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Family Stress Processes and Drug and Alcohol Use by Mexican American Adolescents

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Abstract

The present study examines the influence of economic and family stress processes on change in drug and alcohol use in a cohort of 478 Mexican American youth (50.8% female) followed longitudinally beginning in grade 5 when the youth averaged 10.4 years of age. Adolescents, their mothers (median age 36 at grade 5), and their fathers (median age 39 at grade 5) were assessed on economic hardship (grades 5–7), family stress processes (grades 5–9), and adolescent substance use (grades 7–9). Hypotheses were derived from a culturally-informed Family Stress Model, which proposes that economic hardship initiates a sequential cascade of problems involving parents' emotional distress, inter-parental conflict, disruptions in parenting and increased risk for adolescent substance use. Structural equation modeling was used to test these hypothesized linkages and the findings were consistent with predictions derived from the Family Stress Model. The results also demonstrated that parents' familism moderated the association between parent distress and inter-parental conflict, acting as a source of resilience in this family stress process. Findings suggest that prevention and intervention efforts focused on reducing caregiver distress and inter-parental conflict and enhancing parenting practices, as well as policies that reduce the level of economic hardship experienced by families, may aid in the reduction of adolescent substance use. Additionally, interventions focused on facilitating the cultural value of familism may promote more positive interactions between Mexican American parents which, in turn, may promote more effective parenting practices that help to reduce the risk for adolescent substance use.

Keywords

substance use; family stress model; Mexican Americans; familism; alcohol use; drug use

Extant research suggests that Hispanic adolescents, and Mexican American adolescents in particular, are at considerable risk for substance use (Delva et al., 2005; Johnston, O'Malley, Miech, Bachman, & Schulenberg, 2016). Moreover, Hispanics are the largest racial or ethnic minority in the United States, representing approximately 17% of the total US population

¹For the purposes of this report, Mexican American is defined as individuals of Mexican descent living in the US.

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and that figure is projected to increase to 31% by 2060 (U.S. Census Bureau, 2014). Among Hispanics, Mexican Americans are by far the largest subgroup, representing 64% of the US's Hispanic population (for comparison, the next largest group, Puerto Ricans, represent 9% of Hispanics in the US; U.S. Census Bureau, 2014) and over 11% of the total US population (U.S. Census Bureau, 2015). Given the growing size of the Mexican American adolescent population, their increased risk for substance use, and the oftentimes serious consequences of that use – including mental and physical health problems, lower educational attainment and earnings, and criminal offending and violence (Feinstein, Richter, & Foster, 2012; King, Meehan, Trim, & Chassin, 2006; Odgers et al., 2008) – it is critical to identify developmental processes that increase risk and promote resilience to substance use for Mexican American adolescents. We pursue this goal in the present investigation using data from the California Families Project (CFP) -- a prospective, longitudinal study of Mexican American families.

The current study examines some of these developmental processes by 1) evaluating the degree to which the economic and family stress processes proposed in the Family Stress Model (FSM; Conger, Conger, & Martin, 2010) contribute to the risk for substance use by Mexican American adolescents over time and 2) considering a cultural asset common to Mexican American families – familism – as a possible moderator of some of these family stress processes.

Briefly, the FSM proposes that economic hardship initiates a sequential cascade of problems involving parents' emotional distress, parental conflict, disruptions in parenting, and increased risk for adolescent substance use (Conger et al., 2010). These economic stress processes may be especially pertinent to Mexican American families because they are more likely than other groups to experience extremely low incomes that often fall below the official poverty line (Macartney, Bishaw & Fontenot, 2013). At the same time, Mexican American families have many strengths, including cultural assets that may promote resilience to these stress processes. We build on previous research indicating that familism (i.e., centrality of family) is a core cultural value for Mexican Americans that may act as a protective factor for parents and children (Ayón, Marsiglia, & Bermudez-Parsai, 2010; Gil, Wagner, & Vega, 2000; White, Liu, Nair, & Tein, 2015). Specifically, we extend the FSM to include familism as a proposed moderator of certain family stress processes. This aspect of the study addresses the need for research to move beyond theories based primarily on majority culture and to investigate the strengths of minority populations and adaptive aspects of these cultures (e.g., García Coll et al., 1996).

Previous tests of the FSM have found broad empirical support for the FSM across developmental outcomes, such as internalizing and conduct problems, and for families from different racial and ethnic backgrounds and different geographic locations (e.g., Conger et al., 1992, 1993; Conger et al., 2002; Parke et al., 2004; White, et al., 2015). However, few studies have examined the FSM's value in explaining the development of adolescent substance use, and none that we are aware of have examined the FSM in relation to substance use by Mexican American adolescents. Additionally, prior research on the FSM consists primarily of cross-sectional studies, which provide weak inferences regarding hypothesized causal relationships. Thus, longitudinal tests of the FSM are needed,

particularly evaluations which examine change over time in family stress processes and developmental outcomes.

The current study addresses these shortcomings in the extant research in several ways. First, the current investigation provides the first test of the utility of the FSM in explaining the development of substance use by Mexican American adolescents. Second, the current study extends the theoretical model to include an adaptive aspect of Mexican American culture -- familism. Finally, the present study addresses the need for longitudinal tests of the FSM by evaluating a model which controls for earlier levels of family stress processes, parenting, and adolescent substance use, allowing for a developmental approach in which we are able to predict relative change over time in these key constructs and examine how change in one construct relates to subsequent change in another. Specifically, we evaluated the degree to which changes in family processes affected by economic problems influence change in adolescent substance use.

The Family Stress Model

The family stress model (FSM) is a developmental model that proposes specific processes through which economic hardship is expected to affect child and adolescent development via disruptions in family relationships and parenting. The FSM's focus on how economic processes unfold to affect families may be particularly relevant for Mexican American families due to their overrepresentation among those in poverty. Indeed, previous research has documented how economic stress can disrupt the relationship functioning and parenting of Mexican American parents experiencing economic hardship (e.g., Parke et al., 2004). Yet, no research has examined the FSM's utility in explaining the development of adolescent substance by Mexican American adolescents. This is an important oversight for two reasons. First, Mexican American adolescents are at considerable risk for alcohol, tobacco, and marijuana use. For instance, Hispanic 8th graders show greater current alcohol and marijuana use (i.e., past 30 days) than Black and non-Hispanic White youth (Johnston et al., 2016). Among Hispanics, Mexican American adolescents may be at particular risk. For instance, Delva and colleagues (2005) found Mexican American 8th graders were significantly more likely to have engaged in marijuana use and heavy drinking than Puerto Rican, Cuban, or Other Latin American 8th graders. Second, evaluation of the FSM in explaining Mexican American adolescent substance use may be particularly valuable because the model elaborates the processes through which economic hardship impacts adolescent substance use. Thus, it suggests several possible targets for prevention and intervention efforts.

As displayed in Figure 1, the FSM proposes that economic hardship, in the form of negative economic events (adverse changes in family economic circumstances, such as the loss of a job or a foreclosed home loan) and low family income, increase the degree of economic pressure experienced by parents (Conger et al., 2002). Economic pressure reflects the painful realities created by economic hardship--being unable to afford essential goods and services, making significant cutbacks in daily expenditures because of limited resources, and not being able to pay monthly bills--and represents the difficult experiences that give psychological meaning to living with economic hardship (Conger et al., 2002). The FSM proposes that this economic pressure will then function to increase the emotional distress

(e.g., depressed mood, anxiety, anger and hostility) of both mothers and fathers. Previous research supports these predictions for majority (Conger et al., 2010) and minority families, including Mexican Americans (Conger et al., 2002; Parke, et al., 2004).

Also as shown in Figure 1, the FSM predicts that these disruptions in mothers' and fathers' emotional well-being will disturb the functioning of their relationship, intensifying inter-parental conflict. That is, the increased emotional distress resulting from economic pressure will increase aggressive and angry interactions within the parental relationship (Conger et al., 2010). Consistent with earlier research and theory, the FSM proposes that inter-parental conflict will, in turn, negatively affect parenting practices; that is, conflicts between caregivers will "spill-over" into parent-child relationships by disrupting effective parenting behaviors (e.g., Conger et al., 2002; Conger et al., 2010). For example, according to the FSM these stressful conditions will exacerbate hostility by parents toward children and will cause parents to demonstrate less care and concern toward children because of the distractions created by their stressful circumstances. Finally, the FSM predicts that poor parenting will predict greater levels of adolescent substance use. As a result of hostile and/or neglectful parental behavior, the adolescent may resort to substance use in an effort to cope with this unwelcoming and stressful home environment. Moreover, parents who are troubled by their own conflicts may be too distracted by these issues to monitor and supervise their adolescent, resulting in the adolescent having more opportunities to engage in substance use.

