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Abstract

Drawing on social cognitive theory, this study used a longitudinal cross-lagged panel design and a structural equation modeling approach to evaluate parenting self-efficacy's reciprocal and causal associations with parents' positive control practices over time to predict adolescents' conduct problems. Data were obtained from teachers, mothers, and adolescents in 189 Mexican American families living in the southwest U.S. After accounting for contemporaneous reciprocal relationships between parenting self-efficacy (PSE) and positive control, results indicated that parenting self-efficacy predicted future positive control practices rather than the reverse. PSE also showed direct effects on decreased adolescent conduct problems. PSE functioned in an antecedent causal role in relation to parents' positive control practices and adolescents' conduct problems in this sample. These results support the cross-cultural applicability of social cognitive theory to parenting in Mexican American families. An implication is that parenting interventions aimed at preventing adolescent conduct problems need to focus on elevating the PSE of Mexican American parents with low levels of PSE. In addition, future research should seek to specify the most effective strategies for enhancing PSE.

Keywords

parenting; self-efficacy; Mexican American; adolescents; conduct problems

The associations among parents' cognitions, their parenting practices, and children's adjustment have attracted increased research attention in recent decades. Parenting self-efficacy (PSE) cognitions refer to parents' estimates of their abilities to influence their children and their children's environments in ways that lead to positive development. Theory and research suggest that PSE could play a significant role in processes by which parents maintain effective parenting practices as they face challenges in influencing their children's behavior over time (Bandura, 1997; Jones & Prinz, 2005). Researchers have tended to cast PSE in a causal role in relation to parenting practices and children's adjustment. However, the bulk of studies showing links among these constructs have relied on cross-sectional designs that preclude determining PSE's causal role. Establishing PSE's role in family processes is important for informing theory and for designing optimal parenting

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interventions to enhance children's adjustment. Accordingly, the purpose of this study was to use a longitudinal design to evaluate PSE's causal and reciprocal relations with parenting practices to predict Mexican American adolescents' conduct problems.

Social Cognitive Theory and Self-Efficacy

Bandura's (1997) social cognitive theory proposes a transactional system of triadic reciprocal influences over time in which inner personal factors (e.g., parents' self-efficacy cognitions), agents' behavior (e.g., parenting practices), and the environment (e.g., family networks) interact to determine outcomes (e.g., children's adjustment). Those with high self-efficacy are hypothesized to have high levels of motivation to perform well, a high likelihood of initiating difficult tasks, investment of effort, and perseverance in the face of adversity. These factors tend to predict competent implementation of tasks and achievement of desired outcomes. Moreover, Bandura's view is that self-efficacy is not a fixed trait, but rather fluctuates in response to changing demands (e.g., developmental challenges of adolescents) and personal development (e.g., parenting skill acquisition).

Given the broadly transactional assertions of social cognitive theory, the purpose of this study was to evaluate the processes operating between parenting self-efficacy (an inner personal factor) and parenting practices (agents' behavior) that predict adolescent conduct problems. A central research question was: Does PSE primarily promote effective parenting practices, or is it chiefly the product of effective practices? Answering this question is important for the design of parenting interventions that enhance adolescents' adjustment. If effective parenting practices drive the development of PSE, then it makes sense for interventions to focus on discreet skill development and implementation. However, if PSE primarily drives the use of effective parenting practices, then interventions would do better by emphasizing strategies that enhance PSE.

Mexican American Families

Bandura (2002) asserts that social cognitive theory has wide applicability across cultures but that cultural orientations may moderate some of the hypothesized relations comprising the theory, depending on the kind of agency and outcomes that are studied. This study focused on Mexican American families. The term *Mexican American* here refers to those of Mexican ancestry living in the U.S., including both immigrants from Mexico and those born in the U.S.

Studying Mexican American families is important for a number of reasons. Latinos represent the largest and fastest growing ethnic minority group in the United States, and Mexican American families comprise about 66% of this population (U.S. Census, 2004). Additionally, Latino youth appear to be at elevated risk for adjustment problems, including conduct and substance use problems (Centers for Disease Control and Prevention, 2006).

Various socioeconomic circumstances may diminish Mexican American parents' perceived influence on their adolescents' adjustment and affect their parenting practices. Many Mexican American parents are immigrants and are more likely to be poor and live in low-income neighborhoods with greater exposure to deviant peers and schools lacking resources to meet their children's needs (U.S. Census Bureau, 2004). Lengthy and irregular work hours may reduce parents' capacity to influence their children. They also are more likely to have lower education levels and thus fewer resources to promote their adolescents' positive school adjustment. Thus, it is important for researchers to account for parents' socioeconomic status in order to evaluate the degree to which results may be influenced by cultural factors.

Cultural factors may significantly alter the links among PSE, parenting, and adolescents' adjustment in Mexican American families. Some cultural factors may enhance PSE and

parenting. For example, immigrant parents who have effectively negotiated the challenges of emigration and acculturation in order to improve opportunities for themselves and their children could experience increased overall self-efficacy (Falicov, 2000). This overall self-efficacy could translate into increased parenting self-efficacy and perhaps more vigilant parenting control practices designed to promote children's behavior that is aligned with cultural values such as bien educados (positive behavior) and sympatia (harmonious relations) and, at the same time, insulate their children from American mainstream values and negative neighborhood influences perceived to threaten their aspirations for their children (Halgunseth, Ispa, & Rudy, 2006). Moreover, Mexican American adolescents may experience parents' positive and punitive control practices differently than European American adolescents (Dumka, Gonzales, Bonds, & Millsap, 2009).

