A Cultural Perspective of Achievement Motivation among Mexican-Origin Adolescent Mothers

by

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ABSTRACT

The central focus of this dissertation was to build on prior research that has underscored the significance of investigating culturally informed values and beliefs to promote racial-ethnic minority youths' adjustment. In particular, Study 1 examined how Mexican-origin adolescents' endorsements of familism values contributed to and moderated established theoretical associations within the achievement motivation process (i.e., contextual environment/individual factors, motivational beliefs, achievement-related strategies) and ultimately informed educational adjustment over time, or 5 years postpartum. Findings from Study 1 supported hypotheses regarding the dual role of familism values as both a promotive and protective factor throughout the achievement motivation process. Importantly findings highlight familism as an important cultural asset to consider as a potential facilitator of Mexican-origin adolescent mothers' postpartum educational attainment. In addition to examining the promotive and protective function of familism, Study 2 explored how constellations of culturally informed promotive and protective factors, based on familism values, familial ethnic socialization, mothers' and adolescents' education aspirations, and social support (from family, peers, and dating partners), directly informed Mexican-origin adolescent mothers' educational adjustment postpartum. Three distinct profiles emerged across social, aspirational, and familial domains, when adolescents were in their third trimester of pregnancy. Profiles were distinguished by unique patterns among study variables as a function of different levels of assets and resources. Furthermore, coresidency and economic hardship emerged as significant predictors of membership into latent profiles; and membership in specific profile groups significantly predicted educational attainment five years postpartum.

Patterns of promotive/protective factors identified in the current study illustrate the importance of considering how the combination of multiple factors, across culturally salient domains, work in tandem to inform Mexican-origin adolescent mothers' long-term educational attainment. Overall study findings offer a comprehensive insight into how familism values and other culturally informed factors contribute to the achievement motivation process and educational adjustment of pregnant and parenting Mexican-origin adolescent.

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CHAPTER 1

INTRODUCTION

Scholarly work from educational, developmental, and social psychological perspectives has largely utilized sociocultural and achievement motivation theories to advance understandings of educational adjustment among racial-ethnic minority adolescents. In this work, scholars have emphasized a focus on unique culturally grounded experiences to promote adjustment among racial-ethnic minority youth (García Coll et al., 1996). Despite significant advances in understanding sociocultural contexts in relation to trajectories of educational adjustment among racial-ethnic minority youth, the achievement motivation literature has predominantly incorporated cultural constructs (e.g., stereotype threat, gender role beliefs, discrimination) that *undermine* achievement motivation and educational adjustment (Kao, 2000; Oyserman, Bybee, & Terry, 2003; Seller & Shelton, 2003). To date, limited empirical work has conceptually examined the longitudinal development of motivational processes and educational adjustment for racial-ethnic minority youth through a cultural asset-based framework (Cabrera & The SRCD Ethnic Racial Issues Committee, 2013; García Coll et al., 1996; Yosso, 2005). Even less is known about the achievement motivation processes and role of protective and promotive cultural factors (e.g., familism values) among at-risk youth with racial-ethnic minority populations, specifically Mexican-origin *adolescent mothers*.

Much work on racial and ethnic minority populations has centered on understanding the pervasive patterns of educational disparities experienced by at-risk racial-ethnic minority youth. Mexican-origin adolescents, in particular, have the highest prevalence of teen pregnancy in the United States (National Vital Statistics Report, 2013)

and the highest rates of high school dropout, compared to Caucasian and non-parenting adolescents (Motel & Patten, 2012). Because Mexican-origin adolescent mothers are more likely to have fewer material resources (e.g., reside in low-income neighborhoods) and experience considerable barriers (e.g., institutional discrimination, language barriers, childrearing responsibilities) to continuing their education postpartum, earlier work has largely observed these young mothers' potential for educational advancement through deficit orientations (Hofferth, Reid, & Mott, 2001; Kennedy, 2006; Pillow, 2004). Thus, limited empirical work has examined Mexican-origin adolescent mothers' potential for educational adjustment through a *strength-based approach*. Because culturally informed experiences and resources have been identified as critical determinants of Latina adolescent mothers' educational pursuits (Contreras, Narang, Ikhlas, & Teichman, 2002), and educational adjustment (e.g., educational attainment, high school completion) has been linked with young mothers' and their offspring's educational, psychological, and behavioral adjustment (Barr & Simons, 2012; Leadbeater, 1999; SmithBattle, 2007), a comprehensive culturally-situated understanding of factors and processes that inform achievement motivation and adjustment outcomes for this marginalized at-risk population is necessary.

A growing body of literature documents the unique experiences of adolescent mothers and the resources and assets that determine differential developmental needs and inform adaptive responses to school and family related demands (Barr & Simons, 2012; Cherry, Chumbler, Bute, & Huff, 2015; Hellenga et al., 2002; SmithBattle, 2006; 2007; 2013). Specific to Latina adolescent mothers, conceptual models of teen parenting indicate that cultural values, beliefs, and goals may serve as motivational pathways and

coping mechanisms for young mothers (Contreras et al., 2002). Such cultural factors (e.g., familial values) have been posed to inform adolescent mothers' resilience to the challenges associated with teen pregnancy (e.g., parenting stress, discrimination) and to influence positive development. Indeed, some qualitative work has emerged suggesting that variation in young mothers' postpartum educational adjustment (e.g., education attainment, grades) may be due to the availability of culturally informed resources (e.g., familial aspirations, emotional support; Cherry et al., 2015). Similarly, findings from other work suggest that for adolescent mothers, reliance on personal or individual assets (e.g., endorsement of familism) and family resources (e.g., social support) may facilitate motivational beliefs (e.g., educational expectations, educational utility) and school-related efforts (Barr & Simons, 2012; Bravo, Umaña-Taylor, Guimond, Updegraff, & Jahromi, 2014; Hellenga et al., 2002). Findings indicate that adolescent mothers' resiliency may be informed by culturally driven protective and promotive mechanisms that help explain why some adolescent mothers successfully cope with childrearing and educational demands, whereas others do not. Despite these findings, few longitudinal studies have empirically examined the role of culturally informed resources and assets on adolescent mothers' achievement motivation and educational adjustment. Thus, an important extension of prior research with Mexican-origin adolescent mothers will be to incorporate culturally informed theories, focused on resources and assets, to understand the multiple pathways that influence achievement motivation and educational adjustment.

Grounded in expectancy-value theory (i.e., EVT), achievement motivation is conceptualized in this dissertation as the process through which individuals are driven to think or act in ways that promote achievement-oriented behaviors and outcomes (e.g.,

engagement, persistence, performance; Eccles et al., 1998; Wigfield et al., 2015). With an emphasis on key concepts from EVT, cultural frameworks (i.e., Conceptual Model of the Determinants of Parenting, Integrative Model of the Study of Developmental Competencies in Minority Children, Community Cultural Wealth; Contreras et al., 2002; García Coll et al., 1996; Yosso, 2005) are used to pose hypotheses regarding the role of important protective or promotive constructs in relation to achievement motivation for Mexican-origin adolescent mothers. In light of prior work suggesting that cultural assets (e.g., ethnic centrality, racial pride) may promote positive educational adjustment (Bravo et al., 2014; Butler-Barnes, Chavous, Hurd, & Varner, 2013) and buffer against the negative effects of stressors (e.g., poverty, discrimination; Kiang, Andrews, Stein, Supple, & Gonzalez, 2013), the first study in this dissertation focuses on the intersection between culturally informed assets (i.e., familism values) and adolescent mothers' achievement motivation and educational adjustment.

The second focus of this dissertation centered on the identification of distinct promotive profiles, particularly as they are linked to adolescent mothers' educational adjustment. Numerous studies have linked protective cultural and familial resources to the advancement of educational adjustment among racial-ethnic minority youth, such as those related to cultural beliefs/values (e.g., familism) and behaviors (e.g., familial ethnic socialization; Awad, 2007; Chavous et al., 2003; Harding, Morris, & Hughes, 2015; Hughes, Witherspoon, Rivas-Drake, & West-Bey, 2009; Umaña-Taylor, Diversi, & Fine, 2002). Relatively few studies (i.e., Butler-Barnes et al., 2013), however, have focused on the interactive nature of multiple culturally informed resources and the influence on racial-ethnic minority youths' educational adjustment. For Latina adolescent mothers, in

particular, scholars pose that successful educational adjustment (e.g., continuation of education postpartum) may be attributed to interactions between distinct cultural and familial protective factors (e.g., familism, high aspirations, supportive relationships; Contreras et al., 2002). Thus, an important extension to the conceptual understanding of Mexican-origin adolescent mothers' educational adjustment is to provide a more comprehensive (i.e., person-centered) perspective on the protective factors potentially present in adolescents' lives, and how differing constellations of these factors inform adolescents' future educational adjustment. Because the combination of unique assets/resources may function differently among young mothers, scholars have called attention to the importance of examining the interactive role of cultural factors across multiple domains (e.g., individual characteristics, family strengths, cultural factors, social support; Bermudez & Mancini, 2013; Yosso, 2005). Thus, the current study focused on identifying patterns of promotive profiles and associations with Mexican-origin adolescent mothers' educational adjustment.

The proposed studies build on prior research that has underscored the significance of investigating culturally informed values and beliefs to promote racial-ethnic minority youths' adjustment (García Coll et al., 1996; Rogoff, 2003). In Study 1, I examined how Mexican-origin adolescents' endorsements of familism values contribute to and moderate established theoretical associations within the achievement motivation process (i.e., context/individual factors, motivational beliefs, achievement-related strategies) and ultimately inform educational adjustment (i.e., educational attainment, academic achievement/persistence) over time (i.e., 5 years postpartum). In Study 2, I explored how constellations of culturally informed protective factors (across social, aspirational,

familial domains) directly inform Mexican-origin adolescent mothers' educational adjustment postpartum. Specifically, Study 2 explored adolescent mothers' promotive profiles based on familism values, familial ethnic socialization, mothers' and adolescents' education aspirations, and social support (from family, peers, and dating partners). Whereas the first study examined the role of familism values as *both* a protective and promotive factor throughout achievement motivation, Study 2 focused on identifying patterns of protective factors to understand how distinct promotive patterns among this at-risk population inform educational adjustment. The central goal of the proposed studies was to provide a comprehensive insight into how cultural mechanisms contribute to the achievement motivation process and educational adjustment of Mexican-origin adolescent mothers postpartum.

The two proposed studies have significant implications for facilitating the educational adjustment of Mexican-origin adolescents across the transition to motherhood and young adulthood.

Moreover, this dissertation not only focused on the role of individual protective or promotive factors, but also examined how constellations of protective factors across multiple domains interactively inform educational adjustment among Mexican-origin adolescent mothers over time. Incorporating a broader perspective of culturally informed resources and assets, and understanding how they function independently and collectively and how they are organized for the population of interest (i.e., Mexican-origin adolescent mothers), is critical for developing a comprehensive understanding of the achievement motivation process and for promoting educational adjustment for high-risk populations.

CHAPTER 2

EXAMINING THE ACHIEVEMENT MOTIVATION PROCESS AMONG MEXICAN-ORIGIN ADOLESCENT MOTHERS: THE MODERATING ROLE OF FAMILISM

Mexican-origin adolescent mothers have the highest birthrates of all U.S. ethnic groups (National Vital Statistics Report, 2013) and experience significant barriers to continuing their education postpartum. In fact, Latina adolescent mothers have the highest rates of school dropout and the lowest rates of educational attainment, compared to their Caucasian and non-parenting counterparts (Motel & Patten, 2012). Consequently, Latina adolescent mothers have been largely understood in terms of deficit assumptions regarding low achievement motivation and limited potential for educational advancement (Furstenberg, 2007; SmithBattle, 2006; 2013). The stigmatization surrounding teen mothers has been challenged by qualitative work suggesting that the event of teen pregnancy is a critical turning point for teen mothers, as educational attainment becomes viewed as a tool for financial stability and better employment opportunities (Cherry et al., 2015; SmithBattle, 2007). Given that educational attainment has been linked with improved social mobility (i.e., occupational prestige, financial independence; Fry, 2005; Gylfason, 2001), as well as positive educational, psychological, and behavioral adjustment for adolescent mothers and their offspring (Barr & Simons, 2012; Leadbeater, 1999; SmithBattle, 2006), understanding factors and processes that inform educational adjustment (i.e., educational attainment, academic achievement/persistence) for this traditionally marginalized group is necessary.

Scholars have investigated educational disparities among at-risk youth in terms of the development of achievement motivation (Eccles & Wigfield, 2002; Oyserman, 2013;

Oyserman, Bybee, & Terry, 2006; Wigfield & Eccles, 2000). Broadly, achievement motivation refers to the process through which individuals are driven to think or act in ways that promote achievement-oriented behaviors and outcomes (e.g., engagement, persistence, performance; Eccles et al., 1998; Wigfield et al., 2015). Achievement motivation scholars have demonstrated the role of context/individual factors, self-beliefs (e.g., values, goals), and action (i.e., achievement-related strategies) as fundamental to the process of motivation (Eccles & Wigfield, 2002; Oyserman, 2013; Skinner, Kindermann, Connell, & Wellborn, 2009). Importantly, despite a recent shift in emphasis on culturally grounded approaches to understanding motivation with at-risk racial-ethnic minority youth, the achievement motivation literature has primarily incorporated cultural constructs (e.g., discrimination, stereotype threat) that *undermine* achievement motivation and educational adjustment (Oyserman et al., 2003; Seller & Shelton, 2003; Wang & Degol, 2014). Given the prevalence of educational maladjustment among low-income Latina adolescent mothers (Motel & Patten, 2012), it is likely that the elimination of negative experiences is not sufficient to counter disparities and motivate young mothers to continue their education postpartum. Instead, it is essential for scholars to examine cultural mechanisms that *promote* Mexican-origin adolescent mothers' educational adjustment (e.g., academic achievement/persistence, educational attainment).