Consistent with these ideas, the proposed association between parenting and substance use has been found in previous research with Mexican American families (Marsiglia, Nagoshi, Parsai, & Castro, 2014; Martinez, 2006; Ozer, Flores, Tschann, & Pasch, 2011). For instance, using data from a sample of Mexican American families from Northern California, Ozer and colleagues (2011) found that maternal and paternal warmth and acceptance were associated with lower levels of adolescent alcohol and marijuana use a year later. Similarly, using data from a sample of 189 Mexican American families with 7th grade adolescents, Marsiglia and colleagues (2014) found that positive parental communication had significant negative main effects on adolescent alcohol, cigarette, and marijuana use. Thus, consistent with these findings and with predictions from the FSM, we expect that low-warmth and high hostility in the parent-child relationship, less effective child management and lower parental monitoring will predict greater substance use by the adolescent.

Familism as a Source of Resilience to Economic and Family Stress Processes

In the current study, we build upon previous research and theory indicating that familism may be protective for Hispanic adolescents (e.g., Gil et al., 2000) and parents (e.g., Ayón et al., 2010) by examining familism as a possible source of resilience to certain family stress processes within the FSM. Familism is a multidimensional construct that can be divided into attitudinal and behavioral components (Calzada, Tamis-LeMonda & Yoshikawa, 2012; Sabogal, Marin, Otero-Sabogal, Marin, & Perez-Stable, 1987; Villarreal, Blozis, & Widaman, 2005). *Attitudinal familism* refers to feelings and beliefs regarding the importance of family, including strong feelings of attachment, loyalty, reciprocity, and solidarity. In contrast, *behavioral familism* refers to actions or behaviors associated with these attitudes and beliefs, such as providing child care or monetary help to relatives. Although behavioral

familism is important for Mexican American families, it includes behaviors such as providing financial and instrumental (e.g., caring for elderly kinfolk) support to relatives that are likely to be emotionally taxing, and thus may generate rather than alleviate stress for families. Thus, there may be costs, as well as benefits, associated with familism, particularly the behavioral elements (e.g., Calzada et al., 2012). Furthermore, as Sabogal and colleagues noted in 1987, failure to distinguish between attitudinal and behavioral familism may lead to faulty or contradictory conclusions. Accordingly, in the current research we focus on the attitudinal aspects of Mexican American familism as a possible source of resilience to family stress processes that contribute to adolescent substance involvement.

As noted previously, few studies have examined how cultural values, especially those that may promote resilience to family stress, influence the developmental processes specified by the FSM. One exception is White and colleagues' (2015) study of parents' familism as a potential moderator of the effect of economic pressure on parenting behaviors. Although the findings were not consistent across parents (mother vs father), reporters (self- vs child-report of parenting), or type of parenting (warm vs harsh), the results did indicate that mothers' familism moderated the effect of economic pressure on mother reported maternal warmth, providing some, albeit inconsistent, evidence that familism may act as a source of resilience to family stress processes within the FSM. Importantly, White and colleagues' study focused primarily on *behavioral familism*. That is, their measure of familism consisted of the family obligations (e.g., "If a relative is having a hard time financially, one should help them out if possible") and family as referent (e.g., "It is important to work hard and do one's best because this work reflects on the family") subscales from the Mexican American Cultural Values Scale (Knight et al., 2010). Thus, the influence of *attitudinal familism* on family stress processes, and whether it acts as a source of resilience, is not known.

We address this issue in the current study by focusing on the attitudinal aspects of Mexican American familism; that is, feelings of attachment, loyalty, pride, reciprocity, and solidarity regarding family. Specifically, we propose that parents with greater levels of attitudinal familism will experience less inter-parental conflict and fewer disruptions in parenting when economic pressure is high (see Figure 1), which in turn will reduce the likelihood of substance use by the adolescent. That is, when parents have strong feelings of attachment to and solidarity with their family, we predict that they will be less likely to allow the emotional distress generated from economic hardship to "spill over" into their family relationships. This hypothesis is also consistent with García Coll and colleagues (1996) integrative model, which asserts that cultural, religious, and adaptive family values will influence behavior displayed during family interactions. Although attitudinal familism is not unique to Hispanic culture, its effect as a moderator of family stress processes in Mexican American families may be especially potent since previous research suggests that these types of family values are more strongly endorsed by Hispanics than non-Hispanic Whites (Sabogal et al., 1987). Consistent with these ideas, our extension of the FSM predicts that Mexican American parents' attitudinal familism will moderate the expected associations between mother's and father's emotional distress and inter-parental conflict, as depicted by the first two bold arrows in Figure 1. That is, when individuals place great value on the sanctity of family and feel strongly attached to their family, they may be less likely to let their own emotional distress disrupt their spousal relationship. Similarly, parents who feel

strongly attached to and take great pride in their family may be less likely to allow conflict with their spouse interfere in their relationship with and parenting of their child. Thus, as represented by the third bold arrow in Figure 1, the model proposes that the association between inter-parental conflict and poor parenting will be moderated by parents' attitudinal familism.

The Present Study

The current study tests predictions from the culturally-informed FSM presented in Figure 1. We tested a longitudinal model which includes the processes depicted in Figure 1 using data from a cohort of 478 Mexican American youth and their parents assessed in grades 5, 7, 9 and 11. We examined the frequency with which cohort members reported using three substances: cigarettes, alcohol, and marijuana. We expected that the effect of the antecedent variables on substance use would not be direct, but instead operate indirectly through the more proximate variables in the model, as depicted in Figure 1. For instance, we expected that inter-parental conflict would not have a direct effect on adolescent substance use, but instead, operate indirectly through poor parenting. Our model also controls for earlier levels of mother distress, father distress, inter-parental conflict, poor parenting, and substance use, and thus predicts relative change in each of these constructs (see Figure 2). We also included nativity (born in Mexico vs the US) and a measure of acculturation as control variables in our analyses, based on previous research linking these constructs to substance use (McQueen, Getz, & Bray, 2003; Prado et al., 2009). We used latent variable interactions to test the proposed protective role of mother and father attitudinal familism on three associations: the association between (a) mother's emotional distress and inter-parental conflict, (b) father's emotional distress and inter-parental conflict, and (c) inter-parental conflict and poor parenting. We expected that attitudinal familism would moderate these associations, acting as a protective factor, reducing the effect of distress on inter-parental conflict and inter-parental conflict on poor parenting.

The present study extends previous research in several ways. First, as discussed previously, longitudinal tests of the FSM are needed, particularly evaluations which examine change over time in family stress processes and outcomes. The longitudinal model evaluated in the current study controls for earlier levels of family stress processes, parenting, and substance use, allowing us to predict developmental change over time in these key constructs and to examine how change in one construct relates to subsequent change in another. That is, we are interested in the development of both adolescents and parents as they respond both emotionally and behaviorally to economic pressure. Second, the few studies that have tested the FSM longitudinally have not examined important components of the FSM. For example, White et al.'s (2015) study provided an excellent longitudinal test of parts of the FSM, but their study did not examine the effects of economic hardship on the development of economic pressure or family stress processes related to parent's emotional distress and inter-parental conflict. These constructs are especially important to the FSM because they suggest additional points of prevention and intervention (e.g., reducing parental distress and improving relationships between parents). Third, extant research that has examined parents' distress has typically included only depression as an indicator of parental emotional distress. In the current research we offer a more comprehensive conception of parental distress by

including depression, anxiety, and general distress as indicators of parental distress. Fourth, although White and colleagues (2015) have examined familism as a possible moderator of the association between economic pressure and parenting, no work we are aware of has examined familism as a possible moderator of the associations between parent distress and inter-parental conflict or between inter-parental conflict and poor parenting. This important extension of the family stress model expands the theory to incorporate strengths of minority populations and adaptive aspects of these cultures and may provide for a better understanding of factors that protect against family stress processes in Mexican American families. Finally, to our knowledge, this is the first study to evaluate the utility of the FSM in examining substance use by Mexican American adolescents.

Method

Participants and Procedures

Data for the current study come from the California Families Project (CFP), a longitudinal study of 674 Mexican origin youth and their parents. The study has been approved by the University of California, Davis Institutional Review Board. To be eligible for study, the target youth had to be in Grade 5 during Wave 1, of Mexican origin, born in either Mexico or the United States, and living with 1 or 2 biologically-related Mexican-origin parents. The majority of the adolescents were American born: Seventy percent of the youth were born in the US and the remaining 30% were born in Mexico. Children were drawn at random from fifth grade students in two school districts in Northern California. Participants were recruited by telephone or, when they did not have a telephone, by a recruiter who went to the family's home. Of the eligible families, 73% agreed to participate.