However, other cultural factors may negatively affect PSE and parenting. Experiences of discrimination could demoralize parents. Cultural gaps in which adolescents are more aligned with American mainstream culture than their parents may contribute to parents' diminished PSE and increased tentativeness and inconsistency in parenting. These acculturation gaps may affect not only immigrant families but also subsequent generations in which youth born in the U.S. are progressively less identified with their native culture.

The possibility that unique cultural pressures may undermine PSE for Mexican American parents makes understanding the longitudinal role of PSE in relation to parenting and adolescent conduct problems perhaps more critical for this group than for parents not faced with similar cultural pressures. The primary purpose of this study was to evaluate causal processes operating between parenting self-efficacy and parenting practices over time. This represents a first step in understanding the causal chain.

Conceptualization and Assessment of Parenting Self-Efficacy

Self-efficacy perceptions are thought to operate at different levels in individuals. At the global level, individuals maintain an overall perception of how well they are directing their lives (Sherer & Adams, 1983). At the same time, people can maintain different levels of self-efficacy perceptions in various functional domains of their lives (e.g., physical ability, work competency, or parenting). Furthermore, efficacy in each life domain (e.g., parenting) can be measured at a general (e.g., “I think I am doing a good job as a mother/father”) or task level (e.g., “I am able to help my adolescent complete his/her homework”). In this study, we assessed PSE using a combination of task items. Task level items are thought to demonstrate stronger relations with agents' behavior than general level measures (Bandura, 1997).

A critical limitation of previous research is the prevalent use of the same reporter to assess PSE, parenting practices, and adolescents' adjustment. This practice can obscure the differentiation of these constructs and the true nature of relations between them. In particular, shared method variance can be responsible for the significant but relatively modest correlations between these variables found in previous studies. Use of multiple reporters is necessary to provide a more comprehensive assessment of these constructs. In this study, we included adolescents' and mothers' reports of parenting practices as well as mothers', adolescents', and two teachers' reports of adolescents' conduct problems.

Previous Research

As mentioned, PSE predominantly has been cast as a causal variable in relation to parenting practices. Framed in this role, researchers have accumulated evidence linking PSE and various parenting practices. Using cross-sectional designs to study diverse families of adolescents (ranging from 10-17 years old), investigators have found significant

relationships between PSE (measured at various levels) and parents' responsiveness and monitoring as reported by adolescents (Bogenschneider, Small, & Tsay, 1997); parenting acceptance and responsiveness rated by mothers, adolescents, and observers (Gondoli & Silverberg, 1997); and academic promotion practices reported by mothers (Elder, Eccles, Ardelt, & Lord, 1995). Shumow and Lomax (2002) included a Latino sample in their study and found significant relations between PSE and parents' involvement (parent report) and monitoring practices (using a combined parent and adolescent report). Dumka, Stoerzinger, Jackson, and Roosa (1996), with a sample of Mexican American Spanish speaking mothers of fourth graders, reported that PSE was positively related to parents' reported acceptance, and negatively linked to inconsistent discipline. Although these studies suggest that PSE promotes positive parenting, their cross-sectional designs preclude such causal inferences.

Substantial evidence supports links between various parenting practices and adolescents' adjustment (Conger & Elder, 1994; Patterson & Forgatch, 1995; Steinberg & Morris, 2001) and cross-sectional research with Mexican American families has found some similar associations (Dumka et al., 2009; Hill, Bush, & Roosa, 2003). However, researchers have also found significant associations between PSE and adolescents' adjustment. Bogenscheider et al. (1997) reported that PSE was negatively related to adolescents' reports of substance use and delinquency. Dumka, Prost, and Barrera (2002), studying European American and both English dominant and Spanish dominant Mexican American mothers, found that PSE was inversely related to adolescents' conduct problems and mediated the relations between marital discord and conduct problems. These results raise the possibility that PSE may have effects on adolescents' conduct problems independent of its association with parenting practices. To date, this contention has not been tested adequately.

The current study addressed critical limitations in the field. Although some longitudinal intervention studies have demonstrated success in changing PSE, parenting practices, and children's behavior problems (see review by Jones & Prinz, 2005), we were able to locate only one other study that modeled relations among somewhat similar variables over time. Jackson and Scheines (2005) assessed African American single mothers' overall self-efficacy (not parenting self-efficacy) and positive parenting at Time 1 and found these to be significantly related. This study also found that Time 1 parenting had a direct effect, and Time 1 self-efficacy had an indirect effect, on young children's behavior problems at Time 2. A direct effect of Time 1 self-efficacy on T2 behavior problems was not tested. In the current study, we tested a model of the associations between PSE and positive control practices using four assessment points over a two-year period (from 7^{th} to 9^{th} grades) with a sample of Mexican American adolescents and their mothers. This design permitted us to evaluate the relative influence of PSE and positive control on each other over time and ultimately on adolescents' conduct problems. The sample presented an especially opportune developmental stage and cultural group to study these relations. Adolescents typically are striving for greater autonomy and families are negotiating these initiatives in the context of mainstream American culture. We focused our attention specifically on mothers' exercise of positive control practices (monitoring and consistent discipline) and adolescents' manifestation of behavior problems, an association of increasing interest in the field (Halgunseth et al., 2006). Notably, we tested models using multiple reporters of parenting practices and adolescents' conduct problems.