To date, limited empirical work has conceptually examined the development of achievement motivation processes and consequential educational adjustment for racial-ethnic minority youth through a culturally informed asset-based framework (Yosso, 2005). Even less is known about the achievement motivation process and role of cultural assets, specifically *familism values*, among at-risk youth from racial-ethnic minority

backgrounds, such as Mexican-origin *adolescent mothers*. Because prior work has demonstrated variability in young mothers' educational adjustment, such that some adolescent mothers are more successful than others at fulfilling their educational endeavors postpartum (e.g., completing high school or college degree; Cherry et al., 2015; Escamilla & Santhiveeran, 2005), a comprehensive understanding of cultural factors that promote achievement motivation and educational adjustment among Mexican-origin adolescent mothers is warranted.

The current study extends prior work by underscoring the role of cultural promotive factors (i.e., familism values) throughout the achievement motivation process. The primary goal of the current paper was to apply a cultural framework (García Coll et al., 1996; Yosso, 2005) to expand understandings of the complex process and formation of achievement motivation for Mexican-origin adolescent mothers across the transition to motherhood and young adulthood. Specifically, the current paper proposed *how* familism values may directly inform key constructs within the achievement motivation process, moderate associations between key constructs within the achievement motivation framework, and ultimately promote better educational adjustment (i.e., educational attainment, academic achievement/persistence) among Mexican-origin adolescent mothers. Thus, guided by tenets from expectancy-value theory (i.e., Eccles & Wigfield, 2002), cultural asset-based frameworks (García Coll et al., 1996; Yosso, 2005), and conceptual models of Latina adolescent mothers' parenting experiences, which emphasize the role of family and cultural resources as critical to educational pursuits (Contreras et al., 2002), the current study examined the role of the familism values as a

protective and promotive feature of achievement motivation and educational adjustment over time (see Figure 1 for conceptual model).

Achievement Motivation and Expectancy-Value Theory

Scholars have largely explained achievement motivation processes among racial-ethnic minority adolescents through conceptualizations informed by expectancy-value theory (i.e., EVT; Eccles & Wigfield, 2002; Elliot, 2005; Wigfield & Eccles, 2000). Such conceptualizations feature the role of the contextual environment, individual factors, cognitive processes, motivational beliefs, and achievement-related strategies as key components of the achievement motivation process. According to EVT, the contextual environment and individual factors (e.g., academic motivation, aptitudes) inform individuals' cognitive processes (i.e., perceptions or interpretations of context), which then shape individuals' motivational beliefs (i.e., goals and general self-schemata, expectation of success, subjective task values); motivational beliefs, in turn, facilitate or undermine achievement-related strategies and behaviors (i.e., immediate and daily strategies, avoidance behaviors); and strategies and behaviors, informed by contextual environments, individual factors, and motivational beliefs, are posed to directly inform achievement-oriented choices and outcomes (i.e., perseverance, engagement, performance; Wigfield & Eccles, 2000). The focus on context, individual factors, and motivational beliefs outlined in EVT provides a useful framework from which to conceptually organize how Mexican-origin adolescent mothers form motivational beliefs and strategies or behaviors pertaining to their educational adjustment.

Incorporating an ecological view of achievement motivation, EVT underscores the role of macro level processes within the contextual environment. The contextual

environment includes the cultural milieu (e.g., gender role stereotypes, cultural beliefs and stereotypes, family demographics), achievement-related experiences (e.g., school climate, discrimination, grades), and socializer's beliefs/behaviors (e.g., parents'/teachers' educational expectations or aspirations). These factors within the contextual environment, along with individual factors or characteristics (e.g., gender, birth order, cognitive skills, liabilities), inform the mechanisms (e.g., cognitive processes, goals, self-schemata) and outcomes of achievement motivation. Individual factors and cultural milieu are posed to influence individuals' achievement-related experiences and socializers' beliefs/behaviors. Achievement-related experiences are thought to be reciprocally associated with socializers' beliefs/behaviors.

The next phase outlined in the EVT model is the cognitive process or perceptions and interpretations of the contextual environment (i.e., cultural milieu, socializers' beliefs/behaviors, previous achievement-related experiences) and individual factors. Individuals' perceptions and interpretations of these experiences (e.g., causal attributions, locus of control), in conjunction with socializers' beliefs and practices, subsequently inform the formation of motivational beliefs. Motivational beliefs comprise internal processes (i.e., goals, self-schemata, memories), expectancies for success, and values. Internal processes, which include goals (e.g., short and long-term), self-schemata (e.g., ideal self, self-concept of abilities, perceptions of task demands, personal/social identities), and individuals' affective and reactive memories, inform individual's expectancies for success and subjective task values (e.g., relative cost, utility value, attainment value, interest/enjoyment value). These motivational beliefs, in turn, are thought to drive individuals' engagement in achievement-related strategies or behaviors

(e.g., school involvement, avoidance of risky behaviors, employment) and educational adjustment, or achievement-related choices and performance (e.g., continuation of school, grades). Accordingly, achievement motivation is a socialized process that is grounded in ecological and developmental perspectives (Eccles & Wigfield, 2002; Wigfield & Eccles, 2000).

In this dissertation study, the conceptual model (see Figure 1) focused on associations between specific aspects of the cultural environment (i.e., achievement-related experiences, cultural milieu, socializer's beliefs) and individual factors (i.e., academic motivation, familism), in relation to adolescent mothers' motivational beliefs (i.e., educational expectations, education utility beliefs), achievement-related strategies (i.e., employment and childcare), and educational adjustment (i.e., educational attainment, academic achievement/persistence). For the purposes of this dissertation study, hypothesized associations within the contextual environment and individual factors, as well as between constructs regarding cognitive and internal processes were not tested. Furthermore, achievement-related strategies were assessed based on strategies pertinent to achievement or educational adjustment of *adolescent mothers* (see below).

In support of the theoretical relevance of constructs outlined in EVT, various studies with international samples (i.e., U.S., Europe, Asia) have found evidence to support that adolescents' beliefs about their achievement-related abilities, expectancies for success, and task values are associated with the formation of achievement-related strategies/behaviors, and educational adjustment (Bong, 2001; Danissen, Eccles, & Zarrett, 2007; Simpkins et al., 2006). These links have also been found among Latino adolescents in the U.S. (Awad, 2007; Beal & Crockett, 2010; Elliot, 2005; Hayes, Blake,

Darensbourg & Castillo, 2014; Mello, 2008; 2009; Mello, Monaghan, Anton-Stang, Roberts, & Worrell, 2012). Similarly, research with teen mothers has also demonstrated the relevance of EVT constructs, as prior work has consistently linked higher levels of motivational beliefs (e.g., expectations for success, values) with educational attainment in adulthood (Barr & Simons, 2012; Cherry et al., 2015; Hellenga et al., 2002).

Although EVT utilizes a multidimensional approach to capture the complexity of achievement motivation for youth, applicable to diverse groups across development, the EVT model has a limited consideration for the role of cultural assets and resources throughout the achievement motivation process. As noted by achievement motivation scholarship, low-income minority groups experience unique socio-cultural contexts that require additional considerations regarding the development of their motivational beliefs (e.g., school focused identities) and achievement-oriented strategies and behaviors (Oyserman et al., 2003; 2006). These unique socio-cultural contexts may elicit support from unique or culturally informed resources that foster achievement motivation. Indeed, a separate body of literature addressing the cultural dimensions of achievement has noted that the histories (e.g., stereotypes, discrimination), values (e.g., familism), beliefs (e.g., identity development), and behaviors (e.g., racial-ethnic socialization, familial ethnic socialization) of racial-ethnic minority cultural groups may have motivational significance for marginalized groups (Awad, 2007; Chavous et al., 2003; Harding, Morris, & Hughes, 2015; Hughes, Witherspoon, Rivas-Drake, & West-Bey, 2009; Umaña-Taylor et al., 2002). Thus, an important extension to the conceptual processes and assumptions highlighted in the EVT framework is the inclusion of resources and assets

that are grounded in cultural experiences and connected with individuals' multiple social identities (e.g., racial-ethnic identity, motherhood), beyond the contextual environment.

Cultural Experiences and Achievement Motivation

To advance understandings of motivational processes among at-risk minority youth, scholars underscore the role of unique sociocultural contexts experienced by diverse racial-ethnic minority groups (Graham & Taylor, 2002; Steele, 1997). Prior research has incorporated constructs relevant to the unique cultural experiences of racial-ethnic minority youth to better understand the underlying reasons youth think and behave in ways that promote or inhibit their educational adjustment (Gonzales, Blanton, & Williams, 2002; Kao, 2000; Murdock, 2009; Sellers & Shelton, 2003; Oyserman, 2013). Empirical work has indeed found evidence that important cultural experiences, such as cultural stereotypes (Kao, 2000), racial-ethnic discrimination (Sellers & Shelton, 2003), gender role beliefs (Graham & Taylor, 2002), and gendered racial identity (Oyserman et al., 2003) play a discernible role throughout the achievement motivation process of at-risk racial-ethnic minority adolescents. Furthermore, protective cultural constructs, such as familism values (Germán et al., 2009), family obligation (Fuligni, 2001), racial identity (Chavous et al., 2003), and ethnic identity (Fuligni, Witkow, & García, 2005; Umaña-Taylor, Wong, Gonzales, & Dumka, 2012) have also emerged and been linked with various aspects of achievement motivation and educational adjustment.

Despite theoretical advances in our understanding of culture, and the consistent associations of culturally informed constructs with achievement motivation and educational adjustment, few studies have integrated protective components of culture as a resource for achievement motivation among racial-ethnic minority adolescents, and

existing work has been largely cross-sectional (Fuligni et al., 2005; Oyserman, 2013; Umaña-Taylor et al., 2012). The current paper extends notions from EVT by incorporating integrative models of cultural resources (García Coll et al., 1996; Yosso, 2005, 2006) and teen parenting (Contreras et al., 2002) to examine the longitudinal function of *familism values*, a core Latino cultural asset (Sabogal, Marin, Otero-Sabogal, Marin, & Perez-Stable, 1987), throughout the achievement motivation process for Mexican-origin adolescent mothers.

The Promotive Function of Familism Values

Familism is a multidimensional construct (e.g., attitudinal, structural, behavioral) that has been conceptualized in terms of support (e.g., desire to maintain close relationships), obligation (e.g., importance of tangible caregiving), and family as referent (e.g., believing that behavior should match familial expectations; Knight et al., 2010). Broadly, familism refers to the endorsement of values that incorporate norms, expectations, and beliefs pertaining to family commitment, support, and emotional closeness (Stein et al., 2014). Scholars have posited that familism values may drive achievement motivation and academic performance, as the internalization of this cultural value may shape attitudes and behavior through an emphasis on familial support, a feeling of purpose and belonging, and ethnic pride (Fuligni et al., 2005). In line with a shift in the achievement motivation literature, underscoring the need to disentangle the ways in which individuals' endorsement of supportive cultural assets inform achievement motivation among at-risk racial-ethnic minority groups (Fuligni et al., 2005; Graham & Taylor, 2002; Oyserman, 2013; Stein et al., 2014), the current study centered specifically on the *supportive* dimension of familism values. In the current study, familism values

denote a feature of attitudinal familism that signifies a shared belief system emphasizing family cohesion and emotional closeness (Knight et al., 2010).

Prior theoretical conceptualizations highlight the unique influence of familism, a core Latino value, as a tool for adaptability, empowerment, perseverance, role flexibility, and ultimately social mobility among marginalized communities of color (García Coll et al., 1996). Importantly, conceptual models of Latina teen motherhood have identified elements of familism (i.e., familial values and family support) as critical cultural norms and resources that may facilitate young mothers' educational pursuits (Contreras et al., 2002). Despite empirical findings supporting the central role of family on Latina adolescents' educational adjustment during pregnancy and postpartum (Brosh, Weigel, & Evans, 2007), we know little about the extent and process through which familism directly informs achievement motivation and educational adjustment outcomes for Mexican-origin adolescent mothers.

Familism has been described as the foundation for pro-social behavior development, positive family functioning (e.g., warmth, closeness), and educational pursuits among Latino *adolescents* (Calzada, Tamis-LeMonda, & Yoshikawa, 2013; Fuligni, Tseng, & Lam, 1999; Stein et al., 2014). In a recent review of forty-four articles investigating the role of familism from childhood through adolescence, Stein and colleagues (2014) found that that the protective influence of (attitudinal) familism was most evident during adolescence. Accordingly, scholars offered that familism is a developmental construct that becomes more salient in adolescence, as youth become cognizant of the values that trigger their behavior. Thus, the endorsement of familism values during the course of teen pregnancy and transition to motherhood and young

adulthood is likely to influence how Mexican-origin adolescents interpret contextual environments (e.g., school discrimination) and perceptions of themselves, as well as engagement in achievement-related strategies (Brosh et al., 2007; Contreras et al., 2002).

