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Longitudinal Relations of Economic Hardship and Effortful Control to Active Coping in Latino Youth

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Abstract

How Latino youth cope with stressors may have implications for their adjustment. We examined how a temperamental characteristic (effortful control), and a contextual factor (economic hardship) was associated with Latino youth's coping. Individual differences in effortful control (EC), a core facet of self-regulation, may contribute to coping as EC is consistently linked to adaptive behaviors during adolescence. We examined relations of EC and economic hardship to active coping in a sample of Mexican-origin youth ($N=674$) across three time-points (5th to 9th grade). Although economic hardship negatively predicted coping and EC, EC positively predicted coping (controlling for prior levels). Findings support a resilience perspective by suggesting that EC may contribute to coping, and thus, counteract the negative effects of economic hardship.

Keywords

effortful control; Latino adolescents; active coping; economic hardship

Youth are exposed to many new potentially threatening or challenging experiences across multiple developmental contexts as they transition into adolescence. In particular, adolescence is a time when social relationships and academic responsibilities become more challenging and complex, and family relationships and roles undergo changes as a result of growing independence (Call et al., 2002). Adolescence can also be a time of high-risk behaviors and increased risks for negative outcomes such as poor mental health (Call et al., 2002), as well as a time of heightened sensitivity to stressors (Shapero & Steinberg, 2013). The risks associated with the transition into adolescence can be exacerbated for Latino youth who often experience additional stressors such as racism, acculturation, and discrimination compared to their Caucasian peers (Cauce, Cruz, Corona, & Conger, 2011; Munsch, & Wampler, 1993). Latino youth are additionally disproportionately exposed to the negative effects of poverty, with 32% of Latino children living below the poverty threshold compared to 12% of Caucasian children (U.S. Census Bureau, 2014). Researchers consistently report that poverty creates a climate of risk for children that extends into adolescence (Brooks-Gunn & Duncan, 1997), especially in regard to internalizing symptoms (e.g., Call et al.,

2002; Wadsworth, Raviv, Santiago, & Etter, 2011). Consistent with this, family socioeconomic risk has been found to detrimentally affect the adjustment of Latino youth (e.g., Conger et al., 2012; Delgado, Killoren, & Updegraff, 2013; Parke et al., 2004; Taylor, Larsen-Rife, Conger, Widaman, & Cutrona, 2010; Taylor et al., 2012; White, Liu, Nair, & Tein, 2015).

Although links between socioeconomic risks and poor developmental outcomes have been widely studied in Latino youth, significantly fewer studies have focused on resilience factors that have potential to offset such risks and therefore promote the well-being of Latino youth (Cardoso & Thompson, 2010; Umaña-Taylor, 2009). Resilience generally refers to positive adaptation in the context of risk or adversity, with researchers finding evidence of positive outcomes as a result of resilience resources across a variety of contexts (Luthar, 2006; Masten, 2014). Resilience processes are distributed across multiple interacting systems at both the individual and environmental levels. At an individual level, resilience reflects how well an individual overcomes difficulties, adapts to fluctuating demands, copes with adversity, and reconfigures mental resources. Assets such as personal competence, tenacity, self-esteem, intellect, coping skills, and adaption to change are positive internal factors that protect the individual against the negative effects of risks (Cardoso & Thompson, 2010). As it is not possible to prevent all threats to children's development, it is imperative to understand how positive development can occur despite non-optimal environmental conditions and to identify factors that may help protect or buffer children when adversity occurs.

Given this, it is critical for researchers to continue to elucidate resilience processes or other positive characteristics that have potential to counteract contextual risks commonly experienced by Latino youth and thereby contribute to positive coping during adolescence (Umaña-Taylor, 2009). Identifying resilience factors is vital to the development of interventions aimed at improving the well-being of Latino youth whose families are particularly susceptible to experiencing poverty and economic hardship. The present study addresses specific factors that are potentially associated with positive coping in Latino youth. Specifically, we examine the interrelations and effects of effortful control (a facet of self-regulation that has been implicated in resilience to adversity) and family economic hardship on active coping skills in Latino adolescents.

Factors Affecting Coping in Adolescence

Coping is the process by which individuals attempt to manage the demands created by stressful events that are appraised as taxing or exceeding a person's resources (Lazarus & Folkman 1984; Taylor & Stanton, 2007). Adolescence is a developmental period that can be challenging across a variety of developmental domains, and therefore can make large demands on adolescents' coping skills (Oldehinkel, Hartman, Ferdinand, Verhulst, & Ormel, 2007). However, researchers posit that the negative impact of stressors can also be buffered by an adolescent's personal and social resources (Herman-Stahl & Petersen, 1999). An interactionist perspective posits that both socioeconomic contexts and individual characteristics dynamically affect adjustment and development of youth and children (Schofield et al., 2011).

How an individual regulates his or her emotions and behaviors or persists in tasks may have particular consequence for facilitating coping. Individual differences in self-regulation, or the ability to modulate emotional arousal and behavior, is likely to contribute to coping skills, given that it is consistently linked to adaptive behaviors (Eisenberg, Spinrad, & Eggum, 2010). Youth with higher levels of self-regulation may refrain from becoming over-aroused when experiencing stresses and challenges and thus may more effectively cope with stressful situations (Eisenberg & Valiente, 2004). Self-regulation has been shown to be a potent predictor of resilience in a mixed-ethnic sample of school-aged children living in poverty (Buckner, Mezzacappa, & Beardslee, 2003).

