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Understanding Chinese American Adolescents' Developmental Outcomes: Insights From the Family Stress Model

Aprile D. Benner and
University of Texas at Austin, Population Research Center, 1 University Station, G1800, Austin, TX 78712

Su Yeong Kim
University of Texas at Austin, School of Human Ecology, Department of Human Development and Family Sciences, 1 University Station, A2700, Austin, TX 78712

Aprile D. Benner: abenner@prc.utexas.edu; Su Yeong Kim: suyeongkim@mail.utexas.edu

Abstract

In this brief report, we investigated whether the Family Stress Model could be replicated with a sample of Chinese American families. Path analyses with 444 adolescents and their parents provided support for the model's generalizability. Specifically, mothers' and fathers' reports of economic status (i.e., income, financial and job instability) were associated with parents' economic stress. Economic stress and economic status were related to parental depressive symptoms, which, in turn, were associated with more hostile and coercive parenting, less nurturing and involved parenting, and greater interparental hostility. Finally, mothers' hostile and coercive parenting were directly related to both adolescents' academic and sociobehavioral outcomes, whereas fathers' nurturing and involved parenting related to academic but not sociobehavioral outcomes.

Currently, more than 10 million Asian Americans reside in the U.S., an increase of almost 50% from 10 years earlier (Barnes & Bennett, 2002). Close to 90% of Asian American children live with immigrant parents (Jamieson, Curry, & Martinez, 2001). Children of immigrants are faced with a number of stressors, including overcrowded housing and higher household poverty rates than those who are native-born (Hernandez, 2004). As such, economic stress may be an important factor in understanding the developmental outcomes of children of immigrants.

Scholars have long recognized the importance of understanding the mechanisms by which income and economic hardship affect family and child outcomes, as these mechanisms highlight family processes amenable to intervention. However, until recently, much of this scholarship has focused on European American families. Extant research highlights both similarities (Dmitrieva, Chen, Greenberger, & Gil-Rivas, 2004) and differences (Chao, 2001) in the developmental processes affecting child outcomes in Asian versus White samples. The current study draws on the Family Stress Model (Conger, Ge, Elder Jr, Lorenz, & Simons, 1994), examining the extent to which its tenets provide insights for a Chinese American sample.

Correspondence concerning this article should be addressed to: Aprile D. Benner, The University of Texas at Austin, Population Research Center, 1 University Station, G1800, Austin, TX 78712. abenner@prc.utexas.edu.

Family Stress Model

The Family Stress Model posits that families' economic hardship influences children and adolescents' developmental outcomes indirectly through a series of mediating family processes (Conger & Donnellan, 2007; Conger et al., 1994). More specifically, Conger and colleagues assert that economic difficulties lead to parents' feelings of economic pressure, and this pressure, in turn, negatively influences parents' emotional distress. Greater emotional distress then affects parenting practices, both directly and indirectly through effects on interparental relationships, and these disrupted parenting practices ultimately impact youth's developmental outcomes.

The Family Stress Model has found wide support in the extant literature, with studies documenting the indirect effects of economic hardship (via family processes) on children and adolescents' academic and psychological functioning. Relations among the Family Stress Model's pathways have been replicated with nationally-representative samples (Gershoff, Aber, Raver, & Lennon, 2007; Yeung, Linver, & Brooks-Gunn, 2002) as well as African American (Brody & Flor, 1998; Conger et al., 2002) and Latino samples (Formoso, Gonzales, Barrerra Jr., & Dumka, 2007; Parke et al., 2004). To date and to our knowledge, however, no studies have replicated the Family Stress Model's relationships with an Asian sample. Given the unique set of cultural values and socialization practices observed in Asian American families (Chao & Tseng, 2002), examining whether the family processes detailed in the Family Stress Model operate similarly within an Asian sample is of interest. Our Chinese American sample is particularly suited for testing the Family Stress Model, a model with particular relevance for lower income families, as our sample is notably lower in socioeconomic status when compared to the U.S. Census 2000 Public Use Microdata Sample of Chinese American families with children of similar ages (www.uscensus.gov).