Although familism has not been traditionally incorporated as a central factor in achievement motivation models, prior work suggests that familism values are a significant resource for Latino youths' motivation and academic achievement (Suárez-Orozco & Suárez-Orozco, 1995). Among non-parenting adolescents, study findings suggest that the endorsement of familism is positively linked with contextual and individual factors (i.e., school attachment; Stein, Gonzalez, Cupito, Kiang, & Supple, 2013), motivational beliefs (i.e., educational utility beliefs; Fuligni et al., 1999), achievement-related strategies (i.e., greater academic effort, fewer missed classes; Esparza & Sánchez, 2008), and educational adjustment (i.e., grades, academic engagement; Gonzales et al., 2008; Valenzuela & Dornbusch, 1994). Thus, empirical evidence supports that familism is indeed a meaningful construct for Latino adolescents and may function as a promotive resource for Mexican-origin adolescent mothers.

Along with understanding the promotive role of familism, it is critical to understand how familism values may moderate associations throughout the achievement motivation process and importantly buffer against the challenges associated with teenage pregnancy (e.g., poverty, social stigma, low expectations). The current study also posited that familism may enhance the benefits of other promotive factors (e.g., high educational expectations). The following sections provide evidence for the protective role of familism throughout the achievement motivation process, incorporating fundamental concepts from EVT to guide the proposed heuristic framework.

Familism as a Moderator of Context/Individual factors and Motivational Beliefs. The contextual environment that surrounds Latina teen motherhood has been characterized in terms of deficiencies (e.g., low self-esteem, low expectations) and limited resources (e.g., income; Furstenberg, 2007; Hofferth et al., 2001; Pillow, 2004). Such contexts may make it challenging for pregnant and parenting adolescents to form positive motivational beliefs (e.g., educational expectations, education utility beliefs). The current study examined the role of the contextual environment (i.e., family income, mother-figure educational expectations for their pregnant daughters, school discrimination) and individual factors (i.e., academic motivation), as these factors have been linked with adolescent mothers' motivational beliefs, achievement-related strategies, and educational adjustment (Barr & Simons, 2012; SmithBattle, 2007; 2013).

Scholars pose that variation in adolescent mothers' motivational beliefs (e.g., educational expectations, educational utility beliefs) may be due to varying levels of adaptive personal assets (Cherry et al., 2015; Hellenga et al., 2002), such as familism values (e.g., expectations, support; Contreras et al., 2002). Although limited work has investigated the moderating role of familism between contextual/individual factors and self-system beliefs, scholars suggest that familism may serve as a cognitive frame of reference used to interpret and adapt to contextual and individual factors (Calzada et al., 2013). Accordingly, despite contextual difficulties associated with teen motherhood (e.g., social stigmas, school discrimination, low expectations; SmithBattle, 2006), Mexican-origin adolescent mothers who strongly endorse familism may be more likely to form positive motivational beliefs regarding their educational expectations for themselves and educational utility beliefs, as education has been traditionally viewed as a pivotal

resource for familial functioning and social mobility (Suárez-Orozco & Suárez-Orozco, 1995). For instance, adolescent mothers who perceive low educational expectations from their teachers may reduce their expectations for themselves. Adolescents who endorse high levels of familism values, however, may be less susceptible to the negative effects of teachers' low expectations, as scholars have offered that familism values may provide Latino youth with perceptions of daily support, family cohesion, and a commitment to educational success (Schwartz, Unger, Zamboanga, & Szapocznik, 2010). Thus, familism was hypothesized to buffer against the negative effects of risky contextual and individual factors (i.e., school discrimination, low income) on adolescent mothers' motivational beliefs.

Another possibility regarding the protective role of familism is that the expression of familism may result from interactions between contextual factors and familism (Calzada et al., 2013), such that familism may enhance the effect of supportive individual or contextual factors on motivational beliefs. For instance, the positive influence of mothers' high educational expectations on adolescents' motivational beliefs may be augmented by high levels of familism, as adolescents who perceive high expectations from their mothers may be more likely to believe in the importance of education and in their potential to continue their education, if they also hold in high regard a commitment to supporting and being supported by their family. Thus, in the current study, it was also hypothesized that Mexican-origin adolescents who reported high levels of familism may be relatively more influenced by the promotive effects of supportive individual (i.e., high academic motivation) and contextual factors (i.e., mothers' high educational expectations).

Teen Mothers' Motivational Beliefs and Achievement-related Strategies

Along with the role of contextual and individual factors on motivational beliefs, EVT highlights the role of contextual/individual factors and motivational beliefs on achievement-oriented strategies (i.e., strategies or actions used to fulfill educational goals; Eccles & Wigfield, 2002; Oyserman, 2013; Oyserman et al., 2003; Oyserman, 2007). According to EVT, achievement-related strategies entail conscious or unconscious decisions that drive educational adjustment and are informed by the contextual environment (e.g., income, socializers' beliefs), individual factors (e.g., academic motivation), and motivational beliefs (e.g., expectancies; Eccles et al., 1998). Prior work has demonstrated that adolescents who hold high motivational beliefs for themselves are more likely to engage in achievement-oriented activities or behaviors (e.g., avoiding deviant peers; obtaining childcare/ paid employment; Cunningham et al., 2009; Mortimer, 2003; Oyserman, 2007). Achievement-related strategies examined in the current study include adolescent mothers' employment (i.e., time at work) and obtainment of childcare, as these factors have been identified as key strategies used by adolescent mothers to continue their education postpartum (Hellenga et al., 2002; Cherry et al., 2015).

Employment among Teen Mothers. Employment has been discussed as an important achievement-related strategy, given the experiences leading up to or resulting from different types of employment (e.g., part-time/ full-time, career-oriented, family business). Scholars have offered that the benefits and risks associated with employment, or paid work, depend on adolescents' attributes (e.g., self-concepts, values; Mortimer, 2003) and the context of the job (e.g., work quality, time spent). Because adolescents

who hold high motivational beliefs for themselves may be more likely to engage in achievement-related strategies (Cunningham et al., 2009; Oyserman, 2007), it is critical to understand conditions in which high educational expectations or high educational utility beliefs inform Mexican-origin adolescent mothers' employment, and ultimately their educational adjustment. The current study examined the role of employment (i.e., hours per week) as one potential mechanism through which adolescent mothers' motivational beliefs may inform their educational adjustment.

One key aspect of employment is the amount of time spent at work. Findings with non-parenting adolescents suggest that in moderation, work may enhance adolescents' sense of agency, cognitive and social development, and time management (Mortimer, 2010), skills necessary for successfully pursuing and continuing higher education. In the same vein, young mothers who *choose* to work may do so as a means to finance their educational endeavors and afford related necessities (e.g., tuition, books, childcare; Horn, Peter, & Rooney, 2002). Therefore, adolescent mothers who work for pay may have greater transferable skills and perceived incentives (e.g., salary increase, job mobility) to continue their education postpartum, compared to young mothers who have never been employed or who work limited hours.

Conversely, it is also possible that adolescent mothers who are employed, while attending school, may encounter substantial difficulties in balancing employment with academic and maternal responsibilities, thus limiting their potential to continue their education postpartum. Indeed, prior work has found that teen mothers working for pay, *at least* part-time (i.e., 20 hours or more per week), may be more likely to experience educational penalties (i.e., lower educational attainment), compared to teen mothers who

were unemployed or worked fewer hours per week (Mollborn, 2007). Scholars have offered that working longer hours may create significant time constraints and indicate a significant lack of financial resources (SmithBattle, 2006). Other work with teen mothers, however, has found that employment (i.e., number of hours worked per week) did not significantly impact mothers' educational adjustment (i.e., likelihood of high school completion; Mollborn, 2010). In light of such mixed findings, a clearer understanding of the role of employment hours on educational adjustment is necessary. Given the above findings, it is possible that young mothers who spend longer hours at work may experience either greater risks or benefits regarding their educational adjustment, compared to those mothers who do not work or work less hours in a week.

Childcare. Another important achievement-related strategy for adolescent mothers is the obtainment of childcare. Conceptual models of Latina teen parenting suggest that obtaining childcare may facilitate postpartum adjustment, as young mothers are typically ill equipped to independently balance childrearing responsibilities along with school-related demands (e.g., class attendance, homework; Contreras et al., 2002). Prior work has shown that adolescent mothers who serve as the primary providers of childcare experience poorer educational adjustment (i.e., lower likelihood of high school graduation; Mollborn, 2010), compared to those who rely on other sources of childcare (e.g., family member assistance, childcare facilities, pre-school enrollment; Cherry et al., 2015). For adolescent mothers, reliance on childcare has been discussed as an important supportive strategy that enhances adolescent mothers' potential for long-term educational adjustment (i.e., attainment), as childcare help may mitigate challenges associated with early childrearing (e.g., parenting hassles; Hellenga et al., 2002).

In the current study, childcare (i.e., childcare hours per week) was examined in relation to adolescent mothers' motivational beliefs and educational adjustment. For young mothers, it is likely that those who hold high motivational beliefs (e.g., high educational expectations) for themselves may be more inclined to seek childcare services in effort to continue their education (Cherry et al., 2015). In particular, some work has emphasized the relevance of the amount of childcare received (Brosh et al., 2007; Brubaker & Wright, 2006; Sarri & Phillips, 2004; SmithBattle, 2006; Weed et al., 2000). Adolescent mothers who receive more childcare support, whether formal (e.g., day care center) or informal (e.g., family member), have described greater capacities for positive postpartum educational adjustment (e.g., attending classes, after-school activity engagement; Brubaker & Wright, 2006). Thus, in the current study, the extent of childcare was expected to inform educational adjustment, such that young mothers who received more hours of childcare support throughout the week would be more likely to report a higher educational attainment and a greater likelihood of academic achievement or persistence, compared to those mothers who did not obtain childcare or who relied on fewer hours of childcare per week.

Moderating Role of Familism on Motivational Beliefs and Achievement-related Strategies. Prior work suggests that although some adolescent mothers report greater motivation to continue their education postpartum (Cherry et al., 2015; SmithBattle, 2007), others report lower educational expectations for themselves (Barr & Simons, 2012). Because previous findings suggest that adolescents' motivational beliefs may inform their engagement in achievement-oriented strategies or behaviors (Cunningham et al., 2009; Mortimer, 2003; Oyserman, 2007), it is important to identify

factors that may enhance the promotive effects of positive motivational beliefs (e.g., high educational utility beliefs), as well as reduce the negative effects of low motivational beliefs (e.g., low expectations). Although virtually no studies have examined the role of familism values as a moderator between young mothers' motivational beliefs and achievement-related strategies, some evidence suggests that familism may serve to protect against the effects of risk factors and also enhance the effect of protective factors for adolescent mothers.

In a cross-sectional study with the current sample of Mexican-origin adolescent mothers, Umaña-Taylor and colleagues (2011) examined the moderating role of familism values on the association between cultural stressors (i.e., economic stress, acculturative stress, discrimination) and engagement in risky behaviors. Findings indicated that familism values buffered against the effect of discrimination on engagement in risky behaviors. Umaña-Taylor et al. (2011) suggested that the buffering effects of familism values might have been due to a strong connection to family and traditional values, which functioned as a coping mechanism against the pressures affiliated with contextual stressors. Although this study did not directly test the interaction between motivational beliefs and familism values, findings indicated that higher levels of familism values were indeed protective against cultural stressors to reduce adolescent mothers' risky behavior engagement. Similarly, it is possible that familism may help reduce the effects of low motivational beliefs on adolescent mothers' engagement in achievement-related strategies, as familism values may counteract the negative effects of low educational expectations through perceptions of familial support (Cherry et al., 2015).

In a qualitative study with African American teen mothers enrolled in a teen-parenting program, Brubaker and Wright (2006) found that adolescent mothers described being able to counteract negative self-perceptions and create a new positive identity by reflecting on their abilities to successfully cope with social stigmas through family member support. Additionally, despite uncertain goals for the future, adolescent mothers who described positive experiences with overcoming social stigmas, due to family support, reported greater engagement in goal-seeking behaviors (e.g., working fewer hours to attend school). Thus, it is possible that high familism values may inspire greater incentives to engage in achievement-oriented strategies when coupled with promotive motivational beliefs (i.e., high educational expectations, high educational utility beliefs), as familism may encourage resiliency and accountability to engage in strategies to fulfill educational endeavors.