Researchers have more actively begun to examine the role of self-regulation on adjustment in adolescence. However, there is less research on the relations among and interactions of self-regulation and contextual factors, despite these factors being important aspects in the prediction of outcomes in adolescence (Shapiro & Steinberg, 2013). One context that disproportionality affects Latino families, and may be particularly salient for Latino youth, is economic hardship (Conger et al., 2012). The Family Stress Model (FSM; Conger, Conger, & Martin, 2010) has consistently demonstrated that economic hardship results in greater economic pressure, which impairs the mental health and parenting behaviors of adult family members. Economic stress can result in conflict between caregivers that spills over to the parent-child relationship and thereby results in more negative outcomes for children (e.g., Conger et al., 2010; Conger et al., 2012; Masarik & Conger, 2016) and adolescents (e.g., Conger et al., 1991; Landers-Potts et al., 2015).

Although resilience factors such as effective parenting practices and individual characteristics may offset some of the risks experienced as a result of economic adversity (Conger et al., 2012), these associations remain largely untested in Latino families. Individual characteristics have potential to serve as a source of resilience, either through compensatory (or main) effects by directly reducing or counteracting effects of risk factors and bolstering other resources or by buffering (or moderating) the effect of economic hardship.

Effortful Control and Coping in Adolescence

Although regulatory traits are most often conceptualized as biologically based (Rothbart, Ahadi, & Evans, 2000), it is increasingly evident that these characteristics continue to develop during early adolescence (Shiner, Allen, & Masten, 2016; Atherton, Tackett, Ferrer, & Robins, 2017; Lengua, 2006) and can be modified by environmental factors (King et al., 2013; Laceulle, Nederhof, Karreman, Ormel, & van Aken, 2012; Lengua, 2012). Poverty and economic stress are expected to negatively affect the development of children's regulation (Lengua, 2012). However, to the extent that self-regulation is maintained during adversity, such skills are expected to play a central role in children's positive adaptation (Masten, 2014). Given this, researchers have hypothesized that self-regulation traits could provide a promising index of adolescent resilience (Dishion & Connell, 2007).

Effortful control is a temperamental characteristic that is considered a facet of self-regulation (Eisenberg, 2015). It is associated with how individuals regulate their reactions,

focus their attention, intentionally approach or avoid situations and people, inhibit their impulses, and calm and distract their self as is appropriate to the situation (Rothbart & Bates, 2006). Effortful control is related to better regulation of negative emotions and greater persistence at completing challenging tasks; consequently, individuals with higher levels of effortful control would be expected to have an advantage in adapting effectively in stressful situations (Eisenberg et al., 2004). In contrast, youth with poor self-regulation have been found to have more social and behavioral problems (King, Lengua, & Monahan, 2013). Furthermore, effortful control may be particularly important in adolescence given that increased autonomy and challenges confer additional responsibility for modulating one's affective functioning, cognitions, and behaviors (Yap, Allen, & Sheerer, 2007).

Supporting this, researchers have found that youth with higher levels of effortful control have better social and emotional functioning during adolescence and early adulthood (e.g., Alessandri et al., 2014; Fosco, Caruthers, & Dishion, 2012; Eisenberg, 2015; Hofer, Eisenberg, & Reiser, 2010; Pérez-Edgar, 2015). In contrast, lower levels of effortful control are linked to internalizing problems (i.e., depression and anxiety), as well as externalizing problems (i.e., aggression, poor peer competence) in adolescence (Hofer et al., 2010; Muris, Meesters, & Blijlevens, 2007; van Oort, Greaves-Lord, Ormel, Verhulst, & Huizink, 2011; Verstraeten, Vasey, Raes, & Bijttebier, 2009) and childhood (for a review, see Eisenberg et al., 2010). Effortful control may also be linked to better control over negative or ruminative thoughts and thus buffer individuals from depression. For example, Verstraeten and colleagues (2009) found that adolescents with higher levels of rumination had higher depressive symptoms, but only for those with low levels of effortful control. Effortful control may additionally protect youth experiencing adversity from poor developmental outcomes. Bakker and colleagues (2011) found that youths with high effortful control did not exhibit externalizing problems despite the presence of family adversity, whereas youth with low effortful control did. A moderating effect between negative affect and depressive symptoms in early adolescence has also been reported; low positive affect and high negative affect were associated with depressive symptoms only if effortful control was low (Verstraeten et al., 2009).

Traits associated with self-regulation such as effortful control may promote positive adjustment and resiliency through their influence on appropriate coping strategies. If individuals can successfully modulate their emotional, cognitive, and behavioral responses to stress and challenge, they may more successfully utilize coping skills needed to appropriately deal with the situation. Coping strategies can be exhibited in varied ways, from problem-focused (changing a behavior) to emotion-focused (changing one's emotions or thoughts) coping strategies (Lazarus, 1993; Skinner & Zimmer-Gembeck, 2007). In general, more active coping strategies (altering the situation, thoughts, or emotions through problem solving, positive cognitive restructuring, or acceptance) are linked to positive adjustment and outcomes when facing a stressful or challenging situation (Gross, 2001). Maintaining effective coping strategies despite experiencing poverty-related stress has been found to be protective against internalizing symptoms in a mixed ethnicity sample (Wadsworth, Raviv, Santiago, & Etter, 2011).

Although research is limited in this area, effortful control may shape how adolescents appraise and cope with stressful circumstances. De Boo and Spiering (2010) reported that effortful control was positively correlated with active problem-solving in a sample of children aged 8–12 years. Thompson and colleagues (2014) additionally found that pre-adolescent children with higher levels of effortful control at one time-point had decreases in threat appraisal (i.e., negative self-evaluations, rejection) a year later when describing problems they faced. Researchers hypothesized that the ability to shift and refocus attention away from the negative aspects of a stressor may lead to more adaptive responses to stress. Additionally, Oldehinkel and colleagues (2007) reported that effortful control attenuated the effects of negative emotionality (frustration and fearfulness) on externalizing and internalizing problems in a large sample of pre- and early adolescent youth. Researchers concluded that as youth enter adolescence higher levels of effortful control could be protective against negative emotionality and poor mental health, symptoms that often increase in adolescence.