The current study uses family assessments in alternating years beginning when the target child was in the Grade 5 and continuing through Grade 11. The Grade 5 assessment began in July of 2006 and ended in June of 2008; subsequent assessments followed similar timelines. During these assessments trained research staff interviewed parents and children separately in their homes, using laptop computers. All interviews were administered in the language of the participant's choice, either Spanish or English using CAPI. All of the measures administered were developed through standard translation-back translation procedures. Interviewers were all bilingual and most were of Mexican heritage. In the 5th grade assessment, 16% of the adolescents were interviewed in Spanish and the remaining 84% were interviewed in English; by Grade 11, only 4.2% were interviewed in Spanish. In contrast, 83% of mothers and 88% of fathers were interviewed in Spanish at both the 5th and 11th grade assessments. The assessments took place on two separate occasions, usually within a one-week period, and each visit lasted approximately two to three hours. Retention rates relative to the original cohort were 86% at Grade 7, 91% at Grade 9, and 90% at Grade 11.

There were 549 two-parent (84.9%) and 125 single-parent (18.5%) families during the first wave of the study. Because father reports are necessarily missing for single-mother households and because a key variable in the FSM involves inter-parental conflict, we restricted our analyses to the 478 youth ($n_{\text{female}} = 243$, $n_{\text{male}} = 235$) for whom our measure of inter-parental conflict was available in the Grade 7 assessment. These youth (50.8%

female) averaged 10.4 years of age ($SD = 0.58$) in the first wave of the study, and 16.3 years ($SD = 0.53$) by Grade 11. Parents ranged in age from 26 to 62, with a median of 36 for mothers and 39 for fathers at the first wave of the study.

Measures

Income.—Total annual household income was independently reported by mothers and fathers at Grade 5. Parents reported their total family income from all sources using a 20-point ordinal response scale, ranging from (1) “less than \$5,000” to (20) “\$95,000 or more” (median = 7 for mother report, corresponding to \$30,001 to 35,000). Mother and father reports of income were strongly correlated ($r = .84$) and used as the two indicators of the family income latent construct.

Negative economic events.—In Grade 5, mothers and fathers each reported on 21 items indicating whether they had experienced adverse changes in economic circumstances such as being laid off, being fired, or having a home loan foreclosed over the past 3 months (0 = no, 1 = yes). The mother and father report items were parceled into three indicators of the latent construct. Parcels offer three advantages over the use of individual items: They typically produce more stable solutions, they are less likely to share specific sources of variance that may not be of primary interest, and they reduce the likelihood of spurious correlations (Little, Rhemtulla, Gibson, & Schoemann, 2013).

Economic pressure.—At Grades 5 and 7, mothers and fathers independently completed three subscales adapted from the economic pressure measures developed by Conger and colleagues (e.g., Conger & Elder, 1994). Each indicator was coded so that higher scores reflected greater economic pressure. The first subscale included two items indicating whether parents felt that they could not “make ends meet” during the past three months ($r = .58$ mother report Grade 5, $r = .56$ father report Grade 5, $r = .57$ mother report Grade 7, and $r = .54$ father report Grade 7). The second subscale measured whether the family could meet its basic material needs related to clothing, transportation, a home, furniture and household appliances, food, and medical services ($\alpha = .91$ mother report Grade 5, $\alpha = .91$ father report Grade 5, $\alpha = .90$ mother report Grade 7, $\alpha = .92$ father report Grade 7). The third subscale assessed whether the family had made significant financial cutbacks in several areas, including food, medical care, and utilities, because of economic hardship. Responses were dichotomously scored (1 = yes, 0 = no) and averaged to create the third subscale ($\alpha = .74$ mother report Grade 5, $\alpha = .72$ father report Grade 5, $\alpha = .69$ mother report Grade 7, $\alpha = .74$ father report Grade 7). Mother and father reports at Grade 5 and Grade 7 were averaged for each of the subscales to generate the three separate indicators for the latent construct assessing economic pressure.

Mother and father emotional distress.—Self-reports on the short form of the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) and the general distress and anxiety subscales of the Mini Mood and Anxiety Symptom Questionnaire (MASQ; Clark & Watson, 1995) were used to assess mother and father emotional distress in Grade 5 and Grade 7. The short form of the CES-D was developed by Cole, Rabin, Smith, and Kaufman (2004) and contains 10 items designed to measure depressive symptomatology in

the general population. The items were rated on a 4-point scale (1 = almost never or never to 4 = almost always or always) and had adequate reliability ($\alpha = .77$ mother report Grade 5, $\alpha = .66$ father report Grade 5, $\alpha = .75$, mother report Grade 7, $\alpha = .66$ father report Grade 7). The original MASQ included 90 items related to symptoms of anxiety and mood disorders. The Mini-MASQ is a shortened version of the MASQ that includes 26 items (Casillas & Clark, 2001) rated on a 4-point scale (1 = not at all to 4 = very much). The Mini-MASQ general distress ($\alpha = .86$ mother report Grade 5, $\alpha = .85$ father report Grade 5, $\alpha = .88$ mother report Grade 7, $\alpha = .88$ father report Grade 7) and anxiety ($\alpha = .77$ mother report Grade 5, $\alpha = .80$ father report Grade 5, $\alpha = .80$ mother report Grade 7, $\alpha = .81$ father report Grade 7) subscales and CESD depression were used as the three indicators of mother and father emotional distress at Grade 5 and Grade 7.

Inter-parental conflict.—During Grades 5 and 7, mothers and fathers completed the Behavioral Affect Rating Scale (BARS; Matthews, Wickrama, & Conger, 1996). The BARS assesses the expression of warmth and hostility in close relationships (e.g., the marital relationship or parent-child relationship). Each parent reported on 22 items about the other parent using a 4-point scale which was scored so that higher scores represent greater hostility and conflict. Items include behaviors such as shouting or yelling, “bossing around,” and insulting or swearing at the other partner. Mothers reported on the fathers’ hostility and low warmth toward mothers ($\alpha = .92$ Grade 5 and $\alpha = .93$ Grade 7) and fathers reported on the mothers’ hostility and low warmth toward fathers ($\alpha = .89$ Grade 5 and $\alpha = .92$ Grade 7). Each mother reported item was averaged with the same father reported item and then these parent average items were randomly parceled into the three indicators of inter-parental conflict at Grade 5 and Grade 7.

Poor parenting.—Three child-reported indicators were used for the parenting construct during Grade 5 and Grade 9: parents’ poor discipline and child management strategies, parents’ low monitoring of the target, and parents’ low warmth and high hostility toward the target. Parents’ poor discipline and child management strategies were assessed using a measure adapted from the Iowa Youth and Families Project (Conger & Elder, 1994). This measure assessed the degree to which mothers and fathers used positive reinforcement (reverse coded), inconsistent discipline, inductive reasoning (reverse coded), and harsh discipline in their parenting of the target adolescent. Targets used a 4-point scale (coded so that higher values represented worse parenting) to report on 15 items such as, “When you have done something your dad likes or approves of, how often does he let you know he is pleased about it?” (positive reinforcement), “When your mom asks you to do something and you don’t do it right away, how often does your mom give up?” (inconsistent discipline), “How often does your mom give you reasons for her decisions?” (inductive reasoning), and “When you do something wrong, how often does your dad hit or slap you?” (harsh discipline). Target reports of mother and father parenting practices were averaged together to create the first indicator of the poor parenting construct at Grade 5 ($\alpha = .76$ for mother; $\alpha = .79$ for father) and at Grade 9 ($\alpha = .83$ for mother; $\alpha = .84$ for father).

Parents’ low monitoring of the target was assessed using target reports of the degree to which he or she was monitored by their mother ($\alpha = .88$ Grade 5 and $\alpha = .92$ Grade 9) and

father ($\alpha = .94$ Grade 5 and $\alpha = .95$ Grade 9). The scale consists of 14 items (adapted from Small & Kerns, 1993 and Small & Luster, 1994) which were scored so that higher scores represented lower levels of monitoring using a 4 point scale. Items included statements such as, “Your [mother, father] knew what you were doing after school” and “When you went out at night, your [mother, father] knew where you were going to be.” Target reports of mother’s and father’s monitoring were averaged together to create the second indicator of the poor parenting construct at Grade 5 and Grade 9.