Familism as a Moderator of Achievement-Related Strategies and Outcomes. Outcomes that have been suggested as representative of achievement (i.e., educational adjustment) include performance (e.g., grades, GPA, educational attainment), engagement (e.g., class participation, homework completion), and persistence (e.g., school enrollment; Eccles & Wigfield, 2000; Oyserman, 2013; Wigfield & Eccles, 2002). Educational adjustment involves youth's academic progress or achievement. Educational adjustment can include the completion of educational milestones (e.g., high school graduation) or continuation of postsecondary learning, and has been linked with later occupational prestige (Mello et al., 2012). Educational adjustment is especially relevant to adolescent mothers as high school completion, postsecondary learning, and occupational prestige have been linked to financial independence, better psychosocial

functioning, and improved developmental adjustments for their offspring, in comparison to those who drop out of high school or never advance to post-secondary education (SmithBattle, 2006; Weed et al., 2006).

Although prior research supports the association between motivational beliefs and educational adjustment as mediated through adolescents' engagement in achievement strategies or behaviors (e.g., participation in afterschool activities; Eccles & Wigfield, 2002), moderators of these associations are not well understood (Feldman & Matjasko, 2005). The strategies or behaviors outlined in the proposed models include adolescent mothers' engagement in immediate and daily strategies, such as hours of childcare and employment. Despite a paucity of research, there is some evidence (discussed below) to support that familism may moderate the impact of achievement-related strategies on educational adjustment (i.e., academic achievement/persistence, educational attainment).

Some work with ethnic minority youth suggests that family support is significantly and positively associated with educational adjustment (e.g., academic engagement), beyond the negative effects of risk factors (e.g., socializing with risky peers; Chen, Chang, & He, 2003; Stanard, Belgrave, Corneille, Wilson, & Owens, 2010). In particular, study findings reveal that higher levels of family and non-deviant peer support buffered against the negative effects of risky friendships on educational adjustment (Stanard et al., 2010). Researchers offered that the moderating effect of family and non-deviant peers might be due to achievement values, such as high aspirations or perceptions of education as valuable and attainable. Familism may similarly boost adolescent mothers' incentives for avoiding actions that may inhibit them

from completing their educational goals (e.g., working long hours or providing primary childcare instead of attending school).

Familism may provide a foundation for expectations regarding engagement in achievement-related strategies and ultimately facilitate educational adjustment. Adolescent mothers who endorse higher levels of familism may be more likely to continue to attend school when they have fewer employment and childcare responsibilities to negotiate with school-related demands. Thus, it would be expected that high levels of familism might strengthen the effect of adolescent mothers' achievement-related strategies on their educational adjustment (i.e., academic achievement/persistence, educational attainment). Specifically, young mothers who endorse high levels of familism values, with respect to support and emotional closeness from family members, may be more likely to benefit from promotive achievement-related strategies (e.g., fewer work hours, career-oriented, more childcare hours), as these mothers may be more aware of the importance of educational, occupational, childcare investments for familial stability. Along the same lines, high levels of familism values would be expected to reduce the negative effects of employment hours per week (e.g., working part-time or more) and childcare hours per week (e.g., fewer hours of childcare per week) on young mothers' educational adjustment. It is possible that adolescent mothers who have fewer resources to afford childcare and avoid employment responsibilities may still continue their education if they subscribe to a belief system that stresses the importance of family unity and emotional support.

The Current Study

The current study draws from EVT and cultural perspectives to expand understandings of the complex process and formation of achievement motivation for Mexican-origin adolescent mothers. The first aim of the current study was to examine aspects of the achievement motivation process (i.e., associations between contextual/ individual factors, motivational beliefs, achievement-related strategies, and adjustment outcomes) among Mexican-origin adolescents during the transition to motherhood and young adulthood (see Figure 1 for conceptual model). The second aim was to examine the role of familism as *both* a promotive and protective factor within the achievement motivation process (see Figure 2 for analytic model).

In line with theoretical notions from EVT, the first hypothesis was that individual (i.e., academic motivation, educational attainment, academic achievement/perseverance) and contextual factors (i.e., family income, mothers' expectations for daughters, school discrimination) at the time of pregnancy would inform adolescent mothers' motivational beliefs (i.e., educational expectations, education utility beliefs) postpartum; adolescent mothers' motivational beliefs were then be expected to inform subsequent achievement-related strategies (e.g., employment and childcare hours per week); and achievement-related strategies were expected to predict young mothers' educational adjustment (i.e., educational attainment, academic achievement/persistence) 5 years postpartum. Familism was expected to directly inform motivational beliefs, achievement-related strategies, and educational adjustment.

The next set of hypotheses involved examining familism values as a moderator of associations within the achievement motivation process. Familism values were expected

to enhance the positive effects of promotive factors (e.g., high educational expectations) throughout the achievement motivation process. Additionally, high familism values were also expected to buffer against the negative effects of risk factors (e.g., school discrimination, low income) throughout the achievement motivation process for young mothers.

The current study accounted for important factors associated adolescent mothers' achievement motivation (i.e., nativity status, primary caregiving, relationship stability, coresidency, number of people in the home, parenting hassles, children's temperament, repeat pregnancy, risky behavior, depressive symptomatology, career orientation). First, because adolescents' nativity status (i.e., U.S.-born vs. foreign-born) and caregiving responsibilities have been linked with educational adjustment, such that foreign-born and adolescent mothers who are the primary caregivers to their offspring may encounter significant challenges (e.g., language issues, limited resources, social stigmas) to pursuing their educational endeavors postpartum (Mollborn, 2010; Motel & Patten, 2012; SmithBattle, 2006), the current study controlled for these factors. In addition, because prior work suggests that adolescent mothers who are in stable romantic relationships or live with their mothers, partners, or multiple family members (e.g., siblings) may have varying levels support (e.g., emotional, instrumental, companionship) that can facilitate their ability to continue their education (Contreras et al., 2002; Hellenga et al., 2002; Mollborn, 2010), analyses controlled for adolescents' romantic relationship stability, coresidency (with mothers or partners), and the number of people living in the home. Next, analyses controlled for adolescents' perceptions of parenting hassles, their children's temperament (i.e., negative affect), and repeat pregnancies (resulting in the

birth of new offspring), as these factors have been linked with indices of adolescent mothers' educational adjustment (i.e., high school drop-out, low achievement, low aspirations; Barr & Simons, 2012; Brosh et al., 2007; Cherry et al., 2015).

Analyses also controlled for adolescent mothers' engagement in risky behavior and depressive symptomatology, as prior work suggests that young mothers who engage in risky behaviors (e.g., substance abuse) and experience higher levels of depressive symptoms may be less likely to continue their education postpartum (Mollborn, 2010; SmithBattle, 2006). Finally, analyses controlled for whether adolescents' employment was career oriented, as the quality of employment (i.e., complexity, training, responsibilities) has been discussed as an incentive to continue educational pursuits (Mortimer, 2010). Because young mothers who are employed in career-oriented positions (e.g., managerial-level, medical/school-related) may be more likely to continue their schooling, given the potential clarity of financial benefits (e.g., job promotion) of obtaining a high school or college degree, analyses controlled for this factor on study outcomes.

Method

Participants

Data were from an ongoing longitudinal study of 204 Mexican-origin adolescent mothers and their mother figures, who were recruited from a large metropolitan area in a southwestern state in the United States (Umaña-Taylor, Guimond, Updegraff, & Jahromi, 2013). Adolescents' average age at Wave 1 (W1), when adolescents were in their 3rd trimester of pregnancy, was 16.80 years (SD = 1.00). Mother figures (M_{age} = 41.22; SD = 6.81) included adolescents' biological mothers (89%) or other female kin (e.g., aunt,

grandmother, step-mother). A majority of adolescent mothers were first-time mothers (*n* = 191) and born in the U.S. (64%), whereas a majority of mother figures (68.6 %) were born in Mexico. At W1 a majority of adolescents were enrolled in school (58%) or had graduated or earned a GED (5%). At Wave 2 (W2) fewer adolescents were enrolled in school (40%) and an increasing percentage graduated or earned a GED (18%). At Wave 3 (W3), fewer adolescents were enrolled in school (29%), but more reported graduating or earning a GED (29%). At Wave 4 (W4), fewer adolescents were attending school (21%) compared to those who had graduated or earned a GED (41%). At Wave 5 (W5), fewer adolescents (13%) attended school and more had graduated or earned a GED (46%). Finally, by Wave 6 (W6), only 10% of adolescent mothers reported attending school, compared to 52% who had graduated or earned a GED. Next, the average level of educational attainment for adolescent mothers increased across waves, from W1 (M = 9.60, SD = 1.5), W2 (M = 10.3, SD = 1.4), W3 (M = 10.8, SD = 1.5), W4 (M = 11.1, SD = 1.5), W5 (M = 11.4, SD = 1.5), to W6 (M = 11.4, SD = 1.6). Demographics for study participants are presented in Table 1.

Procedure

Pregnant adolescents were recruited from schools and community agencies. To participate in the study, participants had to be 15 to 18 years old, currently pregnant, of Mexican descent, not legally married, and have a mother figure who also was willing to participate. Participants were interviewed when the adolescent mother was approximately 30.87 weeks pregnant (W1), 10-months postpartum (W2), 24-months postpartum (W3), 36-months postpartum (W4), 48-months postpartum (W5), and 60-months postpartum (W6). At each wave, participants completed face-to-face semi-structured interviews

(averaging approximately 1.5 to 2.5 hours in length), in which all questions were read out loud to them. Each participant received compensation for their participation ($25 at W1, $30 at W2, $35 at W3, $40 at W4, $50 at W5, and $60 at W6). Most (62.8%) adolescents completed their interviews in English, and 68.6% of mother figures completed their interviews in Spanish at W1. Of the 204 adolescent mothers who participated at W1, 195 participated at W2, 173 participated at W3, 171 participated at W4, 173 participated at W5, and 172 participated at W6 (i.e., 84% W6 retention rate).

Measures

Educational attainment (W1, W6). Adolescent mothers' educational attainment was self-reported at W1 (i.e., years of completed schooling) and W6 via one item: "What is the highest level of education you completed?" The range for educational attainment at W1 was from *7th grade* (7) to *2-years of college, vocational-technical school, or an Associate's degree* (14), and the range at W6 was from *7th grade* (7) to *4-years of college or Bachelor's degree* (16).

Academic achievement/ persistence (W1, W6). Adolescent mothers' self-reported academic achievement or persistence was assessed at W1 and W6 via one item: "Are you currently attending school?" Responses were coded as *no, dropped out of high school* = 0; *Yes, currently enrolled or completed high school/earned GED* = 1.

Familism (W1, W2, W5). Adolescents' endorsement of familism values was measured at W1, W2, and W5 with a 6-item subscale from the Mexican American Cultural Values Scale (Knight et al., 2010). Subscale items assessed adolescents' endorsement of family values reflecting *support and emotional closeness* in the family. Adolescents rated their agreement with each statement (e.g., "It is always important to be

united as a family", "Family provides a sense of security because they will always be there for you") on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores indicated greater endorsement of familism values of support and emotional closeness. Cronbach's alphas in the current study for adolescents' reports in English and Spanish, respectively, were .80 and .66 at W1, .64 and .81 at W2, and .75 and .65 at W5.

Academic motivation (W1). Adolescents' academic motivation was assessed using a five-item academic motivation scale at W1 (Plunkett & Bámaca-Gómez, 2003). Adolescents rated items (e.g., "I try hard in school, Grades are very important to me") on a 4-point Likert scale ranging from *Strongly Disagree* (1) to *Strongly Agree* (4). Higher values denote greater academic motivation. Cronbach's alphas in the current study for adolescents' reports in English and Spanish were .65 and .78, respectively, at W1.

School discrimination (W1). A 2-item subscale of the *Perceived Discrimination Scale* (Whitbeck, Hoyt, McMorris, Chen, & Stubben, 2001) was used to assess the degree to which adolescents perceived to have experienced school discrimination at W1. Items were designed to assess discrimination experienced from teachers within the school setting (e.g., How often have you encountered teachers who didn't expect you to do well because you are Hispanic/Latina) and were rated on a 4-point Likert scale, with end points of *almost never* (1) and *very often* (4). Responses were coded such that higher scores indicated a greater frequency of school discrimination. Cronbach's alphas in the current study for adolescents' reports in English and Spanish were .77 and .85, respectively, at W1.

Family income (W1). Family income was calculated by creating a sum of mother figures' salary, the total amount of public assistance the family received (including support from the nutritional assistance program), and any external monetary contributions to the family in the past year. The mean household income, as reported by the adolescents' mother figures at W1, was approximately $27,323 (*SD* = $19,893; range = $94 - $114,000).

Educational expectations (W1, W2). Mother figures and adolescents responded to one open-ended question to assess their educational expectations at W1 and W2: "How far do you really *think* your daughter will go in school?" at W1, and "How far do you really *think* you will go in school?" at W2. Responses were coded to reflect the number of years of schooling (e.g., 10 = 10th grade; 16 = bachelor's degree; 20 = doctorate or professional degree). The range for mother figures' reported expectations at W1 was from 6th *grade* (6) to a *doctorate or professional degree* (20). Adolescents' expectations at W2 ranged from 7th grade (7) to a *doctorate or professional degree* (20).

Educational utility beliefs (W2). Adolescent mothers' educational utility was measured at W2 with a scale developed by Fuligni and colleagues (2005). This scale assesses adolescents' beliefs regarding the importance of education for life success. Adolescents rated items (e.g., "Doing well in school is the best way to get ahead in life") on a 5-point scale ranging from 1 (*not at all true*) to 5 (*almost always true*). Higher values indicated that adolescents more strongly believed in the value of getting an education. Cronbach's alphas in the current study for adolescents' reports in English and Spanish were .82 and .71, respectively, at W2.