Method

Participants

The sample recruited for this study consisted of 189 Mexican American adolescents, in their seventh grade year, and their maternal caregivers. We collected data from paternal caregivers, but numbers were insufficient to perform parallel analyses. This sample was

recruited in three cohorts (2003, 2004, and 2005) and represented the non-intervention control group of an intervention trial designed to prevent school disengagement and negative mental health trajectories following the transition to junior high school. Families randomized to the intervention were excluded from the current study. Students attended four middle schools located in a large southwestern city area serving families who were primarily Mexican American (82%) and lower income (80% were enrolled in free or reduced lunch programs). We recruited both Spanish dominant and English dominant families via mail and telephone from school rosters. To be eligible, both the seventh grader and at least one parent figure had to identify as Mexican American and be able to participate in the intervention in the same preferred language. Of eligible families, 65% agreed to enroll in the study.

Adolescents' ages at Time 1 ranged from 11 to 14 years, with an average age of 12.3 (*SD* = 0.50); 54% were female. Of these adolescents, 19.6% were born in Mexico (average years of residence in the U.S. was 11.3, *SD* = 2.5), and 59.8% were assessed in Spanish and 40.2% in English. Approximately 86% lived in two-parent families and 14% lived in one-parent families.

Only Mexican-origin maternal figures were included in analyses and 3.3% (*n* = 6) of the mother figures were not the adolescents' biological mother. Most mothers were born outside of the U.S. (66%); 61.2% were assessed in Spanish and 38.8% in English. The average age of mothers was 37 years (*SD* = 6.01). Mothers' mean education level was 9.6 years (*SD* = 3.8); 61.1% did not graduate high school; 16.5% were high school graduates, 19.2% had some college or vocational school experience, 3.2% held vocational, associate, college, or advanced degrees. Median household income was $33,750.

Procedures

Staff scheduled and conducted in-home assessments using laptop computers. Interviewers conducted mother and adolescent assessments in separate rooms or out of earshot of other family members. Interviewers read questions and responses aloud to reduce problems associated with variation in literacy levels. Families were interviewed four times: (a) when adolescents were in the first semester of seventh grade (Time 1, *N* = 189), (b) six months later at the end of seventh grade (Time 2, *n* = 169), (c) another six months later during the second semester of eighth grade (Time 3: one-year follow-up, *n* = 168), and (d) a year later during the second semester of ninth grade (Time 4: two-year follow-up, *n* = 160). Each family member who completed an assessment received $30 at Time 1, $30 at Time 2, $30 at Time 3, and $50 at Time 4. Teachers completed assessments regarding students' behavior and were paid $5 for each completed survey. Response rates for teachers' reports were over 90%. Procedures, including the use of consents and assents, were approved by the university's Institutional Review Board.

Measures

Measures with no or inadequate Spanish versions were translated and back translated by separate bilingual Mexican-origin native Spanish speakers according to recommendations by Foster and Martinez (1995). A panel of experts resolved inconsistencies. Teachers completed measures in English. Measures were identical at all waves of data collection. To maximize equivalence when combining English and Spanish assessments, we first statistically evaluated measures and optimized them for invariance across the language groups. We did his by conducting a sequence of nested multiple-group confirmatory factor analyses following guidelines by Meredith (1993) and using Mplus Version 5.1 (Muthén & Muthén, 2008) to meet increasingly constrained levels of invariance (configural, metric, strong, and strict). We dropped items that did not at least fulfill metric invariance (i.e., invariant loadings).

Family socioeconomic status—This study used maternal figure reports of family demographic variables to compute a composite socioeconomic status (SES) variable consisting of the mean of *z*-scores of the highest parent figure occupational level within the family, highest parent figure educational level within the family, and per capita household income. Higher scores represented higher SES. Per capita household income had a large positive skew so we computed a log transformation to correct the skew prior to the calculation of the *z*-score.

Mothers' positive control practices (PC)—Mothers and adolescents rated maternal positive control practices that addressed two components particularly applicable to younger adolescents: monitoring and consistent discipline. Monitoring was assessed with seven items adapted from Small and Kerns' (1993) Parental Monitoring scale that focused on mothers' knowledge of adolescents' activities. An example item is “I knew what [target adolescent] was doing after school”. Maternal report of consistent discipline was measured by four items developed for the study to assess thoughtful rule and consequence development (e.g., “I thought carefully about the rules I made for [target adolescent].”; “I thought carefully about what the appropriate consequence would be if [target adolescent] broke a rule.”), clear communication about rules/enforcement (e.g., “I clearly told [target adolescent] what punishment he/she would get if he/she breaks a rule.”), and consistent follow through (e.g., “When [target adolescent] broke a rule, I did what I said I was going to do.”). Adolescents' reports of maternal consistent discipline included one additional item regarding communication (e.g., “My mother clearly told me about the rules (he/she) expected me to follow.”). Respondents rated how frequently the maternal figure demonstrated each practice from 1 = *almost never or never* to 5 = *almost always or always*. Monitoring and consistent discipline were correlated r = .35, .42, and .32 across Times 1 to 3 for mothers and r = .47, .47, and .57 for adolescents. Scores were converted to z-scores and averaged to represent positive control. Higher scores represented greater positive control. Cronbach's alphas for positive control were .78, .81, and .85 for mothers' reports and .83, .87, and .90 for adolescents' reports at Time 1, Time 2, and Time 3, respectively.