Thus, overall, findings suggest that effortful control is positively associated with coping processes and may also contribute to positive changes over time (Thompson et al., 2014). It is also likely that these two constructs have bidirectional relations, especially when addressed across time, in that higher levels of coping strategies could positively contribute to improvements in effortful control. Effortful control and coping are two distinct constructs, but they likely mutually influence each other because effortful control capacities might facilitate coping and poor coping might interfere with operation of effortful control capacities (Skinner, & Zimmer-Gembeck, 2007). However, researchers have not teased apart the possible bidirectional effects of coping and effortful control as the majority of research has utilized cross-sectional data and assumes that effortful control predicts coping as is consistent with theory (e.g., De Boo & Spiering, 2010; Valiente, Lemery-Chalfant, & Swanson, 2009).

Effortful Control and Coping in Latino Youth

Dispositional assets have been found to counteract stressors and risks experienced by Latino youth (e.g., Lengua, 2006; Loukas & Prelow, 2004; Prelow, Loukas, & Jordan-Green, 2007; Taylor, Jones, Anaya, & Evich, 2017). However, few researchers have examined regulatory traits such as effortful control in Latino youth (for an exception, see Taylor et al., 2017), and none have examined the effects of effortful control on coping in Latino adolescents. However, there is some evidence that effortful control could promote coping in adolescents as well as counteract stressors commonly experienced stressors.

In a cross-sectional study, Taylor and colleagues (2017) found evidence that effortful control may counteract the relations between multicultural stressors and maladjustment in Latino youth by negatively affecting depressive problems and aggression/frustration. Valiente and colleagues (2009) also reported that coping mediated the relations between effortful control and problem behaviors in a 55% Latino sample of 7–12 year olds. Other researchers found that youths who were resilient to the negative effects of poverty had greater self-regulatory skills than those who were not resilient in a mixed-ethnicity sample (Buckner et al., 2003). In contrast, relatively lower levels of effortful control predicted more conduct problems in

Caucasian and Latino children ages 10–14 (Marsh, Allen, Ho, Porter, & McFarland, 2006,) and substance use in Latino adolescents (Clark, Donnellan, Robins, & Conger, 2015). Loukas and Roulson (2006) found that youth with lower levels of effortful control experienced more adjustment problems a year later in a sample that was 18% Latino. They also reported that, in comparison to their Caucasian peers, Latino youth had lower levels of effortful control and higher levels of both conduct problems and depressive symptoms. However, the majority of these studies have used mixed ethnicity samples and/or cross-sectional data (for an exception, see Clark et al., 2015). Thus currently, the research on effortful control in Latino adolescents remains fairly limited.

Examining factors that specifically relate to coping in Latino youth is important as researchers have found that active coping strategies such as problem solving, emotional expression, and emotional modulation buffer Latino adolescents from stress relating to discrimination (Edwards & Romero, 2008) as well as from family stress and conflict (Liu, Gonzales, Fernandez, Millsap, & Dumka, 2011). Furthermore, researchers have demonstrated that higher levels of active coping in Latino adolescents mitigate stress and are protective against depressive symptoms (Crean, 2004; Tolan, Lovegrove, & Clark, 2013).

Given this research, and the research on effortful control and coping in general, effortful control is likely to counteract risks, such as economic hardship, often experienced by Latino youth. However, to the best of our knowledge, no researchers have examined relations of effortful control and economic stress to active coping in Latino adolescents. The only study that has addressed both coping and effortful control (or self-regulation) in Latino youth addressed social stressors in school-age children and was cross-sectional (Valiente et al., 2009). We address this gap in the present longitudinal study.

Present Study

The present study examined the effects of effortful control and family economic hardship on active coping skills in a Latino sample across the transition to adolescence. We had the following goals: (1) to examine the longitudinal relations amongst family economic hardship, effortful control, and active coping, as well as the stability of these constructs across the early adolescent period; (2) to examine whether effortful control counteracts or buffers the relation between economic hardship and active coping consistent with a risk and resilience perspective; and (3) to test whether bidirectional associations existed between the constructs of effortful control and active coping skills. Generally, we hypothesized that family economic hardship would be detrimentally associated with youths' effortful control as well as their coping skills, that effortful control would positively predict active coping (and not vice versa), and that effortful control may buffer the effects of family economic hardship on active coping thus serving as a coping resource.

Our study extended previous research in several ways. First, we examined effortful control in Latino adolescents across three time points, whereas prior research addressing effortful control in Latino youth has been largely cross-sectional. Second, few researchers have examined adolescents' effortful control and active coping longitudinally and therefore have been unable to stringently assess whether effortful control has an effect on coping behaviors

across time. Third, little is known about effortful control in early adolescence, particularly with regard to its relations with contextual factors such as economic hardship. Last, the present study examines dispositional traits of Latino youth that potentially contribute to their well-being and positive adjustment.