Employment/childcare hours per week. (W5). At W5, Adolescent mothers self-reported on the number of hours they worked per week, in the past year, via one item: "How many hours per week do you work?" Adolescent mothers also reported the total number of hours per week their child was at childcare at W5, via 1 item: "In total, how many hours per week is your child currently in childcare/preschool?"

Study controls. Analyses controlled for adolescents' self-reported nativity status (*Mexico-born* = 0, *U.S.-born* = 1) at W1 (3rd trimester of pregnancy) and primary caregiving for offspring at W2 (1 year postpartum) on their W2 motivational beliefs, W5 engagement in achievement-related strategies, and W6 educational adjustment. To assess primary caregiving, adolescents responded to six questions related to caring for the infant (e.g., "Overall, who do you think spends the most time taking care of (baby name)'s needs?") on a 5-point scale ranging from 1 (*mother/mother figure does this much more than I do*) to 5 (*I do this much more than mother/mother figure does*). A mean score was calculated, with higher scores indicating that adolescent mothers believed they did more caregiving tasks compared to their mothers/mother figures. Lower scores indicated beliefs that mothers/mother figures did more caregiving tasks compared to adolescents. Cronbach's alphas in the current study for adolescents' reports in English and Spanish were .80 and .70, respectively, at W2.

Analyses controlled for adolescents' relationship stability from W1 to W5 (4 years postpartum) on W6 study outcomes. Adolescents' relationship stability was assessed via two questions at each wave (i.e., "Are you currently in a romantic relationship with the biological father of your child or with someone else?", and "What is your romantic partner's name?"). Adolescents who reported not being in a romantic

relationship at any given wave were coded as *not in a steady relationship* = 0. Adolescents who reported being in a relationship from W1 to W5 were coded as *in-a-stable-relationship* = 1*,* if they were in a relationship with the *same* person at all waves. Next, analyses controlled for adolescents' W5 coresidency with mothers/ mother-figures, dating partners, or both mothers/mother-figures and dating partners (*yes, live together* = 1, and *no, did not live together* = 0), and the number of people living at the home at W5 on W6 study outcomes. Regarding the number of people living in the home at W5, adolescents responded to the question "How many other adults or children besides yourself currently live with you and do not also live somewhere else?"

Analyses also controlled for adolescents' perceptions of parenting hassles, children's temperament (i.e., negative affect), and repeat pregnancies at W5 on W6 educational adjustment. Daily parenting hassles were assessed with a 24-item version of the Parenting Daily Hassles (PDH) scale (Crnic & Greenberg, 1990; Crnic & Booth, 1991). At W5, adolescents reported on how an event or occurrence (e.g., "baby constantly hanging on you and getting in the way") had been a hassle or a bother over the past month and how hassled they felt by each item. Responses on the 24-item scale ranged from *Not a hassle at all* (1) to *It's a very big hassle* (5). The intensity scale was created by summing all 24 items. Children's negative affect was assessed at W5 using twelve items (e.g., "Is very difficult to soothe when s/he has become upset") on a 7-point Likert-type scale (Rothbart, Ahadi, & Hershey, 1994; Rothbart, Ahadi, Hershey, & Fisher, 2001), with endpoints ranging from *extremely false* (1) to *extremely true* (7). At W5, Cronbach's alpha was .71 and .51 in English and Spanish, respectively. At W5, analyses also controlled for whether adolescent mothers had repeat pregnancies resulting

in birth via one question (i.e., “Do you have any other children?”). Responses were coded as *no other children* = 0, *yes, other children* = 1).

Additionally, analyses controlled for adolescent mothers’ engagement in risky behaviors, depressive symptomatology, and career-orientation at W5 on their W6 educational adjustment. A revised version of Eccles and Barber’s (1990) measure of risky behaviors was used to assess adolescent mothers’ engagement in risky behaviors at W5. Responses for the 24-item measure (e.g., “In the past year, how many times have you gotten drunk or high?”) ranged from n*ever* (1) to *more than 10 times* (5). Cronbach’s alpha at W5 was .90 and .95 for English and Spanish versions, respectively. At W5, adolescent mothers’ depressive symptoms were assessed using the 20-item (e.g., “I had crying spells”) Center for Epidemiological Studies Depression scale (CES-D; Radloff, 1977). Adolescents rated the frequency with which depressive symptoms occurred within the last week using a 4-point Likert scale with end points of *rarely or none of the time* = 0 and *most of the time* = 3. Finally, analyses controlled for adolescents’ career orientation, which was coded using O*NET Online, an application which categorizes occupations based on the level of education and job training required (National Center for O*NET Development, 2016). Jobs that required more than a high school education and specialized training were coded as *career-oriented*. For adolescents who were employed at W5, career-orientation was coded as either *non-career-oriented* = 0 or *career-oriented* = 1.

Plan of Analysis

The goals of the current study were twofold: (1) to examine the longitudinal achievement motivation process (i.e., contextual/individual factors, motivational beliefs,

achievement-related strategies, educational adjustment) among Mexican-origin adolescent mothers; and (2) to assess the promotive and protective function of familism values, from the time of pregnancy to 5 years postpartum. To address these aims, path analysis in M*plus* version 7.4 (Muthén & Muthén, 2010) was used to examine associations between contextual/individual factors (i.e., family income, mothers' expectations for daughters, school discrimination, academic motivation) at W1, motivational beliefs (i.e., educational expectations, educational utility beliefs) at W2, achievement-related strategies (i.e., employment and childcare hours per week) at W5, and educational adjustment (i.e., academic achievement/persistence, educational attainment) at W6. Furthermore, path analysis was used to simultaneously examine the promotive and protective effects of familism values throughout the achievement motivation process (see Figure 2).

All exogenous variables were allowed to covary (Muthén & Muthén, 2010). Missing data were handled with the full information maximum likelihood (FIML; Arbuckle, 1996) estimator, which uses all available information from observed data to provide likelihood estimates of missing data. Good (acceptable) model fit was determined based on fit indices with a value of greater than or equal to 0.95 (greater than or equal to 0.90) for the comparative fit index (CFI), the root mean square error of approximation (RMSEA) less than or equal to .05 (.08), and less than 0.05 (.08) for the standardized root mean square residual (SRMR; Hu & Bentler, 1999; Kline, 2005). Regarding interactions, continuous measures were mean-centered prior to the creation of interaction terms (Aiken & West, 1991). Simple slopes analyses were used to decompose significant interaction terms (i.e., determine whether individual slopes are significantly different from 0) and aid

in the interpretation of statistically significant interactions (Dearing & Hamilton, 2006; Preacher, Curran, & Bauer, 2006). Statistically significant interactions were probed at one standard deviation above and below the mean of familism at each time point (i.e., W1, W2, W5). The bias-corrected bootstrap method recommended by Taylor, MacKinnon, and Tein (2008) was used to create confidence intervals for statistically significant mediational pathways between contextual/individual factors and educational adjustment.

With respect to the statistical power needed to carry out study hypotheses and the probability of rejecting a false null hypothesis, the current study was guided by estimates provided by MacCallum, Browne, and Sugawara (1996). MacCallum and colleagues (1996) present tables of minimum sample sizes needed for tests of goodness-of-fit based on model degrees of freedom and effect size. Accordingly, the sample size needed to achieve power of .80 for the estimated levels of degrees of freedom (146) in the current study is 187. Therefore, the sample size in the current study (i.e., $N = 204$) was considered sufficient to have adequate power for detecting when hypotheses were false. Finally, all analyses controlled for adolescents' W1 nativity status, W2 primary caregiving, and W1 to W5 relationship stability. Additionally, analyses controlled for W5 coresidency (with mother-figures, dating partners, mother-figures and dating partners), the number of people who lived in the home, parenting daily hassles, children's negative affect, repeat pregnancy (i.e., other children), risky behavior engagement, depressive symptomatology, and career-orientated employment.

Results

Prior to testing the hypothesized model, correlations, means, and standard deviations were computed for all key study variables (Table 2). As expected, adolescents who reported higher levels of educational attainment at W1 were also more likely to be attending school or have completed high school/earned a GED at W1, report higher levels of academic motivation and family income, as well as report higher levels of W2 educational expectations for themselves and greater W6 educational adjustment (i.e., greater level of educational attainment, greater likelihood of academic achievement/ perseverance). Likewise, academic achievement/ perseverance at W1 was positively linked with W1 academic motivation, family income, and maternal expectations, with W2 educational expectations, W5 employment hours per week, and W6 educational attainment and academic achievement/perseverance. Specifically, pregnant adolescents who reported that they had completed high school/earned a GED or were currently attending school also tended to report higher levels of academic motivation and come from higher income homes with higher mother-reported educational expectations for their pregnant daughters. Furthermore, these adolescents also tended to report higher educational expectations for themselves one year postpartum, work more hours per week four years postpartum, and report higher educational attainment and a greater likelihood of academic achievement/persistence five years postpartum.

Adolescents who reported higher levels of academic motivation at W1 tended to report higher levels of familism values and school discrimination at W1, as well as higher levels of educational expectations and education utility beliefs at W2. Adolescents reporting high levels of academic motivation at W1 were also more likely to report

greater educational adjustment at W6. Pregnant adolescents from households with a higher family income tended to have mothers who reported greater educational expectations for their daughters, report higher W2 educational expectations for themselves, report more hours of employment and childcare per week at W5, and were also more likely to report greater educational adjustment at W6. When mother-figures (e.g., mother, grandmother, aunt) reported higher educational expectations (e.g., Master's Degree) for their daughters at the time of pregnancy, adolescent mothers reported higher levels of educational expectations for themselves at W2 (albeit trending significance), were more likely to work more hours per week at W5, and also tended to report higher levels of educational attainment and a greater likelihood of academic achievement/perseverance at W6. Interestingly, pregnant adolescents who reported high levels of school discrimination at W1 also tended to report higher levels of academic motivation at W1 along with stronger beliefs about the importance of education at W2.

Next, in line with study expectations, adolescents who reported higher educational expectations for themselves at W2 were also more likely to hold stronger educational utility beliefs at W2 and to report longer hours of weekly employment at W5 and greater educational adjustment at W6. Regarding achievement-related strategies, adolescents who worked more hours per week at W5 tended to report more hours of childcare at W5, as well as a greater educational adjustment at W6. Furthermore, when adolescents reported longer weekly hours of childcare at W5, adolescent mothers also reported greater educational adjustment at W6.

Importantly, familism values at W1 was positively and strongly associated with familism values at W2 and W5. Additionally, high levels of familism values at all study

waves (i.e., W1, W2, W5) were positively associated with educational utility beliefs at W2, such that adolescents who endorsed higher levels of familism values were more likely to report stronger beliefs about the utility of education. Finally, adolescents who reported a stronger endorsement of W5 familism values were also more likely to report fewer weekly childcare hours at W5.

Test of the Hypothesized Longitudinal Moderation Model

In the current study, the hypothesized longitudinal model demonstrated good fit: χ^2 (*df* = 146) = 154.52, *p* = .30; CFI = 0.98; RMSEA = .02 (90% C.I. [.00, .04]); SRMR = .07 (see Figure 3). Findings indicated that academic achievement/perseverance at W1 was associated with a greater probability of academic achievement/perseverance at W6 (*b* = .40, *SE* = .11, *p* = .001, 95% CI [.17, .62]; OR = 3.2, 95% CI [2.04, 3.8]) and higher levels of educational attainment at W6 (*b* = .24, *SE* = .10, *p* = .02, 95% CI [.05, .43]). Next, higher levels of educational attainment at W1 were also linked with higher levels of educational attainment at W6 (*b* = .38, SE = .11, *p* = .001, 95% CI [.16, .59]). Higher educational expectations at W2 were associated with higher levels of educational attainment (*b* = .25, *SE* = .07, *p* = < .001, 95% CI [.11, .38]) and a greater probability of academic achievement/perseverance (*b* = .18, *SE* = .08, *p* = .03, 95% CI [.02, .34]; OR = 2.5, 95% CI [2.1, 3.2]) at W6.

With respect to study controls (i.e., W1 nativity status, W2 primary caregiving, W1 to W5 relationship stability, W5 coresidency, the number of people who lived in the home, parenting daily hassles, children's negative affect, repeat pregnancy, risky behavior engagement, depressive symptomatology, career-orientated employment), which are not displayed in study figures or tables, findings revealed that career-orientated

employment at W5 was associated with higher educational attainment at W6 (*b* = .38, *SE* = .09, *p* < .001, 95% CI [.21, .56]). In addition, higher levels of depressive symptoms at W5 and primary caregiver status at W5 were linked with lower educational attainment at W6 (*b* = -.13, *SE* = .07, *p* = .07, 95% CI [-.27, .01]; *b* = -.11, *SE* = .07, *p* = .07, 95% CI [-.26, .03]), albeit these associations were marginally statistically significant. Next coresidency with mothers at W5 was associated with higher W6 educational attainment (*b* = .19, *SE* = .09, *p* = .049, 95% CI [.01, .35]); coresidency with dating partners, however, was linked with a lower educational attainment at W6 (*b* = -.21, *SE* = .09, *p* = .02, 95% CI [-.37, -.04]). Regarding academic achievement/ perseverance, findings indicated that higher levels of parenting daily hassles at W5 were related to a lower probability of academic achievement/perseverance at W6 (*b* = -.20, *SE* = .07, *p* = .003, 95% CI [-.33, -.07]; OR = 2.9, 95% CI [2.1, 3.4]). Additionally, W5 repeat pregnancy (*b* = -.17, *SE* = .07, *p* = .02, 95% CI [-.31, -.03]; OR = 1.8, 95% CI [1.3, 2.2]) and more people living in the home at W5 (*b* = -.11, *SE* = .07, *p* = .05, 95% CI [-.24, .02]; OR = 1.2, 95% CI [1.1, 2.8]) were also significantly and marginally associated with a lower probability of academic achievement/perseverance at W6.