Goals of the Current Study

This study seeks to (a) document whether the Family Stress Model can be replicated with a sample of Chinese American families, the largest ethnic group among Asian Americans in the U.S. and (b) determine whether modeled relationships operate similarly across Chinese American mothers and fathers. The placement of model constructs was theory-driven, reflecting the stream of influence of hardship on youth outcomes proposed by the Family Stress Model. While relationships between economic stress and parental depression have not been explored with Asian samples, the link is well established in the extant literature (Mistry, Vandewater, Huston, & McLoyd, 2002), and although the entirety of the Family Stress Model has not been examined within Asian American sample, existing research has explored specific processes detailed in the model. For example, Kim & Ge (2000) demonstrated that parents' depressed mood was associated with less effective parenting, echoing findings from research with European American samples. Given these findings as well as the replication of Family Stress Model with Latino samples, including samples of immigrant families (Dennis, Parke, Coltrane, Blacher, & Borthwick-Duffy, 2003), we expected to find general support for the Family Stress Model with our Chinese American sample, with one exception. We formed no specific hypotheses regarding the relationship between parenting and youth outcomes given inconsistent cross-cultural findings (Chao, 2001; Dmitrieva et al., 2004).

As a point of departure from previous studies, we conducted analyses for mothers and fathers within a single model and explored model invariance, examining whether modeled relationships were similar across parents. Research on parenting with Asian samples is limited, particularly research comparing mothers' and fathers' parenting practices. Moreover, the existing scholarship often focuses on mainland Chinese families (see Kim &

Wong, 2002 for review). This research suggests that fathers may employ more harsh and controlling strategies than mothers (Lau, Lew, Hau, Cheung, & Berndt, 1990). Additionally, evidence from Chinese families suggests that parenting's effects on youth outcomes may be domain specific, with mothers' parenting related to emotional adjustment and fathers' parenting related to academic performance (Chen, Liu, & Li, 2000). Whether Chinese American mothers' and fathers' parenting differs and differentially relates to youth outcomes remains unexplored, as do the antecedents of Asian Americans' parenting, both of which the current study seeks to address.

Method

Participants

Participants were 444 Chinese American families residing in Northern California. Most adolescent participants (54% female; *M* age = 13.0 years, *SD* = 0.73) were born in the U.S. (75%), while most parents (87% of fathers, 90% of mothers) were foreign born. A majority of fathers (64%) and mothers (69%) reported graduating high school or attaining some post-secondary education. The median annual family income range was $30,001 – $45,000.

Procedure

Middle schools with a substantive population of Asian American students (at least 20% of student body) were selected from consenting school districts, resulting in seven eligible schools located in urban areas (*M* student population = 1,075). In total, 47% of Chinese American families identified by school administrators consented to participate in the study. Participants received a packet of questionnaires, which were collected two to three weeks after mailing by research staff. Of these families, 76% completed the surveys. Both English and Chinese version questionnaires were available to participants. In order to ensure comparability of the two versions, questionnaires were translated into Chinese and then back-translated into English. Inconsistencies were resolved by two bilingual research assistants, with careful consideration of items' culturally-appropriate meaning. The majority of adolescents used the English version questionnaires (85%), while over 70% of fathers and mothers completed the Chinese version.

Measures[1]

Family economic status—Parents self-reported their *income* using a scale, ranging from 1 ($15,000 or under) to 12 (more than $165,000). Financial instability was assessed with one item: "Think back over the past 3 months, how much difficulty did you have with paying your bills?" (Conger, Patterson, & Ge, 1995). Due to limited response range, we dichotomized financial instability to capture whether the respondent reported any financial instability. *Job instability* was assessed with three dichotomous items querying changes in employment and salary (e.g., stopped working) in the last 12 months (Conger et al., 1995). We dichotomized job instability to capture whether the respondent reported any job instability.

Family economic pressure—Families' experiences of economic pressure were assessed with nine dichotomous items that asked whether they had, in the past three months, made certain adjustments (e.g., sold possessions) based on financial need (adapted from Conger et al., 2002). Items were summed to create a composite family economic pressure variable.

[1]Descriptive information for study measures, including intercorrelations, means, and standard deviations, can be found at http://www.he.utexas.edu/graphics/SYKim.CorrelationTable.pdf.

Parental depression—Depressive symptomology was assessed with the 20-item Center for Epidemiological Studies Depression Scale (Radloff, 1977). Items queried depressed affect (I felt depressed), somatic symptoms (my sleep was restless), lack of well-being (I enjoyed life), and interpersonal difficulties (I felt people disliked me). Parents indicated how often they had experienced each symptom during the past week (Cronbach's α = 0.88 for both parents).