Method

Participants

Participants included Mexican-origin families with a typically functioning child ($N = 674$, $M_{age} = 10.86$ years, 50% female) in fifth grade at Wave 1. The children were drawn at random from student rosters provided by two school districts, one in each of two cities in a metropolitan area of Northern California. Families of children from these school districts were recruited by telephone or, for cases without a listed phone number, by a recruiter who went to their home. Of eligible families, 72.5% agreed to participate in the study. All family members were of Mexican origin as determined by their ancestry and self-identification as being of Mexican heritage. The majority of children resided in two-parent families (82%) with an average of three children in the household. Criteria for inclusion in the study were: (a) the biological parents identified as Mexican or Mexican American; (b) the father in two-parent families had to be the biological father of the focal child; (c) single-mother families were eligible if there was no other adult living in the household; and (d) the child had to be living with his/her biological mother.

Twenty-nine percent of the children, 84% of the mothers, and 88% of the fathers were born in Mexico (the remainder were all born in the United States). On average, mothers had spent 16.1 years ($SD = 10.6$) in the United States, and fathers 19.4 years ($SD = 9.8$). Thirty-eight percent of mothers and 40% of fathers did not attend high school; 25% of mothers and 25% of fathers completed some high school; 18% of mothers and 20% of fathers completed high school or had a general equivalency diploma; and 19% of mothers and 15% of fathers had some college, a college degree, or a graduate degree; of those who completed high school or less, the median grade achieved was ninth grade for both mothers and fathers. Mothers reported their family's total income on a 20-point scale with \$5,000 increments ($M = \$30,000$ – $\$35,000$, $SD = \$15,000$ – $\$20,000$).

The present study used three waves of data (T1, T2, and T3) when children were in 5th, 7th, and 9th grade, respectively, because the core constructs for the present study were only assessed at these times of measurement. For T2, 86% of the families from the original sample participated, and at T3 91% of the families participated. To investigate the potential impact of attrition, *t* tests comparing values of the major variables and demographic variables (household income, and education) for families that participated at T1 versus those families who did not participate at T3 ($N = 65$) were conducted. No differences among variables were found.

Procedure

Families participated in a full interview every two years (grades 5, 7, and 9), and a brief interview during the intervening years (grades 6 and 8). For full interviews, families were

visited by trained bilingual research staff on two occasions within a 1-week period. Interviews were conducted in Spanish or English with the focal children, their mothers, and their fathers (if present) in the families' homes. At T1, approximately 80% of the mothers, 80% of the fathers, and 20% of the children elected to complete their interviews in Spanish (with similar language choice rates across the other waves). Interviews were conducted in separate parts of the home to maintain privacy. Participants were paid for their participation.

Measures

All measures included both Spanish and English versions. If a measure was not available in Spanish, a version was created by bilingual Mexican-American project staff with forward and backward translation to confirm accuracy (see blinded for review).

Economic hardship—The latent variable for Economic Hardship was reported by mothers (T1, T2, T3) using three scales: Unmet Material Needs, Can't Make Ends Meet, and Financial Cutbacks (Conger & Conger, 2002; Conger et al., 1991). *Unmet Material Needs* (UN) included six items (e.g., "During the past 3 months, your family had enough money to afford the kind of home you needed"), rated on a scale ranging from 1 = 'not at all true' to 4 = 'very true' (T1 α = .91; T2 α = .90; T3 α = .91). *Can't Make Ends Meet* (CM) included two items asking mothers if they had difficulty paying their bills and how much money was left at the end of the month. Responses ranged from 1 = 'no difficulty at all' to 4 = 'a great deal of difficulty' and 1 = 'more than enough money' to 4 = 'not enough to make ends meet.' (T1 α = .77; T2 α = .72; T3 α = .73). *Financial Cutbacks* (FC) included 7 items (e.g., "Your family added another job to help make ends meet", "Your family changed food shopping or eating habits to save money"), regarding their adjustments to financial need (1 = yes, 0 = no) during the past 3 months (T1 α = .65; T2 α = .69; T3 α = .72).

Effortful control—The latent variable for Effortful Control (T1, T2, T3) was based on mother and child report using three subscales from the Early Adolescent Temperament Questionnaire—Revised (*EATQ-R*; Ellis & Rothbart, 2001). *Activation control*, the capacity to perform an action when there is a strong tendency to avoid it, included 5 items (e.g., "You put off working on projects until right before they're due"). *Inhibitory control*, the capacity to plan, and to suppress inappropriate responses, included five items (e.g., "It's hard for you not to open presents before you're supposed to"). *Attention*, the capacity to focus and shift attention when desired, included six items (e.g., "When trying to study, you have difficulty tuning out background noise and concentrating"). Scale responses ranged from 1 = "not at all true" to 4 = "very true". Mother and child reports for Effortful Control were significantly correlated (T1 = .32, T2 = .32, and T3 = .33, $p < .01$). Alphas were T1: mother α = .65 and child α = .69; T2: mother α = .77 and child α = .70; T3: mother α = .73 and child α = .72. Mother and children's reports were averaged across each subscale to create three indicators for youth Effortful Control.

Active coping—The latent variable for Active Coping was reported by youths at T1, T2, and T3 using 12 items from the Active Coping subscale of the Children's Coping Strategies Checklist (CCSC; Ayers, Sandler, West, & Roosa, 1996). Youth were asked how often during the last three months they did each thing to solve their problems, or make themselves

feel better, e.g., “In the past 3 months, you tried to notice or think about only the good things in your life.” and “In the past 3 months, you did something to solve the problem” (T1 $\alpha = .90$; T2 $\alpha = .93$; T3 $\alpha = .94$). Responses ranged from 1 = “not at all” to 4 = “very much”. Given the single reporter, we created a latent variable for Active Coping by randomly compositing items into three parcels containing four items each. Considerable research suggests that item parcels produce more reliable indicators than individual items (Coffman & MacCallum, 2005; Kishton & Widaman 1994; Little, Cunningham, Shahar, & Widaman, 2002). Use of parcels also allows testing of hypotheses at the error-free latent variable level, avoiding biasing effects of unreliability that would occur if single indicators (e.g., scale score that is sum of all items) were used for each construct.