Contextual/Individual factors and links with Postpartum Motivational Beliefs. Regarding associations between contextual/individual factors and motivational beliefs, as expected, results indicated that academic achievement/perseverance at W1 (*b* = .28, *SE* = .09, *p* = .002, 95% CI [.11, .46]), along with high levels of adolescents' academic motivation (*b* = .24, *SE* = .06, *p* = .001, 95% CI [.11, .35]) and mothers' educational expectations (*b* = .24, *SE* = .07, *p* = .001, 95% CI [.10, .38]) at W1 were associated with higher educational expectations at W2. Higher family income at W1 was

also linked with higher levels of educational expectations at W2, although this association was only marginally statistically significant (b = .12, SE = .06, p = .06, 95% CI [-.005, .24]). Higher levels of academic motivation at W1 were linked with higher educational utility beliefs at W2 (b = .18, SE = .10, p = .07, 95% CI [-.01, .38]), albeit the association was marginally statistically significant. Contrary to hypotheses, W1 school discrimination was *positively* associated with W2 educational utility beliefs (b = .14, SE = .07, p = .04, 95% CI [.01, .28]), such that higher levels of school discrimination were linked with stronger beliefs regarding educational utility. In line with study hypotheses, the interaction between W1 familism values and W1 educational attainment predicting W2 educational expectations was statistically significant (b = .21, SE = .10, p = .04, 95% CI [.01, .42]). Additionally, interactions between W1 familism values and W1 academic motivation (b = .25, SE = .12, p = .03, 95% CI [.02, .47]) and between W1 familism values and W1 school discrimination (b = -.21, SE = .06, p = .001, 95% CI [-.33, -.09]) predicting W2 educational utility beliefs were statistically significant.

The statistically significant interaction indicated that the association between educational attainment at W1 and educational expectations at W2 varied as a function of W1 familism values; follow-up simple slopes analyses were conducted to aid in the interpretation of the interaction. The slopes for *high, mean, and low* levels of familism values were not statistically significantly different from zero for the association between W1 educational attainment and W2 educational expectations (see Figure 4a). Graphing of the simple slopes indicated that higher levels of educational attainment at W1 were associated with higher educational expectations at W2 at high levels of W1 familism values (b = .43, SE = .29, p = .14, 95% CI [-.14, .99]); this association was weaker and in

the opposite direction at mean levels of familism (b = .02, SE = .21, p = .99, 95% CI [-.41, .43]) and low levels of familism (b = -.42, SE = .30, p = .16, 95% CI [-1.02, .17]). Next, as hypothesized, at *high* levels of familism values, there was a statistically significant positive association between W1 academic motivation and W2 educational utility beliefs (b = .48, SE = .14, p = .001, 95% CI [.20, .77]); this association was not statistically significant at *mean* (b = .20, SE = .12, p = .10, 95% CI [-.04, .43]) or *low* levels of familism values (b = .09, SE = .18, p = .60, 95% CI [-.27, .45]; see Figure 4b). In addition, at *low* levels of familism values, there was a statistically significant positive association between W1 school discrimination and W2 educational utility beliefs (b = .30, SE = .08, p < .001, 95% CI [.13, .45]), although we had hypothesized a negative association between these constructs when familism was low; consistent with expectations, however, there was no statistically significant association between these constructs at *mean* (b = .10, SE = .05, p = .06, 95% CI [.00, .21]) or *high* levels of familism values (b = -.08, SE = .08, p = .31, 95% CI [-.23, .07]; see Figure 4c).

Motivational Beliefs and Achievement-Related Strategies. Turning to the links between W2 motivational beliefs and W5 achievement-related strategies, consistent with study hypotheses, results indicated that higher levels of educational expectations at W2 were linked with more employment hours per week at W5 (b = .25, SE = .10, p = .001, 95% CI [.07, .46]; see Figure 3). Next, contrary to study hypotheses, stronger educational utility beliefs at W2 were associated with fewer hours of childcare per week at W5 (b = -.13, SE = .07, p = .06, 95% CI [-.27, .01]). In addition, higher levels of familism values at W2 were related to fewer employment hours per week at W5 (b = -.21, SE = .11, p = .046, 95% CI [-.43, -.004]). Furthermore, as hypothesized, the interaction between W2

familism values and W2 educational expectations predicting W5 employment hours per week was statistically significant (b = .26, SE = .10, p = .01, 95% CI [.07, .45]). Moreover, as hypothesized, the interaction between W2 familism values and W2 educational expectations predicting W5 childcare hours per week was also statistically significant (b = .13, SE = .06, p = .03, 95% CI [.01, .25]).

Regarding moderation by familism values, in line with study hypotheses, simple slopes analyses indicated that at *high* and *mean* levels of familism values, there was a statistically significant positive association between W2 educational expectations and W5 employment hours per week (b = 2.76, SE = .71, p < .001, 95% CI [1.4, 4.15]; b = 1.29, SE = .52, p = .01, 95% CI [.27, 2.31]). At *low* levels of familism values, however, the association was not statistically significant (b = -.19, SE = .86, p = .83, 95% CI [-1.86, 1.49], respectively; see Figure 5a). Next, at *high* levels of familism values, there was a statistically significant positive association between W2 educational expectations and W5 childcare hours per week (b = 1.62, SE = .52, p = .03, 95% CI [.58, 2.66]). At *mean* and *low* levels of familism values, the association between W2 educational expectations and W5 childcare was not statistically significant (b = .54, SE = .37, p = .38, 95% CI [-.20, 1.30]; b = -.39, SE = .86, p = .44, 95% CI [-2.11, 1.33], respectively; see Figure 5b).

Links between Achievement-Related Strategies and Educational Adjustment. With respect to the association between W5 familism values and W6 educational adjustment, as hypothesized, higher familism values at W5 were associated with higher educational attainment at W6 (b = .26, SE = .11, p = .02, 95% CI [.04, .48]; see Figure 3). Next, as hypothesized, the interaction between W5 familism values and W5 childcare hours per week predicting W6 educational attainment was statistically significant (b =

.18, *SE* = .07, *p* = .04, 95% CI [.04, .32]). The slopes for *high, mean, and low* levels of familism values were not statistically significantly different from zero for the association between W5 childcare hours and W6 educational attainment. Graphing of the simple slopes indicated that greater childcare hours at W5 were associated with higher educational attainment at W6 at high levels of W5 familism values (*b* = .19, *SE* = .17, *p* = .29, 95% CI [-.15, .53]); this association was weaker at low levels of W5 familism values (*b* = .16, *SE* = .11, *p* = .37, 95% CI [-.06, .38]), and weakest at mean levels of familism values (*b* = .10, *SE* = .12, *p* = .58, 95% CI [-.14, .35]; see Figure 6). Contrary to expectations, the interaction between W5 familism values and W5 employment hours per week predicting W6 academic achievement/perseverance was not statistically significant (OR = 1.1, 95% CI [.89, 1.20]).

Tests of Mediation

The bias-corrected bootstrap method recommended by Taylor, MacKinnon, and Tein (2008) was used to create confidence intervals for the statistically significant mediational pathways. Based on study findings, three mediated effects were estimated. First, a model was specified that included the mediated effect from W1 academic motivation to W2 educational expectations to W5 employment hours per week at *high, mean*, and *low* levels of familism values. As expected, results indicated that mediation was statistically significant at *high* (unstandardized 95% confidence interval for the mediated effect = .99, 5.73) and *mean* levels of familism values (unstandardized 95% confidence interval for the mediated effect = .11, 3.14), but not at *low* levels (unstandardized 95% confidence interval for the mediated effect = -2.5, 1.6).

Second, a model was specified that included the mediated effect from W1 mothers' educational expectations to W2 adolescents' educational expectations to W5 employment hours per week at *high, mean*, and *low* levels of familism values. As expected, results indicated that mediation was statistically significant at *high* (unstandardized 95% confidence interval for the mediated effect = .14, 1.1) and *mean* levels of familism values (unstandardized 95% confidence interval for the mediated effect = .21, .57), but not at *low* levels (unstandardized 95% confidence interval for the mediated effect = -.40, .38). Next, a model was specified that included the mediated effect from W1 academic achievement/perseverance to W2 educational expectations to W5 employment hours per week at *high, mean*, and *low* levels of familism values. Results suggested that mediation was statistically significant at *high* (unstandardized 95% confidence interval for the mediated effect = 1.4, 6.8) and *mean* levels of familism values (unstandardized 95% confidence interval for the mediated effect = .12, 4.2), but not at *low* levels of familism values (unstandardized 95% confidence interval for the mediated effect = -2.6, 2.19). Finally, it was not possible to test mediation for the fully hypothesized meditational model (i.e., W1 contextual environment/individual factors predicting W6 educational adjustment via W2 motivational beliefs and W5 achievement-related strategies), because the main effects of W5 achievement-related strategies (i.e., employment and childcare hours per week) were not statistically significantly associated with W6 educational adjustment (i.e., educational attainment, academic achievement/persistence).

Discussion

Mexican-origin adolescent mothers are an understudied at-risk population with alarming rates of educational maladjustment (National Vital Statistics Report, 2013). Because Latina adolescent mothers have the highest rates of school dropout and the lowest rates of educational attainment, compared to their Caucasian and non-parenting counterparts (Motel & Patten, 2012), Mexican-origin adolescent mothers have been primarily understood through deficit assumptions regarding their potential for educational advancement (Furstenberg, 2007). Importantly, despite the known *benefits* (e.g., educational, psychological, and behavioral adjustment) associated with high school completion and postsecondary educational attainment among ethnic-racial minority youth and teen mothers (Barr & Simons, 2012; Fry, 2005; Leadbeater, 1999; SmithBattle, 2006), limited empirical work has investigated factors and processes that inform educational adjustment among this traditionally marginalized group. Using culturally informed perspectives, the current study contributes to the scant literature on teen mothers' educational adjustment by identifying the mechanisms by which the cultural value of *familism* can serve a promotive function in the process of achievement motivation over time, across the transition to motherhood and young adulthood, among a sample of Mexican-origin adolescent mothers. In line with scholars' recommendations to examine adjustment through a focus on culturally informed experiences (García Coll et al., 1996; Rogoff, 2003), associations identified in the current study advance understandings about the centrality of *familism values* as a key cultural asset throughout the process of achievement motivation for Latina adolescent mothers.

Guided by key concepts from EVT (Eccles & Wigfield, 2002) and culturally informed frameworks (Contreras et al., 2002; García Coll et al., 1996; Yosso, 2005), the current study examined established theoretical links among the contextual environment, individual factors, motivational beliefs, achievement-related strategies, and educational adjustment in a sample of Mexican-origin adolescent mothers. Generally, significant associations that emerged among these constructs were consistent with theoretical notions advanced by Wigfield and colleagues (2015), as informed by the EVT framework (Eccles et al., 1998; Eccles & Wigfield, 2002).

Although this empirical replication makes a significant contribution to scant literature on its own, the current findings further informed the field regarding how one cultural asset, specifically *familism values*, can contribute to the educational advancement of high-risk Mexican-origin adolescent females. Consistent with conceptual and theoretical expectations (Contreras et al., 2002; García Coll et al., 1996; Suárez-Orozco & Suárez-Orozco, 1995; Yosso, 2005), findings generally supported hypotheses regarding the dual role of familism values as both a promotive and protective factor throughout the achievement motivation process for Mexican-origin adolescent mothers. Study findings draw attention to the need to include culturally salient constructs, factors that have been traditionally underplayed in the achievement motivation and education literature (Yosso, 2002), as important frames of reference to further our understanding of how specific dimensions of familism values (i.e., supportiveness, emotional closeness) may foster and promote achievement motivation for this at-risk population.

The Achievement Motivation Process of Mexican-origin Adolescent Mothers

Variability in Mexican-origin Adolescent Mothers' Educational Adjustment

A majority (60%) of Mexican-origin adolescents in the current study were enrolled in school during their third trimester of pregnancy. Approximately 37% of adolescents reported dropping out of high school by their third trimester pregnancy, and this rate increased slightly across the transition to motherhood (43%), or one year postpartum. Additionally, 26% of adolescent mothers expected to complete high school one-year postpartum. Notably, the majority of adolescent mothers expected to attain a postsecondary education (65.5%), many of which expected to earn either an associate's degree (26%) or a bachelor's degree (24%). At five years postpartum, when adolescent mothers were on average 22 years old (ranging from 20 to 24 years), several adolescent mothers had either completed high school (33%) or earned a GED (7%). Furthermore, approximately 19% of adolescent mothers continued their education beyond high school, and overall educational attainment ranged from the 7th grade to as high as a bachelors' degree. These descriptive characteristics demonstrated the notable variability in Mexican-origin adolescent mothers' educational adjustment at five years postpartum.