Parenting self-efficacy (PSE)—Mothers reported their perceived parenting self-efficacy by rating ten items selected from the Multicultural Inventory of Parenting Self-Efficacy (MIPSE; Dumka et al., 2002). MIPSE items were developed in a qualitative study with a sample similar to this study. Items were written at the task level and invariant items represent three parenting dimensions: warmth (three items, e.g., “How good are you at praising [target adolescent] and giving him/her encouragement?”), teaching/providing guidance (four items, e.g., “How good are you at teaching [target adolescent] so he/she will know what to do?”), and positive control (three items, e.g., “How good are you at keeping control over [target adolescent]”)? Respondents indicated their perceived competence at each task on a 5-point unidirectional Likert scale ranging from 1 = *not good at all* to 5 = *very good*. High scores indicated greater overall parenting self-efficacy pertaining to the three representative dimensions. Cronbach's alphas were .86, .90, and .91 for Time 1, Time 2, and Time 3, respectively.

Adolescents' conduct problems—Conduct problems were assessed with a latent factor that was made up of maternal, adolescent, and two teacher (math and language arts) reports of conduct problems (15 items for parents and adolescents and 13 items for teachers) and attention problems (9 items for parents and adolescents and 26 items for teachers) subscales of the Achenbach measures (Achenbach, 2001). The items use a 3-point Likert-type scale (0 = *Not true*, 1 = *Somewhat or Sometimes True*, 2 = *Very true or Often true*). Scores on these two subscales at Time 1 were correlated .60 for mothers, .59 for adolescents, .85 for math teachers, and .84 for language arts teachers, and were averaged for each reporter to create a

composite score that represented conduct problems. Cronbach's alphas for the combined conduct problems at Time 1 and Time 4 respectively were .83 and .85 for adolescents, .85 and .87 for mothers, .93 and .93 for math teachers, and .96 and .94 for language arts teachers. These variables had a positive skew, so log transformations were used in the analyses.

Data Analyses

The analyses for this study were completed in a sequential format using Mplus 5.1 (Muthén & Muthén, 2008) to estimate the relations among the variables and assess model fit. The first step was to use the structural equation modeling (SEM) approach to confirmatory factor analysis to test the measurement model for the latent constructs of adolescent conduct problems across time. We also tested whether the latent construct of conduct problems was measured in the same way over time by testing the invariance of the factor loadings. The second step was to use the SEM approach to path analysis with observed variables and latent factors to test the hypothesized model (see Figure 1). To model relations that are reciprocal in nature, it was necessary to predict changes over time while factoring out the effects of stable, sustained functioning. We addressed this issue by using an autoregressive cross-lagged panel design (Cole & Maxwell, 2003) including measures of maternal PC and PSE at three time points. This method also controlled for random measurement error (by analyzing the adolescent conduct problem construct as a latent variable) and nonrandom measurement error (by accounting for variation between indicators within the same time points). To account for the effects of potential third variable explanations on the associations between PSE, maternal PC, and adolescent conduct problems, we included family SES and Time 1 adolescent conduct problems as covariates.

The fit of the models was assessed with the chi-square/degrees of freedom ratio test (χ^2/df less than 3 is considered a good fit), the standardized root mean square residual (SRMR; less than or equal to .08 is a good fit), the root mean square error of approximation (RMSEA; less than or equal to .05 is good fit), and the comparative fit index (CFI; greater than or equal to .95 is a good fit). These indices have been recommended as a combination to assess the fit of models with small sample sizes (e.g., $N < 250$; Hu & Bentler, 1999). Missing data were assumed to be missing at random (MAR) and thus models were adjusted for missing data using full information maximum-likelihood (FIML) estimation.

Results

Preliminary Analyses

Correlation analyses (see Table 1) indicated that the bivariate relations among the key study variables were statistically significant and in the expected directions. The measurement model for the latent construct of adolescent conduct problems had good fit with all factor loadings being satisfactory, χ^2 (16) = 20.11, $p > .05$. The results also showed that the latent factors were invariant across time, indicating that we were measuring the same conduct problems construct at Times 1 and 4.