Covariates—Covariates included: child age, child sex (0 = female, 1 = male), Household composition (0 = two-parent, 1 = single-parent), child born in U.S. or Mexico (0 = U.S., 1 = Mexico), household income, and mother’s education (in years).

Analysis Plan

We used structural equation modeling (SEM) to evaluate predictions from the conceptual model (Figure 1). Statistical models were fit to the data using the Mplus program Version 7.11 (Muthén & Muthén, 1998–2016). To evaluate the fit of structural models to data, we used the standard chi-square index of statistical fit that is routinely provided under maximum likelihood estimation of parameters, and several indices of practical fit: the root mean square error of approximation (RMSEA), the Tucker-Lewis index (TLI), and the comparative fit index (CFI). We used standard cut-offs for practical fit indices to indicate close model fit to data: RMSEA less than or equal to .05, and TLI and CFI values greater than .95. We used full information maximum likelihood (FIML; Arbuckle, 1996) estimation which uses all available data, and drops individual cases only when information is missing on all manifest variables in the analysis. No cases in the study had missing data on all manifest variables of interest in the study, so all cases were retained in analyses. FIML produces less biased and more efficient estimates compared with listwise or pairwise deletion to deal with missing data (Widaman, 2006).

In our modeling, we invoked longitudinal invariance constraints on factor loadings for each of the three major constructs (Economic Hardship, Effortful Control, and Active Coping) to provide support for the hypothesis that the same three constructs were identified at each of the three times of measurement. When we relaxed these measurement invariance constraints, the improvement in fit was non-significant, supporting the use of the invariance constraints. In our models, we fit stability paths for each construct from T1 to T2 and from T2 to T3. We then estimated cross-lagged paths (a) from Economic Hardship at one time (e.g., T1) to both Effortful Control and Active Coping at the next time of measurement (e.g., T2); (b) from Effortful Control at one time to Active Coping at the next time of measurement; and (c) from Active Coping at one time to Effortful Control at the next time (see Figure 1). Under the assumption that cross-lagged effects would be stable or invariant from the T1–T2 lag to the T2–T3 lag, we imposed invariance constraints on such paths. We also relaxed these constraints to test whether a given cross-lagged path (e.g., from Effortful Control to later Active Coping) differed between the T1–T2 and T2–T3 lags. If relaxing invariance

constraints led to significant improvement in model fit, the non-invariant parameters were allowed given superior fit of the model to data. But, if relaxing a constraint did not improve model fit significantly, the invariance constraints were retained, given the more parsimonious form of the model with invariance constraints.

We tested certain longitudinal mediation effects, such as whether Effortful Control significantly mediated the effect of Economic Hardship on Active Coping. Mediation was tested using bootstrapping in Mplus, rather than the Sobel test. The Sobel test assumes a normal distribution of a mediation effect. A mediation effect is estimated as the product of two normally distributed estimates (i.e., regression weights), and such a product is non-normally distributed. As a result, the Sobel test is not recommended, and bootstrapping provides better coverage rates and Type I error control (MacKinnon, Lockwood, & Williams, 2004).

We also conducted two forms of supplementary analyses. First, we tested for sex differences in parameter estimates using a two-group modeling approach with equality constraints on all factor loading, stability, and cross-lagged parameter estimates, relaxing the equality constraints to test for improved fit. Second, we evaluated our buffering hypothesis by testing the interaction between Economic Hardship and Effortful Control on Active Coping (see supplementary analyses section).

Results

Preliminary Analyses

Correlations largely supported our hypotheses (Table 1). Economic Hardship was negatively correlated with both children's Effortful Control and their Active Coping skills at all three time points. Effortful Control and Active Coping were significantly positively correlated across all three-time points. As expected, mother's education was negatively associated with Economic Hardship and positively correlated with Active Coping and Effortful Control. Single-parent household was positively correlated with Economic Hardship at T1 and T2, and negatively with Effortful Control at T1. Child age was positively associated with Effortful Control. Child sex was not significantly correlated with either Active Coping or Effortful Control except for with Effortful Control at T1.

Test of the Conceptual Model

Our hypothesized model is shown in Figure 1, with stability paths for each of the three latent variables and cross-lagged paths between latent variables shown in the figure. In this model, effects of the six covariates on the three latent variables at T1 and at T2 were estimated and were statistically significant when tested in setwise fashion. Direct effects of covariates on T3 latent variables were not estimated, as the setwise test of these coefficients was non-significant, indicating that effects of covariates on T3 latent variables were mediated by their effects on latent variables at T1 and T2. Unique variances of manifest variables were allowed to covary across time when indicated by modification indices. When we relaxed invariance constraints on (a) factor loadings, (b) stability paths, and (c) cross-lagged paths,

no significant improvements in fit were found, leading to a final model that was highly constrained and thus very efficient.

Our final model demonstrated close fit to the data. Although the statistical index of fit was significant, $\chi^2(436, N = 674) = 684.080, p < .05$, the indices of practical fit were very good, with Comparative Fit Index (CFI) = 0.972; Tucker-Lewis Index (TLI) = 0.966; and the Root Mean Square Error of Approximation (RMSEA) = .029. Thus, the practical fit indices indicated that the model fit the data closely. Factor loadings for the latent variables were all significant at $p < .01$, and standardized factor loadings tended to be moderate to large in magnitude, ranging from .54 to .94, as shown in Table 2.