Mother and father low warmth and high hostility toward the target in Grade 5 and Grade 9 was assessed using target reports on the BARS (described previously). Targets rated 21 items on a 4 point scale which evaluated their mother’s ($\alpha = .79$ Grade 5 and $\alpha = .91$ Grade 9) and father’s ($\alpha = .82$ Grade 5 and $\alpha = .90$ Grade 9) warmth and hostility toward the target. Items included statements such as, “During the past 3 months, when you and your [mother/father] have spent time talking or doing things together how often did your [mother/father]... get angry at you” and “... hit, push, grab, or shove you.” Target reports of mother’s and father’s low warmth/high hostility were averaged together to create the final indicator of the poor parenting construct at Grade 5 and Grade 9.

Substance use.—Target self-reports of the frequency with which they used a variety of substances were used to assess substance use in Grade 9 and Grade 11. Specifically, they reported how many times they had used or tried cigarettes, beer, wine or wine coolers, hard liquor, and marijuana in the past three months using a 5 point scale, ranging from 1 “never” to 5 “almost every day”. The three alcohol items (beer, wine or wine coolers, and hard liquor) were combined to create the measure of frequency of alcohol use.

Attitudinal familism.—Self-reports on the 5-item Pan-Hispanic Familism Scale (PHFS; Villarreal et al., 2005) were used to assess mother and father attitudinal familism in Grade 7. The PHFS assesses attitudes and beliefs regarding the importance of family. Villarreal et al. (2005) demonstrated invariance in the factor structure of the PHFS across participants’ country of birth (US, Mexico, or Latin America) and language preference (English or Spanish), using data from a nationally representative sample. During Grade 7, mothers and fathers rated items such as “You cherish the time you spend with your family,” “You are proud of your family,” and “Your family members and you share similar values and beliefs” using a 4-point Likert-type scale (1 = strongly disagree to 4 = strongly agree). The scale has adequate internal consistency ($\alpha = .72$ for mothers and $\alpha = .76$ for fathers). Mother reports on the items were used as the five indicators for the mother’s attitudinal familism latent variable construct with factor loadings ranging from .39 to .82. Likewise, father reports on the items were used as the five indicators for the father’s attitudinal familism construct with loadings ranging from .56 to .70.

Control variables.—Adolescent nativity (0 = born in Mexico and 1 = born in the United States) and a measure of acculturation were examined as control variables in the analyses. Adolescent acculturation was assessed using 8 items from the Hazuda Acculturation and Assimilation scale ($\alpha = .84$; Hazuda et al., 1988), with higher scores reflecting less acculturation.

Data Analysis

All data analyses were conducted using Mplus 7.4 (Muthén & Muthén, 1998–2012). Because all longitudinal studies include some missing data, we used full information maximum likelihood (FIML) estimation. FIML provides more consistent, less biased estimates than ad hoc procedures for dealing with missing data such as listwise deletion, pairwise deletion, or imputation of means (Allison, 2003). The first step in our analyses was to conduct a confirmatory factor analysis (CFA) for all constructs included in Figure 1 and the control variables (nativity and acculturation) to assure that the measurement strategy fit the data. Our second step was testing for invariance over time in the factor loadings of the longitudinal latent constructs (e.g., mother distress, father distress, inter-parental conflict, and poor parenting) included in Figure 1. To do this, we constrained the factor loadings of a longitudinal construct (e.g., father distress) to equality over time (e.g., the first indicator at grade 5 was constrained equal to the same indicator at grade 7, etc.) and compared the model fit (chi-square relative to degrees of freedom, RMSEA, CFI, etc.) of that model to a model where those factor loadings were not constrained to equality. The third step was to compare the bivariate correlations among the study constructs with predictions from the FSM to verify the potential value of a formal test of the model. The fourth step in our analyses was estimating the structural equation model (SEM) corresponding to the model depicted in Figure 1. The fifth step was to add the control variables to the model, examine the significance levels of the pathways from the control variables to the other variables in the model, and retain those pathways that were statistically significant. The sixth step was to test whether paths not suggested by the model were significant (e.g., whether income at Grade 5 had a direct effect on mother distress at Grade 7); however, fewer paths than predicted by chance were significant [i.e., of the 30 possible pathways tested, the coefficient for only one path was significant (the path from negative economic events at Grade 5 to tobacco use at Grade 11)], and thus the results presented in the next section include only the pathways depicted in Figure 1.

Because previous research indicates that males and females may differ in their substance use (e.g., Johnston et al., 2016), the seventh step in the analyses involved using multiple group analyses (MGA) to test for possible gender differences in the pathways involving substance use (e.g., the path from alcohol use at Grade 9 to alcohol use at Grade 11, the path from poor parenting at Grade 9 to marijuana use at Grade 11, etc.). The results of those tests revealed no significant gender differences and thus the results that follow are presented using the combined sample of males and females. For both the CFA and SEM analyses, we tested model fit in several ways. In these tests we adhered to conventional cutoff criteria for various indices: a comparative fit index (CFI) of .950 or more, a standardized root mean square residual (SRMR) of less than .08, and a root mean squared error of approximation (RMSEA) value below .06 indicated adequate model fit (Hu & Bentler, 1999).

Finally, we tested our hypotheses involving moderation by estimating interactions using a latent variable framework (i.e., we tested whether the bold paths in Figure 1 were moderated by attitudinal familism). We used *Mplus 7.4* to test these latent variable interactions, which utilizes the approach described in Klein and Moosbrugger (2000). This approach permits estimation of interactions between latent variables and their use as predictors within a SEM.

However, this method does not produce traditional fit indices such as CFI and RMSEA or standardized regression coefficients. Thus, we first report the findings from the model without the hypothesized moderators and then the results of the analyses with the latent variable interactions.

Results

Measurement Model

We first confirmed that the indicators loaded as expected on the proposed constructs (e.g., that the three indicators of economic pressure – cannot make ends meet, unmet needs, and cutbacks – loaded well on the economic pressure latent construct). We then tested for invariance over time in the factor loadings of the longitudinal latent constructs: mother distress, father distress, inter-parental conflict, and poor parenting. To test invariance, we constrained the factor loadings for each longitudinal construct to equality over time. Theoretically, if such a constraint results in a large change in chi-square relative to degrees of freedom, that constraint should be removed as it produces poor model fit. Constraining the factor loadings to equality over time resulted in small, non-significant changes in chi-square for all factor loadings with one exception – the CES depression indicator of mother's distress produced a significant change in the chi-square relative to the degrees of freedom when that factor loading was constrained to equality across Grades 5 and 7. However, change in chi-square may not be the most reliable method of model evaluation as it is overly sensitive to sample size (Chen, 2007; Hu & Bentler, 1998). For that reason we also considered practical fit indices (e.g., CFI, SRMR, RMSEA). These practical model fit indices showed very small changes when these factor loadings were constrained to be equal over time (CFI = .970, SRMR = .034, RMSEA = .032 with all factor loadings free versus CFI = .969, SRMR = .036, and RMSEA = .032 with longitudinal factor loadings constrained to equality). These findings suggest that the longitudinal latent factors operated similarly across time and, thus, the results we present are for models with all longitudinal factor loadings constrained to equality over time.

Factor loadings for the latent constructs from Figure 1 are presented in Table 1. The measures of substance use and control variables (acculturation and nativity) were not included in the table because they are manifest variables (single indicators) and, thus, had factor loadings of 1.0. All factor loadings were in the expected direction, of acceptable magnitude, and statistically significant, affirming the usefulness of the variables selected to measure our latent constructs. The CFA fit the data well ($\chi^2 = 860.554$, $df = 573$, RMSEA = .032, SRMR = .036, CFI = .969).

Table 2 provides the bivariate correlations among the constructs from the aforementioned CFA. The correlations were consistent with predictions from the conceptual model in Figure 1. For example, income was significantly and negatively related to economic pressure ($r = -.47$) and negative economic events were significantly and positively associated with economic pressure ($r = .53$). Economic pressure, in turn, was positively and significantly associated with both mother ($r = .42$) and father ($r = .40$) distress at Grade 7. Mother ($r = .34$) and father ($r = .25$) distress at Grade 7 were significantly and positively associated with inter-parental conflict at Grade 7, which in turn was significantly correlated with poor

parenting two years later ($r = .25$). Finally, poor parenting at Grade 9 was significantly and positively associated with the frequency of cigarette ($r = .17$), alcohol ($r = .21$), and marijuana ($r = .19$) use at Grade 11. Together, these correlations are consistent with the FSM and support the value of a formal test of the model.