Interparental hostility—Interparental hostility was assessed using seven items adapted from Conger et. al. (2002). An example item is "Shout or yell at [spouse] because you were mad at [spouse]." Items were rated from 1 (*never*) to 7 (*always*). Higher scores reflected greater interparental hostility (α = .82 and .84 for mothers and fathers, respectively).

Parenting practices—Parents reported on three dimensions of *hostile and coercive parenting*. Four items adapted from Robinson and colleagues (1995) assessed punitive parenting (e.g., use threats as punishment; α = .69 and .65 for mothers and fathers, respectively). Seven items adapted from Conger et al. (2002) assessed parent hostility (e.g., Get into a fight or argument; α = .79 and .82 for mothers and fathers, respectively). Harsh and inconsistent discipline was assessed with six items (e.g., spank or slap your child) adapted from Kim et al. (2003). Due to issues of skewness, items were log-transformed (α = .59 and .63 for mothers and fathers, respectively). Parents also reported on three dimensions of *nurturing and involved parenting*. Eight items adapted from Conger et al. (2002) assessed parental warmth (e.g., Act loving, affectionate, and caring; α = .84 and .86 for mothers and fathers, respectively). Inductive reasoning (e.g., give reasons for your decisions) and monitoring (e.g., know who your child is with when s/he is away from home) were assessed using four and three items, respectively (Kim & Ge, 2000) (α = .78 and .76 for mothers and fathers, respectively).

Adolescent outcomes—Adolescents' academic outcomes were assessed using grade point average, collected from school records at the end of the school year. Grades for all courses except physical education were coded on a 5-point scale (A = 4 and F = 0) and then averaged to create a composite GPA for each student. For socio-behavioral outcomes, adolescents self-reported their depressive symptomology using the 20-item CES-D Scale (Radloff, 1977) (Cronbach's α = .87). Adolescents also rated their engagement in 12 delinquent behaviors (e.g., stealing, running away, lying) using an adapted Youth Self-Report Delinquency Subscale (Achenbach, 1991). Two items were removed due to low reliability. Due to low frequency, we created dichotomous variables that captured whether adolescents had engaged in each behavior. We then created a mean score (rather than sum due to item missingness) to determine the proportion of delinquent behaviors.

Covariates—All analyses included parents' self-reported age and immigration status (1 = born in U.S., 0 = born abroad). Two additional adolescent-reported covariates were included —gender (1 = female, 0 = male) and immigration status.

Data Analysis Strategy

We first identified constructs within our model that could be modeled as latent factors—parental depression, interparental hostility, hostile/coercive parenting, nurturing/involved parenting, and adolescent depression. We then conducted a series of measurement models with each latent factor modeled separately for mothers and fathers. Standardized factor loadings are presented in Table 1. All loadings were statistically significant at $p < .001$.

We then employed path analysis to test relations among the model constructs. We included modeled relationships for both mothers and fathers in a single model to account for the non-

independence of respondents. Through path analysis, we were able to simultaneously test for direct and indirect effects of model constructs. Analyses were conducted using Mplus 4.2 (Muthen & Muthen, 2006). The Mplus estimation procedure was able to handle our missing data through full-information maximum likelihood (FIML) method, enabling us to include all available data in the path analyses. All inferences for the indirect effects were based on the Mplus estimation of indirect effects, which estimates indirect effects with delta method standard errors (Muthen & Muthen, 2003), as recommended by MacKinnon and colleagues (2002). In addition to testing a single model that included both mother and father reports, we also conducted invariance modeling analyses to examine whether the strength of relationships among study constructs differed across parents.

Results

Exploratory analyses of mean-level differences revealed that parents born in the U.S. were better off financially, reporting higher incomes, less job instability, and less financial instability. Native-born mothers also reported less economic pressure and fewer depressive symptoms than their foreign-born counterparts. Figure 1 presents the standardized path coefficients for the final models and model fit statistics. Factor loadings for the latent variables are presented in Table 1. All path coefficients are net all relationships within the model and net the influence of covariates.