The key results of the structural equation model are shown in Figure 1. All three of our latent constructs (Economic Hardship, Effortful Control, and Active Coping Skills) demonstrated significant stability across the three time points. As expected, Economic Hardship at one time-point negatively predicted children's Effortful Control ($\beta = -0.06, p < .05$) as well as their Active Coping skills at the next time point ($\beta = -0.08, p < .05$), controlling for prior levels of the latent variables. We found that Effortful Control and Active Coping were significantly positively correlated at all three time points.

Additionally, as we hypothesized, children's Effortful Control at one time-point positively predicted Active Coping at the next point ($\beta s = 0.13$ and $0.16, p < .01$), controlling for prior levels of Active Coping. Bidirectional effects between Effortful control and Active Coping were marginally evident, as Active Coping at one time point marginally predicted Effortful Control at the next ($\beta = 0.06, p = .06$).

Last, results showed that Effortful Control at T2 partially mediated the relation between Economic Hardship at T1 and children's Active Coping at T3 at a marginal level of significance ($p = .052$), a mediation effect estimated using the bootstrapping method in MPlus (*indirect effect* = $-.008$. 95% CI [$-0.019, 0.000$]).

Supplementary Analyses

First, we tested for sex differences in model parameter estimates to ensure that the results in Figure 1 held equally for male and female youth using a two-sample modeling approach. When we relaxed cross-group equality constraints on parameter estimates, only a single estimate differed significantly across groups, the negative direct effect of Economic Hardship on Active Coping for boys ($\beta = -0.15, p < .01$), an effect that was essentially zero for girls ($\beta = -0.002, ns$). Because this was the only significant difference across sexes, the model shown in Figure 1 holds in general for both sexes.

Next, we tested the presence of an interaction of Economic Hardship and Effortful Control on Active Coping. However, the interaction was only marginally significant from T1 to T2, $\beta = .25, SE = .14, p = .08$, and was non-significant for the T2 to T3 lag. Thus, the interactive buffering hypothesis was not supported.¹

¹Our findings remained significant when we controlled for child depression, as well as when we assessed effortful control using separate reporters (mother and child). We re-ran our model twice, once using only the child measures of effortful control and a second time using only the mother reports of child effortful control. We found weaker effects for child than parent reports but no significant

Discussion

We tested a three-wave model with autoregressive and bidirectional cross-lagged paths to assess relations among family economic hardship, effortful control, and active coping skills in a sample of Latino adolescents. Concerning our study aims, we were first interested in examining the effects of family economic hardship and effortful control on youth's active coping skills. As we expected, family economic hardship negatively predicted children's active coping across time and also negatively predicted effortful control, even when controlling for prior levels of these constructs. These findings are consistent with a large body of research demonstrating the negative effects of poverty and economic hardship on both child and adolescent development (e.g., Brooks-Gunn & Duncan, 1997). However, much of the research on the effects of family economic hardship on children's effortful control has been conducted during early childhood with researchers reporting negative relations between exposure to poverty and children's levels of effortful control (e.g., Lengua et al., 2015; Li-Grining, 2007). Much less research has examined relations between family's economic hardship and effortful control in later childhood and adolescence, although there is ample evidence that poverty and other stressful events can detrimentally affect self-regulatory skills in adolescence (e.g., Doan, Fuller-Rowell, & Evans, 2012; Lauceulle et al., 2012).

However, despite these negative associations, our study aimed to assess whether effortful control counteracted or buffered the effects of economic hardship on youth's active coping. Studies of Latino youth often focus on factors that impede positive development, and a main aim of the present study was to assess factors that might serve to protect youth and foster positive development despite risks that may be inherent in their environment. We found that, despite significant stability of all three constructs of interest as well as within-time correlations among some of the constructs, effortful control positively predicted children's active coping across time, above and beyond prior coping levels. Because the panel model included controls for prior levels of the variables, the paths can be interpreted as predicting change in rank-order status over time. Additionally, we found evidence (albeit marginal) that effortful control mediated the relation from economic hardship to active coping, suggesting that some of the negative effects of economic hardship on coping skills may due to its negative effects on effortful control. Although we did not find support for the buffering hypothesis (or that effortful control would moderate relations between economic hardship and coping), our findings support a resilience perspective in that effortful control served to counteract the negative effects of economic hardship on coping. This study provided evidence of the positive effects of effortful control for fostering coping in Latino youth during early adolescence. These findings were particularly compelling given that economic hardship and coping were reported by different participants, and demonstrated longitudinal relations controlling for prior levels.

differences in the magnitude of the effects for child vs parent report. Additionally, all of the effects that were significant in the original model remained significant after controlling for child depression, indicating that controlling for depression had no effect on our findings. These models can be provided upon request.

Our final aim addressed whether bidirectional associations existed between the constructs of effortful control and active coping skills. We hypothesized that effortful control would predict active coping rather than the reverse as effortful control is likely to provide the building blocks that contribute to effective coping behaviors. Although it was evident that these constructs were linked, our stringent model was able to test bidirectional effects and found that, as expected, effortful control significantly predicted later active coping rather than vice versa. Researchers have defined coping as self-regulation when faced with stressful or challenging situations (e.g., Compas et al., 2002; Eisenberg et al., 1997). Effortful control may provide specific skills necessary for self-regulation in stressful contexts, such as being able to modulate attention and behavior, planning, and maintaining and/or shifting focus. These skills could be useful for regulating negative emotions, persisting despite challenge, and adaptable responding. These findings support other work that has found that higher levels of self-regulatory skills differentiate resilient adolescents from non-resilient youths in low-income families (Buckner et al., 2003) and suggest that self-regulation traits such as effortful control are positive contributors to coping skills during adolescence.