Structural Model

Figure 2 provides the results of the SEM evaluating predictions from the FSM. The model fit the data adequately (RMSEA = .035, SRMR = .069, CFI = .956) and the standardized regression coefficients indicated support for the hypothesized relationships. Consistent with the hypotheses from the FSM, the pathways from income and negative economic events to economic pressure were both significant, with greater income predicting less economic pressure ($\beta = -.39$) and more negative economic events predicting greater economic pressure ($\beta = .47$). In turn, the pathways from economic pressure to mother ($\beta = .26$) and father ($\beta = .25$) distress at Grade 7 were both significant, indicating that greater levels of economic pressure predict relative increases in both mother and father distress from fifth to seventh grade. Mother's distress at Grade 7 significantly predicted relative increases in inter-parental conflict from Grade 5 to Grade 7, consistent with the family stress model's proposal that emotional distress contributes to conflict between parents. However, the main effect for the path from father's distress to inter-parental conflict was not significant (however, see the results of the moderation analyses below). Notably, because parent distress and parental conflict are both included in our analytic model at grade 7, there is ambiguity regarding the temporal ordering of these constructs. That is, although the findings suggest that mother's emotional distress predicts relative increases in parental conflict, it may be instead that parental conflict is associated with relative increases in mother's emotional distress or there may be transactional relationships between distress and conflict.

Consistent with predictions from the FSM that conflicts between caregivers will "spill-over" into parent-child relationships and disrupt effective parenting behaviors, inter-parental conflict at Grade 7 significantly predicted relative increases in poor parenting from fifth to ninth grades. Finally, poor parenting at Grade 9 significantly predicted relative increases in the frequency of use of all three types of substance examined. Specifically, change in poor parenting from Grade 5 to Grade 9 predicted relative increases in cigarette ($\beta = .13$), alcohol ($\beta = .18$), and marijuana ($\beta = .11$) use from Grade 9 to Grade 11.

Adolescent nativity and acculturation were included in the model presented in Figure 2 as control variables. Nativity was positively and significantly associated with income (i.e., adolescents who were born in the US were more likely to be from families with greater incomes; $\beta = .22$) and negatively and significantly associated with negative economic events (i.e., adolescents born in Mexico were more likely to be from families encountering greater negative economic events; $\beta = -.14$). Acculturation was significantly and negatively associated with income ($\beta = -.29$) and marijuana use in grade 11 ($\beta = -.11$). A higher score indicates less acculturation, thus, less acculturated youth were from families with lower household incomes and also less likely to use marijuana in grade 11. Nativity and acculturation were not significantly associated with any other variable in the models, including attitudinal familism in the moderation analyses which we turn to next.

Tests of the Hypothesized Interactions

We hypothesized that parent attitudinal familism would moderate the association between parent distress at Grade 7 and inter-parental conflict at Grade 7. To test this prediction we first added the latent variable interaction between father distress and father attitudinal familism to the complete SEM displayed in Figure 2, with both main effects and the interaction term predicting inter-parental conflict. This interaction term significantly predicted inter-parental conflict at Grade 7. In the analyses without moderators (Figure 2), the path from father's distress to inter-parental conflict was not significant; however, in the moderation analyses, both the interaction term (unstandardized coefficient = $-.561$, $p = .001$) and the main effect of father's distress on inter-parental conflict were significant (unstandardized coefficient = $.101$, $p = .017$), indicating both main and interaction effects in predicting inter-parental conflict. Notably, the model controls for both earlier levels (i.e., at Grade 5) of father distress and inter-parental conflict. Figure 3 displays the effect of father's distress (Grade 7) on inter-parental conflict (Grade 7) at high (1 SD above the mean), low (1 SD below the mean), and mean values of father's attitudinal familism (Grade 7) plotted from 1 SD below to 1 SD above the mean of father distress. As shown in Figure 3, high levels of father attitudinal familism appear to be protective and buffer the effect of father's distress on inter-parental conflict. However, at mean levels of father attitudinal familism, greater emotional distress on the part of the father is linked with increases in inter-parental conflict. Especially important, when father's attitudinal familism is low, this slope is much steeper, indicating an even stronger positive association between emotional distress and inter-parental conflict.

Next, we tested the hypothesized moderating effect of mother's attitudinal familism on the association between mother's distress at Grade 7 and inter-parental conflict at Grade 7 in the same manner. The interaction term between mother's attitudinal familism at Grade 7 and mother's distress at Grade 7 significantly predicted inter-parental conflict at Grade 7 (unstandardized coefficient = $-.218$, $p = .002$). Even with the addition of this interaction term, the direct path from mother's distress to inter-parental conflict remained significant (unstandardized coefficient = $.096$, $p = .001$), indicating both main and interaction effects in predicting inter-parental conflict. Figure 4 displays the effect of mother's distress (Grade 7) on inter-parental conflict (Grade 7) at high (1 SD above the mean), low (1 SD below the mean), and mean values of mother attitudinal familism (Grade 7) plotted from 1 SD below to 1 SD above the mean of mother's distress. The plots for mothers appear similar to those for fathers, with high levels of mother attitudinal familism buffering the effect of mother's distress on inter-parental conflict, while low levels of mother attitudinal familism appear to intensify the effect of mother's distress on conflict.

We next tested the hypothesized moderating effect of father's attitudinal familism on the association between inter-parental conflict at Grade 7 and poor parenting at Grade 9 by adding the latent variable interaction between inter-parental conflict and father attitudinal familism to the complete SEM displayed in Figure 2, with both main effects and the interaction term predicting poor parenting. This interaction term did not significantly predict poor parenting at Grade 9. Finally, we tested the hypothesized moderating effect of mother's attitudinal familism on the association between inter-parental conflict at Grade 7 and poor

parenting at Grade 9 in the same manner, again with non-significant results. Overall, the results indicate that the pathways from mother and father distress to inter-parental conflict are moderated by attitudinal familism, but the association between inter-parental conflict and poor parenting is not.

Discussion

Mexican American adolescents are part of a rapidly growing population that are at increased risk for substance use. Mexican American adolescents are also understudied and thus, there is a great need to identify processes that increase risk or promote resilience to substance use during the adolescent years for this population. To help address these issues, the current study tested the utility of the Family Stress Model (FSM) in explaining the substance use of Mexican American adolescents. We also extended the FSM to include parents' attitudinal familism as a proposed moderator of certain family stress processes within the FSM. To evaluate this extension of the FSM, we used data from 478 Mexican American adolescents who were assessed four times from late childhood to late adolescence. The findings support the theoretical predictions derived from the FSM and are also largely consistent with the hypothesis that Mexican American parents' attitudinal familism moderates certain family stress processes in a protective manner. Our longitudinal model controlled for earlier levels of mother and father emotional distress, inter-parental conflict, parenting, and substance use, and thus predicted relative change in these constructs over time, as well as allowing us to examine how relative change in these constructs affects change in later constructs. We detail the findings of the study and their implications in the following sections.

Findings and Implications: The Family Stress Model (FSM)

The FSM specifies the processes through which economic hardship affects family relationships and the development of children and adolescents. The SEM analysis conducted for the present study confirmed that the theoretical model fit the data well for this group of Mexican American families, consistent with earlier research with White and African American families (e.g., Conger et al., 1992; Conger et al., 2002), supporting the utility of the FSM as a theory of these processes for Mexican American parents and children. Consistent with the hypothesized pathways in Figure 1, we found that negative economic events and income significantly predicted the economic pressure parents experienced, which in turn predicted relative increases in both mother's ($\beta = .26$) and father's ($\beta = .25$) emotional distress. The effects of economic pressure on emotional distress were sizable given that we controlled for earlier levels of distress). These associations may reflect the relatively severe economic conditions that many Mexican American families experience; compared to non-Hispanic white families, over two and a half times as many Mexican American families experience poverty (Macartney et al., 2013). Thus, this portion of the model highlights the real emotional costs produced by economic hardship.

Emotional distress experienced by mothers was in turn associated with relative increases in inter-parental conflict. This finding is consistent with previous research suggesting that emotional distress resulting from adverse experiences may generate angry and aggressive

behaviors that increase the likelihood of conflict in inter-personal relationships (Conger et al., 2010).

Likewise, and also consistent with the FSM, increases in conflict between caregivers predicted relative increases in poor parenting practices; that is, heightened hostility and conflict in the parental relationship “spilled over” into increases in disrupted parenting of the target adolescent. Ultimately these increases in poor parenting over time -- low child monitoring, poor discipline and child management practices, and low warmth/high hostility -- predicted relative increases in the frequency of use of cigarettes, alcohol, and marijuana from Grade 9 to Grade 11. These results suggest that antagonistic spousal interactions may leave parents feeling angry and hostile, and that parents may manifest those negative feelings in their behaviors towards others including harsh discipline strategies and hostile behavior toward their children. For adolescents, this process appears to exacerbate substance use, perhaps in an effort to cope with the resulting stressful and unwelcoming home environment. It may also be that parents who are troubled by their own conflicts are too distracted by these issues to monitor and supervise their children, resulting in adolescents having more opportunities to engage in substance use.