Alternative Models of Transactional Effects

To test the transactional effects of PSE and PC on each other over time, we assessed the fit of four sequential nested models that included measures of PSE, mother or adolescent reports of PC, and adolescent conduct problems (see Table 2). In all four models, we included all intercorrelations among the exogenous variables (SES, Time 1 conduct problems, PSE, and PC), and correlations among the disturbances of the endogenous variables within time (i.e., PSE and PC at Time 2 and PSE and PC at Time 3). First, we tested a baseline model (Model 1) that explored the temporal stability of PSE and PC across

time and the relation of these variables to Time 4 conduct problems. The fit indices indicated that the model did not fit the data well for mother or adolescent reports. Second, we examined an alternative model (Model 2) testing the effects of PSE on PC over time while controlling for the temporal stability of PSE and PC over time. This model, testing the longitudinal effects of PSE at Time 1 on PC at Time 2 and PSE at Time 2 on PC at Time 3, fit the data well for both mother and adolescent reports. Third, we examined an alternative model (Model 3) testing the effects of PC on PSE over time while controlling for the temporal stability of PC and PSE over time. This model, testing the longitudinal effects of PC at Time 1 on PSE at Time 2 and PC at Time 2 on PSE at Time 3, did not fit the data well for both mother and adolescent reports. Lastly, we examined an alternative model (Model 4) that simultaneously examined the effects of PSE on PC and of PC on PSE while controlling for the temporal stability of PSE and PC over time. This model fit the data well for both mother and adolescent reports.

To determine which of the alternative models fit the data best, the models were sequentially compared using a χ^2 difference test (see Table 2). Model 2, which tested the effects of PSE on subsequent levels of PC, fit the data significantly better than the baseline model for both mother and adolescent reports. However, Model 3, which tested the effects of PC on subsequent levels of PSE, did not fit the data significantly better than the baseline model for either mother or adolescent reports. Model 4, which simultaneously estimated the effects of PSE on PC and PC on PSE over time, fit the data better than Model 3 (i.e., the effects of PC on PSE), but was not an improvement over Model 2 (i.e., the effects of PSE on PP). These findings indicate that the model in which PSE was positively related to subsequent levels of PC received stronger support than models in which PC was related to later levels of PSE.

Empirically Supported Transactional Model and Adolescent Conduct Problems

Using the best fitting model (Model 2) that included the effects of PSE on PC over time, we tested the significance of the direct effects of PSE and mother and adolescent reports of PC at Time 3 on adolescent conduct problems at Time 4 (see Figures 2 and 3). For ease of interpretation, these figures only include significant standardized path coefficients ($p < .05$) after accounting for the effects of all other paths in the model. Results for the model using mothers' reports of PC indicated that, after accounting for adolescents' conduct problems and family SES at Time 1, the model accounted for a moderate amount of variability in adolescent conduct problems at Time 4, $r^2 = .46$. As shown in Figure 1, the standardized path coefficients for the temporal stability effects of PSE and PC over time were positive and statistically significant. The standardized path coefficients for the effects of PSE on PC were also positive and statistically significant. The standardized path coefficients between PSE at Time 3 and adolescent conduct problems at Time 4 were negative and statistically significant. However, PC at Time 3 was not related to adolescent conduct problems at Time 4.

The model examining adolescents' reports of maternal PC also indicated that, after accounting for adolescents' conduct problems and family SES at Time 1, the model accounted for a moderate amount of variability in adolescent conduct problems at Time 4, $r^2 = .46$. As shown in Figure 2, the standardized path coefficients for the temporal stability effects of PSE and PC over time were positive and statistically significant. The standardized path coefficients for the effects of PSE on PC were positive and statistically significant only from Time 1 to Time 2 and not from Time 2 to Time 3. The standardized path coefficients between PSE at Time 3 and adolescent conduct problems at Time 4 were negative and statistically significant. However, PC at Time 3 was not related to adolescent conduct problems at Time 4.

Discussion

This study drew on Bandura's social cognitive theory to determine the role of PSE in relation to parenting practices over time and ultimately on adolescents' conduct problems in Mexican American families. As mentioned, researchers have tended to cast PSE primarily in an antecedent causal role in regards to parenting practices and children's adjustment. However, prevalent use of cross-sectional designs and single reporters has precluded the adequate testing of causal hypotheses. In this study, we used a longitudinal design, multiple reporters, and structural equation modeling to address previous limitations. In the structural models, each path was estimated after the effects of all other paths were accounted for.

The results of this study demonstrated the generalizability of Bandura's social cognitive theory cross-culturally, in particular, to Mexican American parents in the U.S. Evidence supported parenting self-efficacy as an antecedent causal variable in relation to parents' positive control practices and adolescents' conduct problems for this group. For both reporters of mothers' positive control practices, the models in which mothers' parenting self-efficacy predicted subsequent high levels of future parenting positive control practices received stronger support than the models predicting the opposite. There was also evidence for contemporaneous reciprocal influences between mothers' PSE and positive control practices over time. Controlling for contemporaneous reciprocal influences between PSE and positive control practices, as well as the possible influences of SES and conduct problems at Time 1, lends additional support for the causal role of PSE.

These findings with Mexican American families are consistent with prior cross-sectional studies with other groups that have linked PSE with mothers' responsiveness and monitoring (Bogenschneider et al., 1997); acceptance (Gondoli & Silverberg, 1997); and academic promotion practices (Elder et al., 1995). Prior cross-sectional studies with Latino families had also linked PSE positively to parenting acceptance and monitoring and negatively to inconsistent discipline (Dumka et al., 1996; Shumow & Lomax, 2002). This study extends the literature by empirically establishing an antecedent link specifically between Mexican American mothers' PSE assessed at the domain level (using an aggregate of task level items) and their future enactment of positive control practices (a combination of monitoring and consistent discipline practices).