Model Invariance Across Mothers and Fathers

We first examined measurement and structural invariance across mothers and fathers to determine whether differences existed across parents. This technique includes both parents in the same covariance matrix to account for the dependence of responses. We used a stepwise process whereby we first tested a model with all parameters freed (χ^2 (375) = 808.1, CFI = .90, RMSEA = .05) and then tested a more restrictive model with constraints on all model parameters (χ^2 (399) = 838.7, CFI = .90, RMSEA = .05) and observed whether or not doing so led to a significant decrease in the overall model fit (based on omnibus tests). Results indicate only one significant difference between the freed and fully constrained models—the relationship between hostile/coercive parenting and teen depressive symptoms ($\Delta\chi^2$ (1) = 4.7, $p < .05$).

Direct Model Effects for Mothers and Fathers

Overall, the modeled relationships operated in expected ways for both mother and father reports. As seen in Figure 1, economic pressure was associated with parental reports of family income, financial instability, and job instability. Income and financial instability, along with economic pressure, were related to depressive symptoms for both mothers and fathers, which, in turn, were associated with greater hostile and coercive parenting and less nurturing and involved parenting as well as greater interparental hostility. Interparental hostility was also associated with both parenting dimensions in expected ways.

We did, however, observe some differences across parents in the relationships between parenting practices and adolescent outcomes. In general, adolescent outcomes were related to mothers' hostile and coercive parenting rather than nurturing and involved parenting. Specifically, higher levels of mothers' hostile and coercive parenting were associated with lower grades in school, more depressive symptoms, and greater involvement in delinquent behaviors. In contrast, mothers' nurturing and involved parenting were unrelated to adolescent outcomes. For fathers, the opposite pattern was observed. Fathers' nurturing and involved parenting was associated with academic but not socio-behavioral outcomes, whereas hostile and coercive parenting practices were unrelated to adolescent outcomes.

Indirect Model Effects for Mothers and Fathers

For mothers, tests of mediation indicated that economic status indicators exerted their effects on adolescents' depressive symptoms, in part, through the multiple family process mediators included in the model. More specifically, maternal reports of income affected adolescents' depressive symptoms through the following path: economic pressure → maternal depression → interparental hostility → hostile/coercive parenting (subsequently referred to as Path A; $\beta_{indirect} = -.004$, $p < .05$). The relationship between financial instability and adolescent depressive symptoms was mediated through two paths: (1) maternal depression → interparental hostility → hostile/coercive parenting (Path B; $\beta_{indirect} = .012$, $p < .05$) and (2) economic pressure → maternal depression → interparental hostility → hostile/coercive parenting (Path C; $\beta_{indirect} = .004$, $p < .05$). We observed trends in mediated effects ($p < .10$) from income and financial instability to adolescents' grades and delinquent behaviors via Paths A, B, and C.

For fathers, we also observed trends in indirect effects for the effects of economic status on adolescents' grades in school. In particular, tests of mediation revealed that the relationship between income and GPA was mediated through the relationship of economic pressure → paternal depression → nurturing and involved parenting (Path D; $\beta_{indirect} = .004$, $p = .071$). Financial instability exerted its indirect effects on adolescents' GPA through two distinct paths: paternal depression → nurturing/involved parenting (Path E; $\beta_{indirect} = -.010$, $p = .068$) and Path D ($\beta_{indirect} = -.004$, $p = .069$).

Discussion

The Family Stress Model has proven a useful tool for understanding the mechanisms by which economic hardship affects youth outcomes, and the current study sought to replicate the full model with a sample of Chinese American families. We found evidence that, for both mothers and fathers, economic status indicators affected developmental outcomes through mediating family processes, although these indirect effects were small and some differences across parents were observed. Our findings that parenting practices exerted differential direct effects on adolescents' outcomes provides some support for Chen and colleagues (2000) research highlighting the domain specificity of parenting on children's developmental outcomes. However, the identified link between mothers' parenting and adolescents' academic outcomes also illustrates the importance of mothering for Chinese American children's educational outcomes (see Chao, 1994).

The domain specificity of parenting itself (i.e., primary effects of mothers' coercive and hostile parenting versus fathers' nurturing and involved parenting) may be linked, in part, to cultural differences in parenting practices between Chinese mothers and fathers. Shek (2005; 2007) has argued for a reconceptualization of the traditional Chinese concept of "strict father, kind mother" originally described by Wilson (1974). His findings suggest that parental roles in Chinese families have evolved, such that a better conceptualization of today's Chinese families would be "kind father, strict mother." The results reported in the current study support this revised notion, insomuch as we observed that "strict" mothering and "kind" fathering influenced the developmental outcomes. Moreover, the current study illustrates the generalizability of this notion for not only Chinese families in Hong Kong (Shek, 2005), but also for those in the U.S.