Overall, the results presented in Figure 2 provided support for the predictions derived from the FSM. Of the ten hypothesized pathways, only the main effect of father’s distress on inter-parental conflict was not significant, and the moderation analyses (discussed below) revealed that father distress does indeed influence inter-parental conflict through its interaction with attitudinal familism. One criticism of previous research on the FSM is the dearth of longitudinal tests of the model (Conger et al., 2010). The FSM suggests that economic circumstances alter environments over time and do so in ways that change individual behavior over time in a developmental process. In the present study, we used data across four waves from late childhood through late adolescence and controlled for prior levels of key family stress processes and adolescent substance use, thus providing a stringent longitudinal test of these ideas. The results were consistent with these ideas and demonstrate that these family processes are dynamic and unfold across time, impacting family members’ emotions and behaviors. Simply put, these findings demonstrate that economic problems likely impact developmental change in the behaviors and emotions of both parents and their children.

Although previous research has typically focused on change in the adolescents themselves, the present findings highlight the importance of the changing nature of adults and the impact of these changes (in emotional distress, inter-parental conflict, and parenting) on adolescent substance use. Also important, these family stress processes suggest several targets for intervention and prevention such as programs designed to reduce the emotional distress of caregivers, those that improve spousal interactions and reduce inter-parental conflict, and interventions aimed at enhancing parenting practices. This multi-faceted approach should help to reduce substance use both by Mexican American adolescents and, we suspect, by adolescents in general. Additionally, because these processes appear to be exacerbated by economic hardship, policies that reduce the level of economic hardship experienced by families may aid in the reduction of adolescent substance use, as well as improving the lives of families in general.

Findings and Implications: Attitudinal Familism as a Source of Resilience

The findings of the current study support not only the FSM, but also an important extension of the model that appears to be especially salient for Mexican American families. Specifically, we hypothesized that Mexican American parents' attitudinal familism – feelings of attachment, loyalty, reciprocity, and solidarity involving family – would act as a source of resilience and moderate the associations between parental emotional distress and inter-parental conflict and the association between inter-parental conflict and parenting. Although the results did not support the latter hypothesis – neither mother nor father attitudinal familism moderated this association – the former hypothesis was supported for both mothers and fathers, even after controlling for earlier levels (i.e., at Grade 5) of both parent distress and inter-parental conflict. The plots in Figures 3 and 4 reveal very similar trends for both mothers and fathers, with high levels of attitudinal familism buffering the effect of parent's emotional distress on inter-parental conflict. These findings suggest that parents' attitudinal familism is adaptive and protective, reducing the adverse effect of emotional distress on inter-parental conflict. That is, when parents take pride in and feel a strong bond with their family, they are less likely to allow the emotional distress generated from economic hardship to “spill over” into their spousal relationship. The strength of the findings suggests that when parents demonstrate attitudinal familism, they may even take extra care to assure that their emotional difficulties do not have an adverse influence on their relationships with one another.

The White et al. (2015) study is the only other research that we are aware of that investigates familism as a potential moderator of stress processes within the FSM. There are some differences between the findings of the two studies that are worth noting. First, our findings indicate that attitudinal familism is protective against the adverse effect of emotional distress on inter-parental conflict for both mothers and fathers, whereas White et al. found that familism was protective only for mothers. Notably, the two studies utilized different measures of familism. Recent work suggests that some types of familism may be more beneficial than others (Sayegh & Knight, 2011; Zeiders et al., 2013) and that behavioral components of familism may involve risks, as well as benefits (Calzada et al., 2012; Tseng, 2004). Perhaps certain types of familism also operate differently for mothers and fathers. More research is needed that examines how the different components of familism are related to different aspects of family life and across different family members (i.e., mothers, fathers, and children).

Another notable difference is that White et. al found that familism is protective against the parenting disruptions associated with economic pressure (a stressor) for mothers, whereas we did not find a similar protective effect on parenting for either parent's attitudinal familism [i.e., the association between inter-parental conflict (a stressor) and parenting was not moderated by familism]. Perhaps parents who are high on attitudinal familism and yet still experience significant inter-parental conflict are as, or even more, troubled by their inability to fulfill their marital roles than those with low levels of familism. Alternatively, it may be that the significant interactions we did find -- the protective influence of attitudinal familism on the associations between parent distress and inter-parental conflict -- results in very few or no parents who are high on both familism *and* inter-parental conflict; that is,

familism's protective effect may reduce inter-parental conflict to such a degree that there is little or no conflict left to "spill over" into parenting for those parents with high levels of attitudinal familism.

In the preceding section we identified several possible targets for intervention based on the findings from this study regarding family stress processes that intervene in the relationship between economic disadvantage and adolescent substance use. The findings of the current study also suggest attitudinal familism as a useful target for intervention efforts. When developing programs aimed at reducing parent distress and conflict, practitioners should be cognizant of familism as an adaptive aspect of Mexican American culture. Interventions focused on reducing the adverse impact of family stress processes on adolescent development may benefit by including the promotion of familism in prevention and treatment programs.

Limitations, Future Research, and Concluding Remarks

Although this study had several strengths -- including its longitudinal design, the investigation of a high risk population, the important developmental period examined, and the latent variable approach used to estimate the interaction effects -- this research was not without limitations. The families studied in the current research involved a community sample of Mexican American adolescents from Northern California and, thus, the findings may not generalize to individuals of other ethnicities or from other geographic areas. This limitation is somewhat allayed by previous research that has found support for the stress processes proposed by the FSM across families from a broad array of circumstances and ethnic backgrounds (see Conger et al., 2010). However, we are aware of no research that has investigated the moderating effects of attitudinal familism on these stress processes for families of ethnicities other than Mexican American. As stated previously, attitudinal familism that emphasizes family loyalty and reciprocity is not unique to Mexican American culture. Although Mexican Americans may be more likely to endorse these values (Sabogal et al., 1987), these values may also operate adaptively for families from other cultures. Future research should attempt to replicate these findings for families from other ethnicities, as well as with Mexican American families from other geographic areas. Additionally, future research should examine how other types of familism influence various aspects of family life and whether these effects vary across mothers, fathers, and children.

Another limitation of the current study is that parent distress and parental conflict are both included in our analytic model at grade 7 and thus, this limits the conclusions that can be drawn regarding the temporal ordering of these constructs. The theoretical and analytic model we test presumes that parent distress predicts relative increases in parental conflict; however, since these constructs are included in the model at the same point in time, we cannot be certain of the direction of effects. That is, although the findings of this study suggest that parental distress predicts relative increases in parental conflict, it may be instead that parental conflict is associated with relative increases in parental distress or there may be transactional relationships between distress and conflict. Although including these constructs at the same point in time creates uncertainty regarding their temporal ordering, we believe that it makes logical sense that current emotional distress would predict current

conflict between parents, rather than distress experienced in previous years. Additionally, the analytic model we evaluate is consistent with the theoretical model we are testing. The focus of this study is to evaluate the Family Stress Model, which proposes that distress predicts conflict and not the reverse. Future research should examine the possible reciprocal relation between these constructs using multiple waves of data, in order to better understand the temporal sequence and possible transactional associations between parents' emotional distress and parental conflict.

Despite these limitations, we believe the current study makes an important contribution to our understanding of the ways in which economic hardship affects family relationships and the development of risk for substance use by Mexican American adolescents, an understudied yet rapidly growing segment of the US population. Understanding Mexican American family experiences and the ways in which their particular cultural values may be adaptive to the adverse circumstances they often endure may help families succeed even in difficult circumstances. Future research should continue to examine Mexican American cultural values and the complex role they play in adolescent development. The results of this study support the utility of the FSM in explaining Mexican American adolescent's substance use. They also suggest that parents' attitudinal familism may be an adaptive source of resilience for Mexican American parents, ultimately impacting Mexican American adolescents' substance use. These findings demonstrate the importance of identifying and promoting adaptive cultural values of minority families.