Our results also showed that Mexican American mothers' PSE had direct causal links with adolescents' levels of conduct problems. Although PSE typically has been hypothesized to influence children's adjustment indirectly through parenting practices, studies also have found direct effects (Bogenscheider et al., 1997; Dumka et al., 2002). Jones and Prinz (2005) invoke social cognitive theory to hypothesize another possible mechanism of direct influence. Adolescents' self-efficacy may develop in response to observing their parents. Thus, Mexican American adolescents with parents who express high self-efficacy may develop confidence in their own abilities, which in turn, may to lead to better outcomes including decreased conduct problems. Although a cross-sectional study has found some initial support for this hypothesized mechanism (Ardelt & Eccles, 2002), this hypothesis awaits future testing using longitudinal designs.

Another explanation for the direct effect is that PSE was assessed at the domain level and pertained to perceived competencies in a range of parenting practices beyond positive control. Mexican American mothers who reported high levels of PSE may also have been demonstrating high levels of parenting practices (not included in this study) that were more instrumental in reducing conduct problems than positive control practices. There is some evidence that Mexican American parents may rely on strategies other than monitoring and consistent discipline to exert positive control (Azmitia & Brown, 2002). Familismo (i.e.,

loyalty, reliance on and interdependency of family members) appears to be a salient cultural value in Mexican American families in addition to the parenting values of bien educados (courteous child behavior) and sympatia (harmonious interpersonal relations). Thus, it is conceivable that parenting practices manifesting the dimensions of warmth and involvement may be more influential than positive control practices in preventing Mexican American adolescents' conduct problems. Future research needs to test such contentions as well as the role of other cultural influences on these processes in Mexican American families (e.g., acculturation and cultural values).

There are other important directions for future research on the role of PSE in family processes. One direction is investigating the extent to which some parents reporting high levels of PSE may be inaccurately estimating their levels of competency. Unrealistically high PSE coupled with low quality parenting practices may have negative effects on children's adjustment (Conrad, Gross, Fogg, & Ruchala, 1992). Bandura (1982) cautions that high self-efficacy (SE) is adaptive for already learned skills, but high SE needs to be coupled with people viewing tasks as challenging (rather than assured) in order for them to invest their best effort. Otherwise, high SE could result in little effort expenditure and diminished skill development and enactment. Additional directions for future research include studying changes in PSE over time and examining the roles of social desirability responding and adjunctive indicators of parenting PSE (e.g., parenting knowledge, observations of parent-adolescent interaction) in the associaitons between parenting self-efficacy and parenting practices (Jones & Prinz, 2005).

Implications for Intervention

The results of this study indicate that interventions aimed at preventing adolescent conduct problems should focus on elevating the PSE of Mexican American parents with low levels of PSE. Some studies of preventive interventions with parents have reported increases in parenting self-efficacy (Miller-Heyl, MacPhee, & Fritz, 1998; Spoth, Redmond, Haggerty, & Ward, 1995; Tucker, Gross, Fogg, Delaney, & Lapporte, 1998). Other research has shown links between post intervention increases in PSE and decreased child behavior problems (Sanders, Montgomery, & Brechman-Toussaint, 2000; Sofronoff & Farbotko; 2002). However, these interventions were comprised of multiple components and were not designed to identify specific strategies primarily responsible for increasing PSE. Core components have included social learning strategies such as direct skill and knowledge instruction, instructor or videotape modeling of skills, opportunities to practice skills, provision of feedback, reinforcement of successful skill demonstration, generalization of skills to novel situations, and prevention of relapse (Bandura, 1997; Marlatt & George, 1984; McKeachie, Pintrich, Lin, Smith, & Sharma, 1986). Group based parenting interventions have tried to maximize peer reinforcement and social support for skill development. However, in addition to these specified strategies, interventions have included varying degrees of nonspecific factors (e.g., intervener-participant working alliance, positive expectations for change). In sum, we know little about the precise intervention components and dosage that are most effective at increasing the PSE of parents with relatively low levels of PSE. Given the apparent influential role of PSE, identifying these intervention components is a critical challenge for the prevention field.

Adolescence can be a challenging time for parents and adolescents. The results of this study indicate that parenting self-efficacy has a significant influence on Mexican American parents' parenting practices and on adolescents' conduct. Given the growing population of Mexican American families in the U.S. and the heightened risk of Mexican American adolescents developing adjustment problems, it is critical that researchers focus on identifying effective strategies to enhance parenting self-efficacy and develop a more

comprehensive understanding of parenting processes contributing to adolescents' adjustment in this important group.