While the research reported here contributes to our understanding about the generalizability of the Family Stress Model for an Asian American sample, some limitations and caveats should be noted. First, invariance analyses revealed only one significant difference across parents, and as such, the differential relationship between parenting and adolescent outcomes must be interpreted given this caveat. However, our ability to detect differences

across parents may be somewhat hampered by both our sample size and the large number of modeled parameters (see Saris & Satorra, 1993). Second, we acknowledge that data for the current model are based primarily on parent self-report. Consequently, respondent bias is a consideration in the interpretation of the results. Our outcome measures, however, were reported by adolescents or drawn from school records, and as such, the findings from this multi-informant study are more conservative than studies relying on a single respondent. Additionally, data for the current study are cross-sectional in nature, and as such, we cannot make definitive conclusions about causal relationships. Our contribution lies in informing understanding of the family process pathways by which economic hardship affects Chinese American adolescents' outcomes. Also, relationship coefficients for economic status and adolescent outcomes were small but comparable to other studies testing this model (see Conger et al., 2002). Finally, the study sample consisted solely of Chinese American families, which is both a strength and a limitation. There is great diversity in the Asian American population (Leong et al., 2006), and as such, future research should examine whether the Family Stress Model can be replicated with other Asian ethnic groups and more affluent Chinese American families.

While the goal of the current study was to replicate the Family Stress Model with an Asian American sample, the findings' implications extend beyond providing evidence for generalizability for the model's proposed pathways. In highlighting the family processes that link economic hardship to child and youth outcomes, scholars who use the Family Stress Model seek to highlight points of intervention (Gershoff et al., 2007; Mistry, Lowe, Benner, & Chien, 2008). In particular, this study suggests that intervening at the family process level may be particularly useful—as such, interventions focused on easing parents' psychological distress and promoting more positive parenting practices could be important steps in ameliorating the negative effects of economic hardship on child and adolescent outcomes.

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Figure 1.

Results of Empirical Model Testing Associations Among Mother and Father Reports of Family Economic Status, Economic Pressure, Parent Depression, Interparental Hostility, Parenting Practices, and Adolescent-Reported Developmental Outcomes. *Notes.* Father-report coefficients appear in model with underlined coefficients. ML Model fit statistics: χ^2 (1228) = 2086.9, p < .001; CFI = 0.892; RMSEA = 0.040. *** $p < .001$, ** $p < .01$, * $p < .05$. Par = parenting, GPA = grade point average. Only significant paths for mothers and/or fathers are shown.

Table 1

Factor Loadings for Measurement Model and Full Model

	Measurement Model		Full Model	
	Mothers	**Fathers**	**Mothers**	**Fathers**
Parental depression [a]				
Depressed affect	0.93	0.94	0.90	0.92
Somatic symptoms	0.84	0.81	0.86	0.82
Lack of well-being	0.40	0.43	0.42	0.43
Interpersonal difficulties	0.62	0.66	0.59	0.66
Interparental hostility				
Shout or yell because mad	0.72	0.80	0.73	0.80
Get into a fight or argument	0.83	0.82	0.74	0.78
Get angry	0.73	0.79	0.70	0.79
Criticize his/her ideas	0.53	0.49	0.57	0.51
Argue whenever you disagreed	0.61	0.61	0.61	0.62
Hit, push, grab, or shove	0.37	0.50	0.42	0.52
Insult or swear at	0.58	0.56	0.62	0.60
Hostile/coercive parenting [a]				
Punitive parenting	0.60	0.61	0.48	0.52
Hostility	0.73	0.74	0.90	0.87
Harsh discipline	0.65	0.69	0.52	0.60
Nurturing/involved parenting [a]				
Monitoring	0.60	0.61	0.58	0.62
Inductive reasoning	0.83	0.87	0.84	0.83
Warmth	0.66	0.73	0.64	0.76

Note. All parameter estimates significant at $p < .001$, two-tailed test.

[a]Based on composite (mean) scores rather than measured items.