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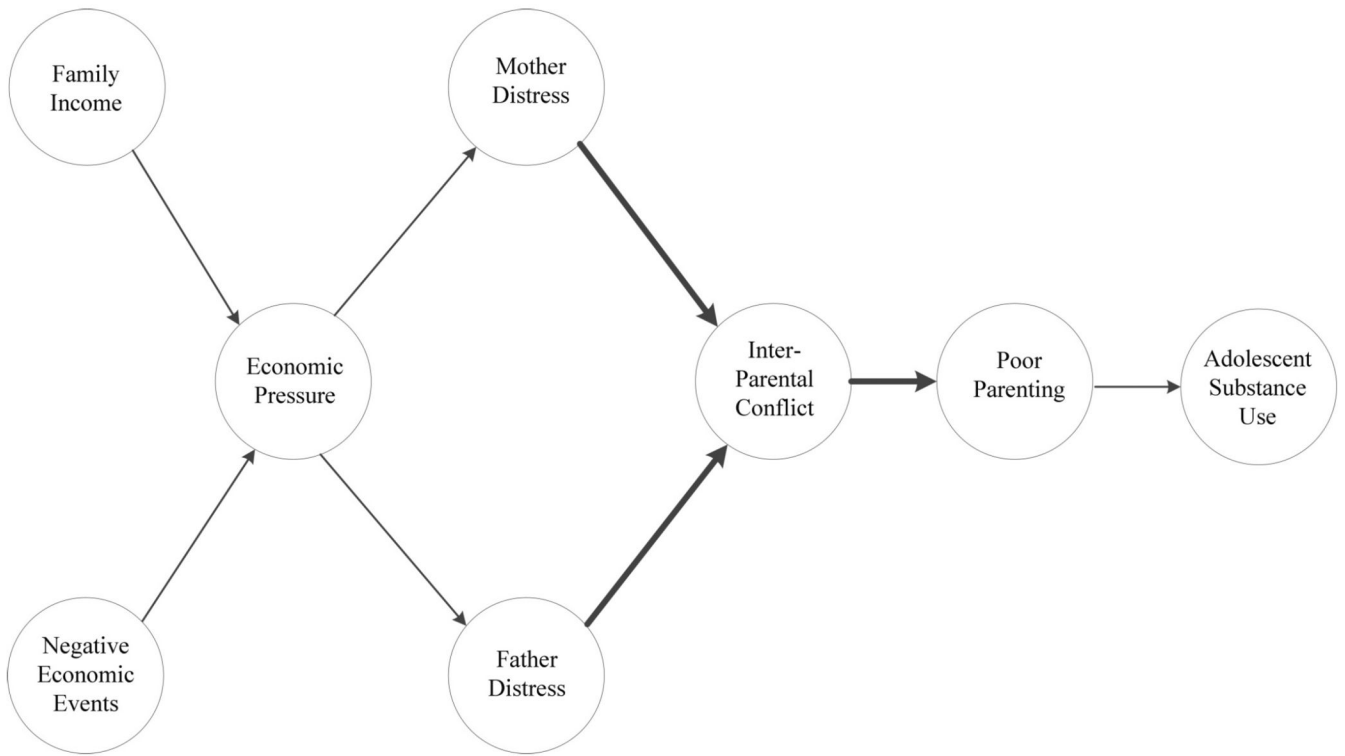


Figure 1. The Adapted Family Stress Model. Arrows in bold represent pathways hypothesized to be moderated by attitudinal familism.

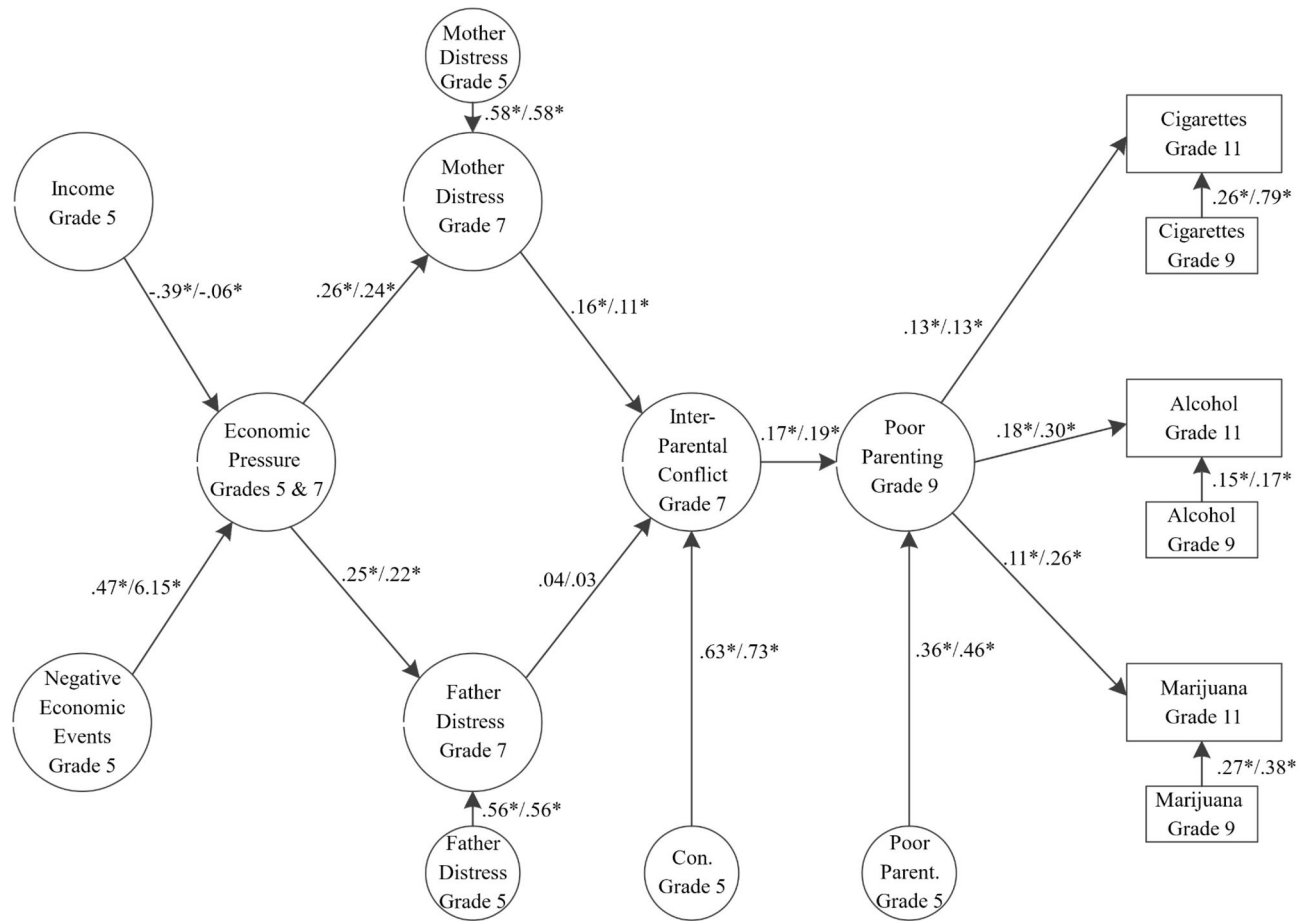


Figure 2. Estimates (standardized /unstandardized) for the model without moderators ($\chi^2 = 1080.363$, $df = 679$, $RMSEA = .035$, $SRMR = .069$, $CFI = .956$). $*p < .05$. The correlation between income and negative economic events at Grade 5 was estimated. All Grade 5 variables and Grade 9 substance use variables were allowed to correlate with all other Grade 5 variables and Grade 9 substance use variables. The residuals for mother and father distress at Grade 7 and the residuals for the Grade 11 substance variables also were allowed to correlate. Correlations are not displayed in the figure for clarity. Model controls for adolescent nativity (0=born in Mexico, 1=born in US) and adolescent acculturation.

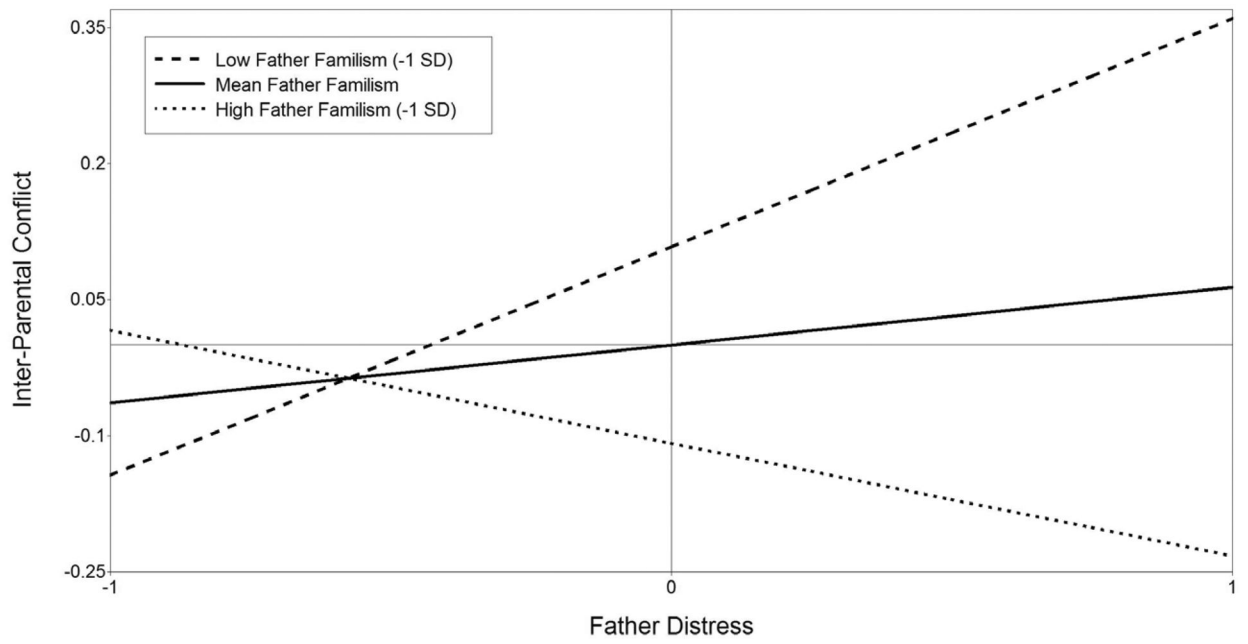


Figure 3.