Consistent with findings with African American adolescent mothers (Barr & Simons, 2012), a majority of Mexican-origin adolescent mothers in the current sample held educational expectations that extended beyond high school completion. Furthermore, less than half (40%) of Mexican-origin adolescent mothers in the current study reported having completed high school or earning a GED by five years postpartum. This average level of educational attainment is slightly lower than the national average of diploma/GED attainment among Latina teen mothers (46%; Perper, Peterson, &

Manlove, 2010). Considering that finishing high school or the equivalent is a critical milestone for young mothers, as this level of education enables entrance into the workforce and the continuation of postsecondary education, findings shed light on the importance of promoting educational attainment for this high-risk population.

In light of rising demands for schooling to meet qualifications for well-paying jobs (Scott et al., 2015; Zhan & Sherraden, 2011), it has become increasingly important for teen mothers to not only complete a high school-level education, but to also advance to a postsecondary education (Barr & Simons, 2012; Cherry et al., 2015; Harding et al., 2015; Luster et al., 2000; Mollborn, 2010). Identifying the mechanisms that promote achievement motivation and educational adjustment among adolescent mothers is an important and necessary step to improving adjustment among this high-risk group. As discussed below, findings from the current study identified several contextual and individual factors that were particularly salient for informing processes of achievement among Mexican-origin adolescent mothers.

Context/Individual factors and Motivational Beliefs

In examining the process through which Mexican-origin adolescent mothers' motivational beliefs (i.e., educational expectations, education utility beliefs) were informed findings indicated that both *individual* and *contextual* factors at the time of pregnancy shaped adolescent mothers' motivational beliefs one-year postpartum. As expected, adolescents who reported high academic motivation during their 3rd trimester of pregnancy and who were enrolled in school, or had already completed high school (or earned a GED), reported higher educational expectations for themselves one year postpartum. Furthermore, similar to findings with Black adolescent mothers (Barr &

Simons, 2012), Mexican-origin adolescent mothers also reported higher levels of educational expectations for themselves when their mothers reported high educational expectations for them (at the time of pregnancy) and also when their family reported a higher income. Study findings reiterate notions from conceptual models of Latina teen parenting (Contreras et al., 2002), suggesting that Latina adolescent mothers may be more optimistic about their potential for school continuation following their transition to motherhood when they perceive greater support, opportunities, and resources during pregnancy (Cherry et al., 2015; Hellenga et al., 2002; Mollborn, 2007). More work will be needed to determine whether the benefits of certain promotive factors during pregnancy are consistent across the transition to motherhood, or if other factors, such as co-parenting support, may play a stronger role in adolescent mothers' motivational beliefs.

With respect to adolescent mothers' educational utility beliefs, only school discrimination emerged as a significant predictor. Contrary to expectations, pregnant adolescents who perceived higher levels of school discrimination tended to report stronger beliefs about the utility of education. Higher levels of perceived school discrimination also were associated with greater academic motivation, at the bivariate level. Although these findings contradict some prior work with teen mothers, which found that social stigmas in the school setting severely diminished adolescent mothers' motivational beliefs and academic persistence (Brosh et al., 2007; Klaw, 2008; Letourneau et al., 2004), findings supported notions that experiencing social stigmas surrounding teen parenting in the school context can result in adolescent mothers forming *positive* motivational beliefs (Camarena et al., 1998; Cherry et al., 2015; SmithBattle,

2007). Toward this end, scholars have noted that experiencing discrimination in the school setting may serve as a motivation to achieve in school, as youth begin to question or challenge their disidentification with academics (Osborne & Jones, 2011). Furthermore, research with ethnic-racial minority youth suggests that adolescents may experience increased motivation when they reflect on their "feared possible selves" (i.e., the self that individuals want to avoid), as the incentive to achieve may be derived from the fear of becoming a social stigma (Oyserman & Fryberg, 2006). In the context of the current study, it may be that Mexican-origin adolescent mothers who perceived discrimination within the school setting also recognized the utility of education in response to challenging and overcoming social stigmas from teachers, peers, or administrators (Cherry et al., 2015; Hellenga et al., 2002; SmithBattle, 2006).

Contrary to study expectations, educational attainment did not emerge as a significant predictor of adolescent mothers' motivational beliefs. It is possible that, given the heterogeneity in adolescent mothers' school-related experiences (e.g., academic performance/ liabilities, relationships with teachers and peers, placement in advanced courses; SmithBattle, 2006), the total number of school years completed (at the time of pregnancy) may carry less weight in the development of adolescent mothers' postpartum motivational beliefs, compared to other salient factors (e.g., grades). As adolescent mothers process their capacities to balance school-related demands with childrearing responsibilities, their focus may be less on their previous school-related experiences and more on the feasibility of continuing their education. For instance, adolescent mothers may be equally as optimistic about the importance of education and their potential to continue school, regardless of their highest level of schooling completed, if they perceive

fewer economic hardships and greater support (Boden et al., 2008; SmithBattle, 2007). Along these lines, it may be that young mothers' motivational beliefs are developed as a function of available resources (e.g., income, familial educational expectations, social support) to continuing their education. Thus, it is likely that adolescents' experiences with the education system prior to the transition to motherhood may be less relevant to their postpartum motivational beliefs, relative to factors that pertain to tangible resources and supportive assets (Cherry et al., 2015). It also is possible, however, that this null finding emerged due to multicollinearity in the model, given that educational attainment and academic achievement/perseverance at the time of pregnancy were relatively highly correlated ($r = .49$). Thus, more work is necessary to tease apart the potential unique contributions of educational attainment versus academic achievement/perseverance on Mexican-origin adolescents' motivational beliefs.

The Direct and Moderating Role of Familism Values. Scholars have posited that familism values may drive motivational beliefs, as this salient Latino value has been thought to foster educational endeavors through a cultural emphasis on links to family functioning and adaptability (Fuligni et al., 1999; Fuligni et al., 2005; Stein et al., 2013). Contrary to expectations, familism values at the time of pregnancy did not significantly predict adolescent mothers' motivational beliefs (i.e., educational expectations, educational utility beliefs) one year postpartum. Although a direct positive association between these constructs was expected, given conceptualizations and evidence suggesting that values entailing a sense of support and emotional closeness within the family may encourage high values and expectations for educational achievement among Latino adolescents (Calzada et al., 2013; Suárez-Orozco & Suárez-Orozco, 1995; Valenzuela &

Dornbusch, 1994), it possible that this direct link did not emerge due to its measurement via adolescents' self-report. Specifically, scholars have suggested that reports of familism values from parents, especially mothers, may be more strongly related to adolescents' adjustment given that mothers' values may be more closely related to the family structure and functioning (e.g., communication, importance of close relationship), as well as to provisions and perceptions of support (e.g., emotional, access to extended kin) during the early years of parenting (Stein et al., 2014). In addition to considering the role of mothers' endorsement familism values, future work should also consider how adolescents' and mothers' endorsements of familism values *jointly* contribute to the development of adolescents' motivational beliefs, given findings highlighting the protective role of mother-daughter *alignment* on attitudinal familism against psychosocial maladjustment (i.e., externalizing and internalizing symptoms; Bámaca-Colbert & Gayles, 2010).

Regarding the moderating role of familism values, findings partially supported study hypotheses. In particular, when adolescents endorsed high levels of familism values, higher levels of educational attainment at the time of pregnancy were associated with higher levels of educational expectations one year later, and associations were weaker at average and low levels of familism. Similarly, higher levels of academic motivation were associated with stronger beliefs about the utility of education for adolescents who endorsed high familism values, compared to those who endorsed moderate or low levels of familism values. Consistent with prior work, findings support the protective role of culturally informed assets (e.g., racial pride, self-efficacy, self-acceptance) on ethnic-racial minority adolescents' motivational beliefs (Butler-Barnes et

al., 2013). Study findings suggests that, in the context of high familism values, there appears to be a protective pathway in which Mexican-origin adolescent mothers who experience high levels of promotive factors may be more likely to develop higher expectations and stronger utility beliefs about education (Contreras et al., 2002). Together, these findings underscore the need to promote *familism values* among at-risk Mexican-origin adolescent mothers as one way to protect against the development of low motivational beliefs (Contreras et al., 2002).

Familism values also emerged as a moderator of the associations between school discrimination and adolescents' educational utility beliefs. In contrast with study expectations, when adolescents reported low endorsement of familism values, high levels of school discrimination were linked with stronger beliefs about the importance of education. It is possible that Mexican-origin adolescents who report low familism values may be more oriented toward individualistic values, or values characterized by self-reliance, independence, and autonomy (Triandis, 1995). For adolescents whose value systems are based on individualistic perspectives, rather than social or family-centered perceptions, high levels of school discrimination may motivate them to value education as a response or a coping strategy to confronting stereotypes and overcoming school discrimination. Because an orientation toward individualism revolves around self-preservation (Triandis, 1995), adolescent mothers who experience school discrimination (in the context of low familism values) may be more resilient to the negative effects of discrimination on their formation of motivational beliefs.

Alternatively, experiencing high levels of school discrimination may also create a greater awareness of social stigmas surrounding teen pregnancy or ethnic-racial group

membership, which ultimately incentivize the importance of educational attainment (Cherry et al., 2015; Hellenga et al., 2002). Regardless of the mechanisms at play, findings suggest that high levels of school discrimination may function as a promotive factor under conditions of low familism values. More research is needed to understand the mechanisms by which this association is emerging.

Importantly, study findings revealed that as school discrimination decreased, adolescents who endorsed *low* familism values also reported *lower* educational utility beliefs. Thus, low endorsement of familism values (at the time of pregnancy) is a potential risk factor when adolescent mothers perceive fewer experiences of school discrimination. Although the literature has demonstrated that adolescent mothers are vulnerable to the negative effects of school discrimination (e.g., school drop-out, low self-efficacy, low educational aspiration; SmithBattle, 2006; Weed et al., 2000), the current findings suggest that adolescent mothers who do not experience high levels of school discrimination may still be at risk for developing lower values toward education if their endorsement of traditional supportive cultural values is low. Given the correlational nature of our design, more work is needed to determine how specific cultural values, such as values regarding individualism, may inform adolescent mothers' formation of motivational beliefs.

Motivational Beliefs and Achievement-related Strategies

Achievement motivation scholars pose that variation in adolescents' engagement in achievement-related strategies may be due to adolescents' motivational beliefs (Eccles & Wigfield, 2002; Cunningham et al., 2009; Mortimer, 2003; Oyserman, 2013; Oyserman et al., 2003; Oyserman, 2007). Consistent with theoretical notions from EVT

and prior work with parenting and non-parenting adolescents (Cunningham et al., 2009; Mortimer, 2003; Oyserman, 2007), Mexican-origin adolescent mothers who reported greater motivational beliefs were also more likely to report more hours spent at work per week. In particular, findings suggested that Mexican-origin adolescent mothers who held optimistic beliefs about their educational endeavors worked longer hours, compared to those who held lower expectations for their educational attainment. It may be that adolescents who expect to continue their education postpartum work more hours as a means to invest in their educational career (e.g., affording books, transportation; Horn et al., 2002). Additionally, adolescent mothers who report high levels of educational expectations may also have greater social competencies and access to resources (e.g., social networks) that facilitate employment opportunities (Mello, 2008). Findings highlight the need to further understand links between educational endeavors and patterns of employment. Future work should consider the contexts under which links between high educational expectations and more employment hours may be beneficial or detrimental for adolescent mothers' educational outcomes, giving conflicting findings regarding the educational penalties of working longer hours (Mollborn, 2007; SmithBattle, 2006) compared to findings that found no associated between hours worked and adolescent mothers' educational adjustment (Mollborn, 2010).

Contrary to study expectations, adolescent mothers who reported stronger beliefs about the utility of education also tended to report fewer hours of childcare per week (albeit at trending levels). This finding highlights the need to understand the context (e.g., family income) under which adolescents' motivational beliefs inform their achievement-related strategies (Cherry et al., 2015). Because bivariate findings indicated that

adolescent mothers who endorsed higher levels of familism also reported greater utility beliefs, these mothers may be relying on family or extended kin for childcare support. It may be that despite beliefs regarding the importance of education, in the context of low resources, adolescent mothers who have limited financial support may experience significant barriers to affording childcare (Hellenga et al., 2002). These findings reveal the importance of considering how a significant lack of financial resources may pose a risk to adolescents' ability to engage in achievement-related strategies, regardless of their optimistic motivational beliefs.