Overall, the findings of the present study are consistent with the hypothesis that regulatory abilities provide resources that aid in the coping process when experiencing stress. Importantly, our findings present evidence of a dispositional attribute of adolescents that contributes to positive youth development and skills. In particular, facets of effortful control such as suppression of dominant impulses and active planning may provide resources that aid in the coping process (Valiente et al., 2009). Effortful control abilities may allow for flexible, adaptive behavior when faced with challenging situations and, thus, contribute to adjustment—although this hypothesis should be directly tested in future studies. However, it should be noted that research has shown that active coping is not always the most productive approach, especially with uncontrollable stressors as it may reinforce an adolescent's sense that they are helpless to reduce stress levels even when they directly attempt to (Landis, et al., 2007). Thus, it is important for future research to address whether effortful control relates to other types of coping across time.

Also important, our findings highlight the importance of continuing to foster positive youth characteristics across adolescence. Given the increasing evidence that regulatory skills like effortful control continue to develop in adolescence, fostering effortful control during this developmental stage would be expected to contribute to youth's success at coping and reacting to stressful events and challenges. Longitudinal studies of the positive benefits of effortful control in adolescence are lacking for all ethnic groups. However, a major strength of the present study is assessing effortful control in a potentially more vulnerable homogenous population of adolescents. Although it is likely that characteristics such as effortful control have equal benefits on children across diverse populations (e.g., Sulik et al., 2010), it is important to address cultural contexts and to examine diverse populations with regard to both the effects of effortful control on coping skills, but also the benefits of effortful control for other adolescent outcomes.

The present study had a number of strengths including addressing potential strengths and positive attributes of Latino youth, rather than emphasizing negative outcomes and problematic adjustment. Far less attention has been given to examining positive attributes in

youth development (Lerner, Almerigi, Theokas, & Lerner, 2005), and particularly for Latino youth (Umaña-Taylor, 2009). Another strength was our focus on assessing the bidirectional relations of effortful control and coping. Few researchers have examined the longitudinal relations of effortful control and coping, and none have examined unique and interactive effects. Other strengths include a focus on effortful control in adolescence when research has most often addressed effortful control in earlier childhood and rarely in Latino populations. This study assessed positive youth development in Latino youth utilizing multiple reporters in a longitudinal panel design spanning four years with two lags.

Our study did have limitations that should be addressed in future studies. Although our homogenous population was a strength of the study, given that the findings were limited to one ethnicity (Latino adolescents), the results should be replicated with other ethnic groups. Although we used multiple reporters, the present study did not utilize multiple methods (i.e., observational data in addition to survey data). Our sample is largely from an urban area and thus may not apply to Latino youth who are living in more rural areas (although we would expect the model to work similarly based on effortful control's positive relations to a multitude of stressors). Additionally, the present study did not focus on depression or other internalizing symptoms. Depressed adolescents are more likely to report lower levels of active coping (Herman-Stahl & Petersen, 1999). However, examining the role of mental health was beyond the scope of the present study. Addressing the effects of depression on active coping strategies in Latino adolescents, and potentially on effortful control, could be an important direction for future work in this area.

Despite these limitations, our work has important implications for the well-being and positive adjustment of Latino youth as they transition into early adolescence. Having a better understanding of the contexts in which coping skills thrive or are negated is useful for intervention efforts. In particular, our work suggests that programs designed to foster coping strategies in adolescents experiencing environmental stress could focus on fostering and strengthening effortful control. Effortful control may shape coping processes by contributing to individual differences in sensitivity to environmental stimuli, through emotional reactions, stress reactivity, or through being able to modify one's responses to changing demands and challenges (Skinner & Zimmer-Gembeck, 2007). Research that is able to tease apart these different effects will be able to more clearly inform interventions. It will also be beneficial to assess whether levels of effortful control continue to have effects on coping skills throughout later adolescence. Future work should also assess how the relations examined in the present study affect the development of internalizing and externalizing symptoms that can be problematic during the adolescent period.

In future work, it would be useful to consider what other factors contribute to active coping skills during adolescence. Understanding other factors, especially proximal environmental contexts such as parenting behaviors and relationships as well as genetic and biological inputs into development of coping resources, would contribute to our understanding of coping behaviors and skills and allow more adequate interventions (Taylor & Stanton, 2007). For Latino adolescents, it may be of particular benefit to assess whether sociocultural resources (e.g., cultural beliefs, support networks, ethnic identity) positively contribute to coping skills (Coll, Akerman, & Cicchetti, 2000). Given that researchers have found coping

skills to be protective against a variety of stressors in Latino youth including discrimination (Edwards & Romero, 2008; Umaña-Taylor, Vargas-Chanes, Garcia, & Gonzales-Backen, 2008), negative life events (Crean, 2004), and economic stress (Gomel, Tinsley, Parke, & Clark, 1998), successful modification of appropriate and effective coping strategies could be of great benefit to the well-being of Latino youth.

Also important for future work is to further examine effortful control across adolescence in Latino adolescents, as well as in adolescents in general. Examining what factors contribute to increases (or declines) in effortful control across adolescence may be especially important for well-being, given that adolescence is a time when the capacity for regulating emotions and behaviors is particularly consequential. However, although there is evidence that self-regulation continues to develop during adolescence in terms of both behaviors (King et al., 2013; Steinberg, et al., 2008) and neurobiology (Dahl, 2004), few researches have addressed the effects of developmental changes in effortful control on adjustment. Exceptions include studies that have found that youth who develop effortful control at a slower pace across adolescence are at heightened risk for externalizing problems (Monahan, Steinberg, Cauffman, & Mulvey, 2009; King et al. 2013) and internalizing symptoms (Lengua, 2006).

