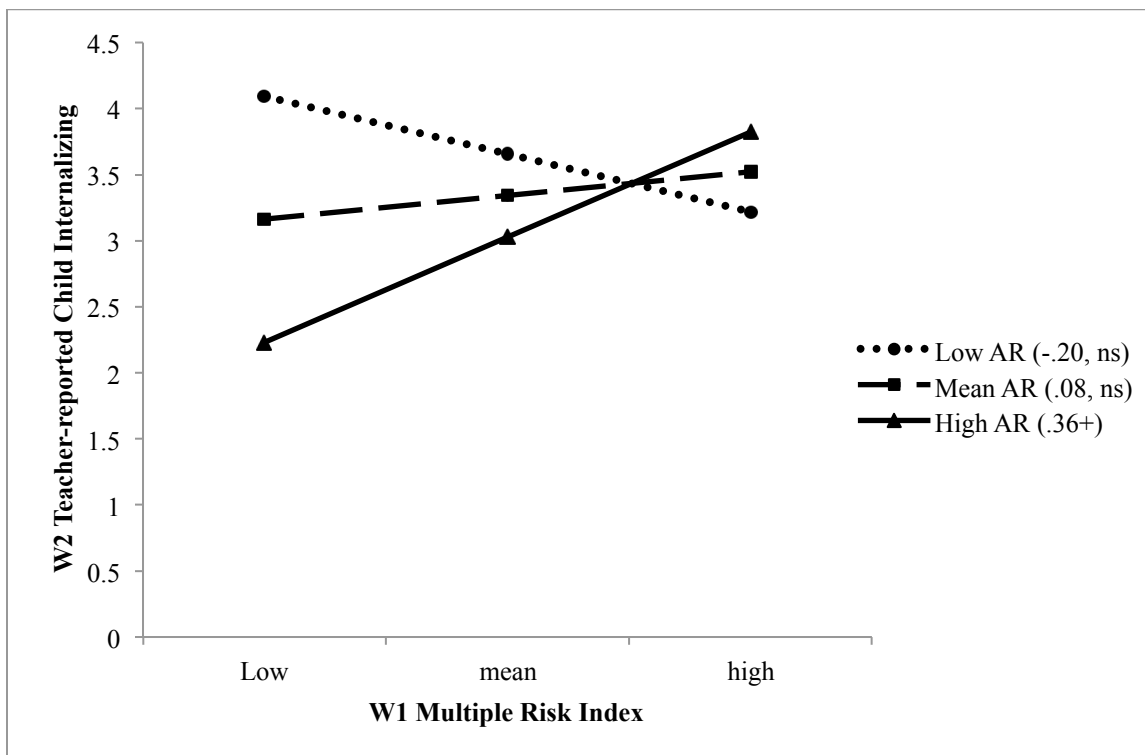

Figure 2. *The interaction between W1 multiple risk index and W1 authoritarian parenting in predicting W2 teacher-reported internalizing*

Note. + p < .1, * p < .05, ** p < .01, *** p < .001. AR = W1 Authoritarian Parenting Style