The effect of father's distress (Grade 7) on inter-parental conflict (Grade 7) at high (1 SD above the mean), low (1 SD below the mean), and mean values of father's attitudinal familism (Grade 7) plotted from 1 SD below to 1 SD above the mean of father's distress.

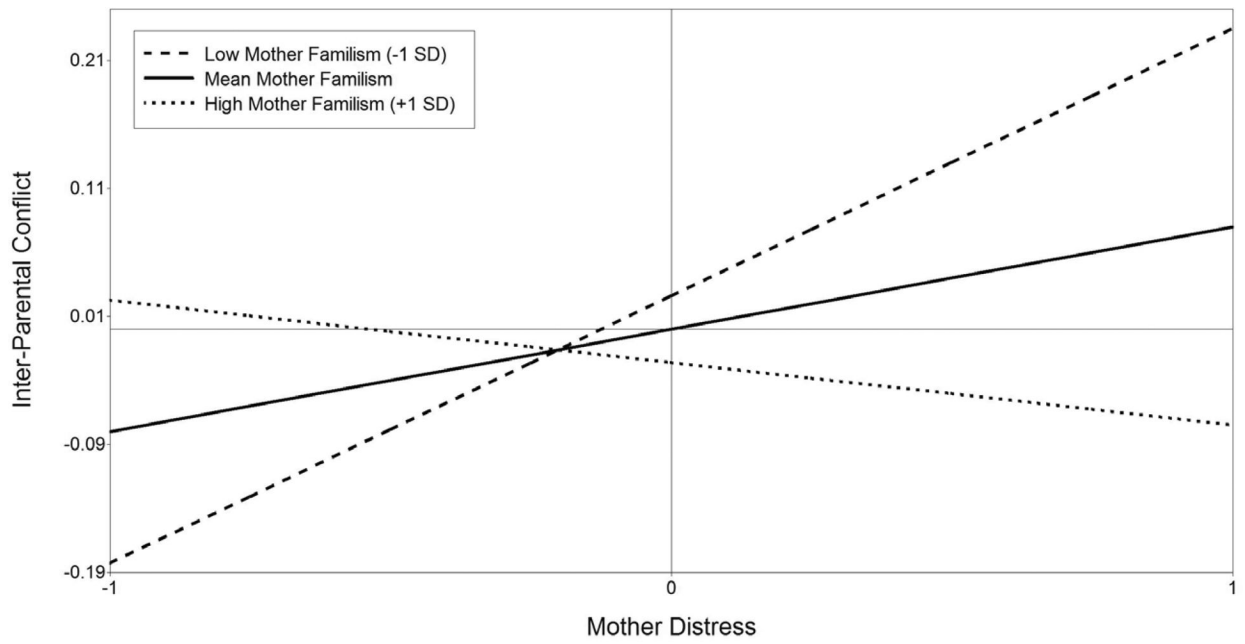


Figure 4. The effect of mother’s distress (Grade 7) on inter-parental conflict (Grade 7) at high (1 SD above the mean), low (1 SD below the mean), and mean values of mother’s attitudinal familism (Grade 7) plotted from 1 SD below to 1 SD above the mean of mother’s distress.

Table 1

Standardized Factor Loadings (FL) for Latent Constructs (N = 478) from Confirmatory Factor Analysis ($\chi^2 = 860.554$, $df = 573$, $RMSEA = .032$, $SRMR = .036$, $CFI = .969$)

Construct	Item/Variable	FL
Income Grade 5	Mother report of household income	0.87
	Father report of household income	0.96
Negative Economic Events Grade 5	parcel 1	0.61
	parcel 2	0.71
	parcel 3	0.61
Economic Pressure Grades 5 & 7	Cannot make ends meet (avg. grades 5 & 7)	0.87
	Unmet needs (avg. grades 5 & 7)	0.79
	Cutbacks (avg. grades 5 & 7)	0.85
Mother Distress Grade 5	MASQ general distress	0.88
	MASQ anxiety	0.68
	CES depression	0.76
Father Distress Grade 5	MASQ general distress	0.87
	MASQ anxiety	0.68
	CES depression	0.73
Mother Distress Grade 7	MASQ general distress	0.84
	MASQ anxiety	0.69
	CES depression	0.80
Father Distress Grade 7	MASQ general distress	0.81
	MASQ anxiety	0.73
	CES depression	0.75
Conflict Grade 5	parcel 1	0.89
	parcel 2	0.94
	parcel 3	0.92
Conflict Grade 7	parcel 1	0.91
	parcel 2	0.93
	parcel 3	0.92
Poor Parenting Grade 5	Poor discipline and management	0.84
	Low monitoring	0.76
	Low warmth/high hostility	0.88
Poor Parenting Grade 9	Poor discipline and management	0.92
	Low monitoring	0.79
	Low warmth/high hostility	0.84

Note: All factor loadings are statistically significant ($p < .05$)

Table 2

Correlations among Latent Variables (N = 478)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 Income Grade 5	1																	
2 Neg. Econ. Events Grade 5	-.17*	1																
3 Econ. Pres. Grade 5 & 7	-.47*	.53*	1															
4 Mother Distress Grade 5	-.14*	.16*	.36*	1														
5 Father Distress Grade 5	-.19*	.35*	.39*	.17*	1													
6 Mother Distress Grade 7	-.17*	.26*	.42*	.63*	.15*	1												
7 Father Distress Grade 7	-.14*	.32*	.40*	.09	.60*	.24*	1											
8 Conflict Grade 5	.06	.17*	.11*	.37*	.28*	.26*	.25*	1										
9 Conflict Grade 7	-.02	.04	.10*	.28*	.23*	.34*	.25*	.68*	1									
10 Poor Parenting Grade 5	-.05	.16*	.16*	.13*	.17*	.15*	.28*	.23*	.23*	1								
11 Poor Parenting Grade 9	-.06	.11 ⁺	.16*	.08	.06	.15*	.07	.24*	.25*	.41*	1							
12 Cigarettes Grade 9	.00	.02	.01	.03	.04	0.04	.08	.16*	.11*	.08	.15*	1						
13 Alcohol Grade 9	-.06	.10 ⁺	.12*	.08	.05	.02	.08	.17*	.05	.10*	.25*	.22*	1					
14 Marijuana Grade 9	-.07	.02	.06	.08 ⁺	.11 ⁺	.04	.12*	.17*	.11*	.10*	.28*	.29*	.64*	1				
15 Cigarettes Grade 11	.01	.22*	.10*	.05	.11 ⁺	.05	.08	.03	.02	.07	.17*	.30*	.08 ⁺	.11*	1			
16 Alcohol Grade 11	.02	-.01	.06	.07	-.01	.06	.01	.00	.05	-.05	.21*	.13*	.20*	.26*	.40*	1		
17 Marijuana Grade 11	.05	-.06	.02	.08	.01	.02	-.01	.02	.06	-.01	.19*	.15*	.21*	.36*	.25*	.53*	1	
18 Acculturation	-.37*	.00	.15*	.01	.04	.04	-.04	-.18*	-.15*	-.09 ⁺	-.03	-.06	-.01	-.06	-.03	-.01	-.13*	1
19 Nativity	.33*	-.14*	-.22*	-.07	-.09	-.11*	-.02	.07	.06	.02	.04	.00	.03	.01	.00	.07	.05	-.37*

Note.

* *p* .05 (two-tailed);

⁺ *p* .05 (one-tailed).