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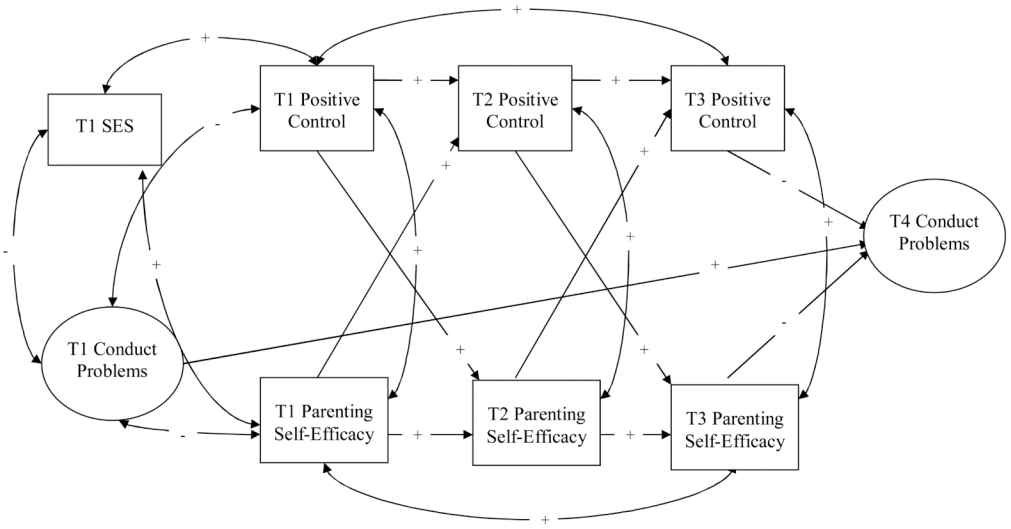

Figure 1.
Hypothesized model relating maternal parenting self-efficacy and positive control practices to adolescent conduct problems.

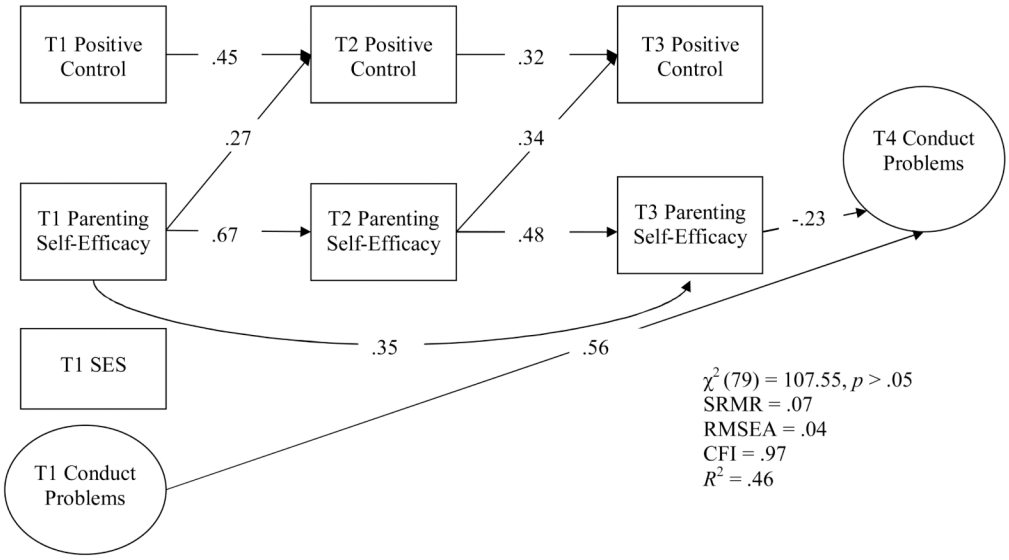

Figure 2.

Significant standardized parameter estimates for Model 2 (self-efficacy → positive control) relating maternal parenting self-efficacy and ***mothers' reports of positive control practices*** to adolescent conduct problems.

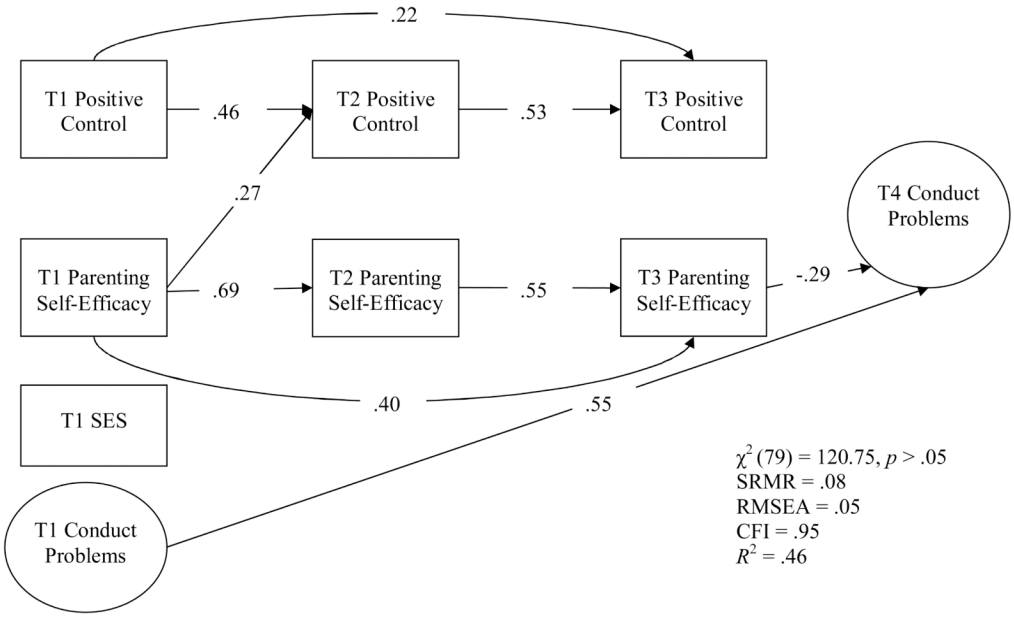

Figure 3.