Better understanding the development of self-regulation during early adolescence may have concomitant adjustment benefits for youth, such as improved mental health, adjustment, and coping skills (Dishion & Connell, 2007). For example, the growth and maintenance of effortful control in adolescence has been shown to have long-term effects on subjective well-being, emotional distress, and externalizing behaviors in emerging adulthood (Fosco, Caruthers, & Dishion, 2012). Most relevant to the findings from the present study, interventions that target effective self-regulation skills, such as effortful control, could potentially result in increased coping efforts and skills for youth dealing with challenging circumstances and situations. Although it appears that interventions directed at coping resources and coping strategies could modify coping behaviors, few studies have addressed potential interventions (for a review, see Taylor & Stanton, 2007).

As youth move into adolescence, they must cope adequately with diverse environmental challenges and demands that present themselves during this life phase. This may be particularly true for Latino adolescents who often experience higher numbers of life stressors than their Caucasian peers. The strategies they use to cope and the failure to meet these demands may have serious consequences for their future mental health and well-being. Thus, identifying patterns of behavior and/or factors that contribute to positive attributes of youth, such as coping skills, is crucial for moving work beyond deficit-focused models of youth development to models of positive youth development embodying resilience in the face of challenges.

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Figure 1.

Results of structural equation model ($N = 674$)

Note: $\chi^2(436, N = 674) = 684.08, p < .05$; Comparative Fit Index (CFI) = 0.972; Tucker-Lewis Index (TLI) = 0.966; and the Root Mean Square Error of Approximation (RMSEA) = .029. Values are standardized estimates (with standard errors in parentheses). Dotted lines are non-significant. T1 and T2 latent variables were regressed on all covariates, which included: child age, child sex, single or 2-parent family, child born in U.S. or Mexico, household income, and mother's education. Factor loadings and beta paths for constructs across time were constrained to be equal. ** $p < .01$, * $p < .05$. Mediation effect from Economic Hardship at T1 to youth Active Coping at T3 through Effortful Control at T2 was marginally significant $p = -.008$. 95% CI [-0.019, 0.000]).

Table 1

Correlations among latent variables and covariates ($N = 674$)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. T1 Economic Hardship	1.00														
2. T1 Youth Effortful Control	-.19**	1.00													
3. T1 Youth Active Coping	-.08**	.43**	1.00												
4. T2 Economic Hardship	.67**	-.14*	-.07	1.00											
5. T2 Youth Effortful Control	-.16**	.64**	.30**	-.07	1.00										
6 T2 Youth Active Coping	-.15**	.27**	.36**	-.12**	.39**	1.00									
7. T3 Economic Hardship	.50**	-.10*	-.05	.74**	-.05	-.09*	1.00								
8. T3 Youth Effortful Control	-.17**	.50**	.25**	-.12**	.76**	.35**	-.05	1.00							
9. T3 Youth Active Coping	-.14**	.21**	.18**	-.14**	.30**	.42**	-.06	.42**	1.00						
10. Child Sex	.08*	-.13**	-.07	.08*	-.12**	-.04	.05	-.09*	-.04	1.00					
11. Child Age	.04	-.06	-.09*	-.01	.01	-.02	-.00	.00	-.00	-.01	1.00				
12. Household Status	.13**	-.07	.05	.02	-.19**	-.00	.02	-.14**	-.03	-.02	-.01	1.00			
13. Child Born in Mexico	.21**	-.01	.02	.15**	.06	-.02	.11**	.04	-.01	.07	-.07	-.07	1.00		
14. Household Income	-.44**	.08*	.05	-.38**	.08*	.12**	-.28**	.09*	.09*	.03	-.08*	-.27**	-.24**	1.00	
15. Mother's Education	-.26**	.13**	.11**	-.32**	-.05	.10*	-.23**	.01	.05	-.03	-.03	.11**	-.16**	.28**	1.00
Mean	2.24	2.88	2.88	2.48	2.91	2.88	2.30	2.85	2.94	.50	10.86	.18	.29	7.29	9.35
Standard Deviation	(.82)	(.30)	(.58)	(.80)	(.33)	(.60)	(.79)	(.33)	(.58)	(.50)	(.51)	(.39)	(.45)	(4.26)	(3.66)

Note:

**
 $p < .01$,*
 $p < .05$ (two-tailed).T1 = time 1 (5th grade); T2 = time 2 (7th grade); T3 = Time 3 (9th grade); Child Sex (0 = female, 1 = male); Household Status (0 = two-parent, 1 = single-parent); Child Born in Mexico (0 = U.S., 1 = Mexico).

Table 2

Factor loadings for latent variables

Measures	Standardized λ (SE) T1	Standardized λ (SE) T2	Standardized λ (SE) T3
Economic Hardship			
Can't Make Ends Meet	.81 (.02)	.80 (.02)	.85 (.02)
Unmet Needs	.68 (.02)	.69 (.02)	.68 (.02)
Financial Cutbacks	.77 (.02)	.76 (.02)	.76 (.02)
Effortful Control			
Activation Control	.62 (.03)	.72 (.02)	.74 (.02)
Inhibitory Control	.54 (.03)	.65 (.02)	.69 (.02)
Attention	.67 (.02)	.74 (.02)	.78 (.02)
Active Coping			
Parcel 1	.82 (.02)	.87 (.01)	.87 (.01)
Parcel 2	.86 (.01)	.94 (.01)	.94 (.01)
Parcel 3	.80 (.02)	.86 (.01)	.86 (.01)

Note. $N = 674$. All factor loadings were significant at $p < .01$.