Significant standardized parameter estimates for Model 2 (self-efficacy → positive control) relating maternal parenting self-efficacy and ***adolescents' reports of positive control practices*** to adolescent conduct problems.

Table 1

Correlations for Variables in Mothers' Reports of Positive Control Model (below diagonal) and Adolescents' Reports Model (above diagonal)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Family SES	—	.14	.10	.13	.04	-.02	-.05	-.03	-.16*	.02	.03	.14	.00	.03	.03
2. T1 positive control	.33*	—	.49*	.45*	.11	.11	.17*	-.32*	-.19*	-.12	-.15	.01	-.04	-.07	-.02
3. T2 positive control	.18*	.59*	—	.59*	.18*	.32*	.29*	-.23*	-.22*	-.32*	-.24*	-.14	-.14	-.24*	.03
4. T3 positive control	.15	.39*	.57*	—	.13	.11	.17*	-.21*	-.11	-.20*	-.13	-.22*	-.06	-.07	-.00
5. T1 self-efficacy	.04	.50*	.49*	.44*	—	.67*	.68*	-.21*	-.49*	-.21*	-.11	-.25*	-.42*	-.18*	-.12
6. T2 self-efficacy	-.02	.34*	.57*	.57*	.67*	—	.72*	-.13	-.45*	-.18*	-.10	-.20*	-.51*	-.19*	-.02
7. T3 self-efficacy	-.05	.27*	.42*	.65*	.68*	.72*	—	-.19*	-.37*	-.17*	-.08	-.22*	-.45*	-.17	-.03
8. T1 A conduct problems	-.03	-.13	-.03	-.10	-.21*	-.13	-.19*	—	.39*	.37*	.26*	.42*	.24*	.20*	.23*
9. T1 M conduct problems	-.16*	-.35*	-.31*	-.27*	-.49*	-.45*	-.37*	.39*	—	.32*	.30*	.27*	.61*	.35*	.27*
10. T1 TL conduct problems	.02	-.15	-.18*	-.05	-.21*	-.18*	-.17*	.37*	.32*	—	.60*	.28*	.21*	.40*	.37*
11. T1 TM conduct problems	.03	-.20*	-.03	-.05	-.11	-.10	-.08	.26*	.30*	.60*	—	.21*	.29*	.31*	.43*
12. T4 A conduct problems	.14	.00	.00	-.10	-.25*	-.20*	-.22*	.42*	.27*	.28*	.21*	—	.38*	.20*	.16
13. T4 M conduct problems	.00	-.25*	-.27*	-.33*	-.42*	-.51*	-.45*	.24*	.61*	.21*	.29*	.38*	—	.33*	.32*
14. T4 TL conduct problems	.03	.00	-.16	-.13	-.18*	-.19*	-.17	.20*	.35*	.40*	.31*	.20*	.33*	—	.46*
15. T4 TM conduct problems	.03	-.01	.03	-.01	-.12	-.02	-.03	.23*	.27*	.37*	.43*	.16	.32*	.46*	—

Note. Mothers' (M), adolescents' (A), language teachers' (TL), math teachers' (TM) reports. $N = 99 – 189$.

* $p < .05$.

Table 2

Fit Indices and Chi-Square Difference Tests of Nested Structural Models of Mothers' Parenting Self-Efficacy, Positive Control Practices, and Adolescents' Conduct Problems Over a Three-Year Period

Model	χ^2	*df*	CFI	RMSEA (90% CI)	SRMR	Comparison	$\Delta\chi^2$ (2, N = 189)
Mothers' reports of positive control							
Model 1: temporal stability model	144.47	81	.93	.06 (.047, .081)	.11		—
Model 2: self-efficacy → positive control	107.55	79	.97	.04 (.019, .063)	.07	M_1 vs. M_2	36.92***
Model 3: positive control → self-efficacy	142.72	79	.93	.07 (.048, .082)	.10	M_1 vs. M_3	1.75
Model 4: both cross-lags	107.19	77	.97	.05 (.022, .065)	.07	M_2 vs. M_4	.36
						M_3 vs. M_4	35.53***
Adolescents' reports of positive control							
Model 1: temporal stability model	127.49	81	.94	.06 (.036, .073)	.09		—
Model 2: self-efficacy → positive control	120.75	79	.95	.05 (.033, .071)	.08	M_1 vs. M_2	6.74*
Model 3: positive control → self-efficacy	123.81	79	.94	.06 (.035, .073)	.08	M_1 vs. M_3	3.68
Model 4: both cross-lags	117.05	77	.95	.05 (.032, .071)	.07	M_2 vs. M_4	3.70
						M_3 vs. M_4	6.76*

* $p < .05$.

** $p < .01$.

*** $p < .001$.