Although scholars have emphasized the relevance of achievement-related strategies as critical to balancing student and parenting responsibilities (Brubaker & Wright, 2006; Cherry et al., 2015; Hellenga et al., 2002), limited empirical and longitudinal work has focused on identifying and understanding the significance of achievement-related strategies, specific to adolescent-mothers, and how this is associated with adolescent mothers' motivational beliefs. The current study provides empirical support for the need to examine not only the types of achievement-related strategies in which adolescent mothers engage, but also the extent (e.g., frequency, intensity, necessary conditions) to which young mothers utilize these strategies for their own educational advancement. Contextual factors may therefore play an important role in the translation of motivational beliefs to achievement-related strategies (SmithBattle, 2007). Because this study is the first (to our knowledge) to empirically test associations between Mexican-origin adolescent mothers' motivational beliefs and their achievement-related strategies, more work is needed to identify and understand how and under what

conditions relevant achievement-related strategies are informed by adolescent mothers' motivational beliefs (Mollborn, 2010).

Familism as a Predictor and Moderator of Motivational Beliefs and Achievement-Related Strategies. Prior reviews with ethnic-racial minority adolescents suggest that familism values may serve a promotive function by encouraging accountability to engage in strategies related to fulfilling educational endeavors (e.g., classroom engagement, deviant peer avoidance, homework persistence; Stein et al., 2013; 2014). Contrary to expectations, findings from the multivariate model indicated that a higher endorsement of familism values was related to significantly fewer hours of employment per week; furthermore, familism values was not significantly associated with hours of childcare per week. With respect to the unexpected negative association between familism values and employment hours, it is possible that familism may shape expectations regarding the amount of time spent in the home, as well as caregiving responsibilities (Cauce & Domenech-Rodriguez, 2002; Contreras et al., 2002). For instance, it may be that adolescent mothers who endorse high levels of familism values may adhere to more traditional beliefs regarding gender roles and the importance of caregiving at home (Flores et al., 2009). Such traditional beliefs may discourage adolescent mothers from seeking employment opportunities outside of the home and instead increase pressures to conform to prescribed cultural scripts and expectations regarding domestic obligations and childrearing.

Turning to the unexpected non-significant association between familism values and the amount of time children spent at childcare per week, a few explanations may be plausible regarding the null effect of familism values. First, because Mexican-origin

families that report high levels of familism values have also been characterized as having higher levels of cohesion and lower levels of conflict (Fuligni et al., 1999; Smokowski, Rose, & Bacallao, 2010), adolescents mothers who strongly endorse supportive relationships that foster interconnectedness may also have access to alternative forms of childcare support (e.g., coparenting support from biological fathers or other family members) due to high quality relationships, proximal living arrangements, contact with extended kin, and consequently report lower reliance on formal childcare services (Brosh et al., 2007; Contreras et al., 2002). Adolescent mothers who endorse higher levels of familism values may also engage in different types of achievement-related strategies, unrelated to employment or childcare, such as connecting with teachers or communicating with family or neighborhood mentors, as these mothers may have more flexibility in managing childrearing responsibilities while making efforts to continuing their education (Hellenga et al., 2002).

Alternatively, it may be that the link between familism values and childcare hours per week did not emerge because adolescents who report high familism values may be less likely or unable to engage in achievement-related strategies when they experience significant barriers (economic hardship, depression, limited awareness of available resources, language barriers; SmithBattle, 2006). In this case, the association between familism values and childcare hours per week may be masked by the risks associated with significant barriers. It is possible that despite a strong endorsement of familism values, adolescent mothers who lack access to substantial resources (e.g., transportation, school support) may be restricted in their ability to engage in achievement-related behaviors or activities (Weed et al., 2000). Given these possibilities, it will be necessary

for future studies examining these associations to determine the extent to which adolescent mothers are actively involved in specific strategies pertaining to their own educational pursuits, and how values, such as those pertaining to emotional closeness and family support, may facilitate or impede such involvement..

With respect to the moderating role of familism values, prior work has found that familism values may enhance the positive effects of protective factors and reduce the effects of risk factors (Brubaker & Wright, 2006; Cherry et al., 2015; Umaña-Taylor et al., 2011); findings supported hypotheses that the effect of motivational beliefs on achievement-related strategies would be heightened at high levels of familism values. Specifically, when adolescent mothers endorsed average and high levels of familism values, higher levels of educational expectations were related to longer hours of employment per week. Likewise, at high levels of familism values, high educational expectations were associated with longer hours of childcare per week. It is possible that high familism values coupled with high educational expectations may encourage adolescent mothers' incentives to engage in achievement-related strategies when they also hold in high regard a commitment to supporting their family. Adolescent mothers who endorse high levels of familism values, with respect to support and emotional closeness from family members, may thus be more likely to benefit from protective motivational beliefs. Study findings support conceptual models with Latina adolescent mothers, which have posited that familism values may promote resilience in the context of common risks associated with teen pregnancy (e.g., low motivational beliefs) by boosting accountability to engage in strategies that facilitate educational endeavors (Contreras et al., 2002).

Achievement-Related Strategies and Educational Adjustment

According to EVT (Eccles & Wigfield, 2002), the final phase of the achievement motivation process is the link between engagement in achievement-related strategies and consequential educational adjustment. Regarding this last link, prior work with ethnic-racial minority adolescents has documented that youths' educational adjustment is associated with their engagement in achievement-oriented strategies or behaviors (Cunningham et al., 2009; Mortimer, 2003; Oyserman, 2007). Along these lines, researchers have posed that individuals who engage in achievement-related strategies (e.g., afterschool activities, tutoring, avoidance of deviant peers) are more likely to remain in school and report higher levels of educational attainment and academic achievement (e.g., grades), as these youth may have additional supports and a greater investment regarding their educational adjustment. Contrary to theoretical expectations, adolescent mothers' hours of employment and childcare per week did not significantly predict their educational adjustment one year later.

Despite unexpected null findings at the multivariate level, associations between achievement-related strategies and educational adjustment were in expected directions at the bivariate level. Because bivariate correlation analyses indicated a significant and positive association between achievement-related strategies and young mothers' educational adjustment, such that adolescents who spent more time at work and who reported more hours of childcare per week reported higher levels of educational attainment and were also more likely to have completed high school or continue their education, it is possible that indeed employment and use of childcare services may provide young mothers with more flexibility to continue their education (Brubaker &

Wright, 2006; Hellenga et al., 2002). In contrast with prior findings with teen mothers, where employment hours were not related at the bivariate or multivariate level (Mollborn, 2010), or where employment hours had penalties for educational attainment (Mollborn, 2007), Mexican-origin adolescents in the current study who worked longer hours tended to report higher levels of educational attainment. Furthermore, findings coincide with qualitative findings with teen mothers suggesting that more childcare facilitates young mothers' capacities for positive postpartum educational adjustment (Brubaker & Wright, 2006).

Given that bivariate associations reflected expected associations, but these associations did not emerge at the multivariate level, it is possible that the promotive effects of employment and childcare hours on educational adjustment did not emerge due to the interplay of additional moderating variables. One possibility is that the expected positive relation between achievement-related strategies and educational adjustment is dependent on contextual resources that provide adolescents with concrete support, such as parents' level of education. Indeed work with Mexican-origin families suggests that the effects of protective factors on adolescents' educational adjustment may vary at levels of parental education (Plunkett & Bámaca-Gómez, 2003; Valenzuela & Dornbusch, 1994). Scholars have offered that when Mexican-origin adolescents perceive greater supportive resources from their parents (e.g., college experience, income, knowledge of school system), such perceptions influence how adolescents' interpret their own behaviors and potential outcomes (Stein et al., 2014). For instance, adolescents who work longer hours at work may not necessarily see the need to continue to attend school, if they do not have access to adults or parents that would offer advice on balancing school

and work or that would encourage educational attainment as a means to broaden occupational opportunities. Thus, it is likely that the protective effects of adolescents' engagement in achievement-related strategies on their educational adjustment may vary as a function of adolescent mothers' available resources.

Familism as a Direct Predictor and Moderator of Achievement-Related Strategies and Outcomes. The current study also set out to understand the extent to which familism values directly informed educational adjustment, and whether the effect of achievement-related strategies on educational adjustment varied as a function of familism values. Prior work with ethnic-racial minority youth suggests that indeed youth who endorse higher levels of familism values experience higher levels of educational adjustment (Fuligni et al., 1999; Stein et al., 2013; 2014). In line with study expectations, familism values emerged as both a direct predictor of educational attainment and as a moderator of associations between achievement-related strategies (i.e., childcare hours per week) and adjustment (i.e., educational attainment). In accordance with prior work with ethnic-racial minority adolescents (Chen et al., 2003; Esparza & Sánchez, 2008; Stanard et al., 2010) and theoretical implications with Latina adolescent mothers (Contreras et al., 2002), familism values were positively associated with Mexican-origin adolescent mothers' educational adjustment. In particular, endorsing high levels of familism values was associated with higher levels of educational attainment five years postpartum. This finding indicates that high familism values indeed functioned as a promotive factor in relation to Mexican-origin adolescent mothers' educational attainment.

Study findings regarding the direct link between adolescents' endorsement of familism values and educational adjustment have important implications for future work. Importantly, the construct of familism assessed in the current study pertains to values related to emotional closeness and support among family members. Such values have been posed to inform Latina adolescents' decisions and behaviors, with respect to their educational outcomes (Stein et al., 2014). It is possible that endorsing familism values that focus on family unity and emotional support may enhance parenting adolescents' perceptions of available supports (e.g., childrearing advice, family mentors), which in turn may help young mothers to be more committed to successfully continuing their education (e.g., attend classes, apply for higher education, avoiding deviant peers; Brosh et al., 2007). Overall, findings provide opportunities for future work to uncover the links between familism values and educational adjustment, as these next steps may have important implications for designing culturally salient interventions and programming with Mexican-origin adolescent mothers.

Regarding the role of familism as a moderator, prior conceptualizations and qualitative findings with adolescent mothers indicate that family values and support might enhance the effects of engaging in achievement-related strategies on educational adjustment (Cherry et al., 2015; Contreras el., 2002), as these young mothers may be more aware of the importance of educational, occupational, childcare investments for familial stability. As expected, the link between achievement-related strategies and educational adjustment varied at different levels of familism values. Specifically, findings from significant interactions indicated that at high levels of familism values, longer hours of childcare per week were related to higher levels of educational attainment one year

later. As expected, this association became weaker at low and mean levels of familism values. Findings indicated that longer childcare hours may facilitate adolescent mothers' educational attainment when adolescents endorse high levels of familism values. It may be that those adolescents who have necessary resources to obtain longer hours of childcare may be more likely to successfully continue their education, when they endorse high levels of familism values, as such values place a clear emphasis on educational, occupational, and childcare investments for familial stability (Cherry et al., 2015; Hellenga et al., 2002). Those adolescents endorsing higher levels of familism values may be better able to manage their time and balance childrearing responsibilities, allowing them to engage in the steps necessary to continue their education (e.g., complete homework, attend classes).

Because qualitative work has noted that adolescent mothers report that navigating and balancing school with parenting responsibilities pose significant challenges, it is likely that educationally successful pregnant and parenting adolescents engage in *multiple* achievement-related strategies throughout the course of pregnancy and parenting (Cherry et al., 2015). It will be important for future work to consider the conditions and context under which achievement-related strategies (e.g., avoidance deviant peers, strategies at school) positively contribute to adolescents' educational adjustment. For instance, because prior work with Mexican-origin adolescents demonstrates that the protective benefits of familism values are particularly salient within the school context (Germán et al., 2009), it is possible that direct protective effects of familism values may also emerge when considering achievement-related activities that occur in school. Future work should therefore examine the impact of familism values on adolescent mothers' engagement in

achievement-related strategies within the *school context* (e.g., school mentors, childcare services, parenting training, after school activity engagement), as these strategies have been identified as critical to the adjustment of ethnic-racial minority youth (Oyserman, 2013; Skinner et al., 2009; Wigfield et al., 2015) and adolescent mothers (Leadbeater, 1999; Barr & Simons, 2012; Contreras et al., 2002; Mollborn, 2010; SmithBattle, 2006; 2007; Weed et al., 2000).

Next, with respect to links between achievement-related strategies and the probability of academic achievement/perseverance, contrary to study expectations, associations were not directly related or moderated by familism values. These null findings may be due to the limited ability to detect findings given the lack of variability in this construct. For instance, adolescent mothers' educational trajectories have been shown to vary greatly, such that some young mothers continue school postpartum and others either take longer to return to school or take breaks in between (Barr & Simons, 2012; Mollborn, 2010); thus, assessing academic achievement/perseverance 5 years postpartum (i.e., current school enrollment/ high school or GED completion vs. school dropout) may not be a clear indication of adolescent mothers' overall educational adjustment. As an example, adolescent mothers may be enrolled in school, but not doing well in their courses or not actually attending classes. Further, adolescents who report that they are not currently enrolled in school because they already completed high school or earned a GED cannot be distinguished from adolescents who have a high school degree or equivalent and are also not enrolled in school but possibly on track to seek higher education in the near future. It will therefore be necessary for future work to assess additional indices of educational adjustment, such as school engagement or concrete

plans for continuing education among those not currently enrolled, to better understand how achievement motivation can improve educational outcomes. Given the limited work examining adolescent mothers' educational adjustment, more work is needed to understand how achievement related strategies inform indices of educational adjustment for this at-risk population.

The Longitudinal Process of Achievement Motivation

The final hypothesis tested in the current study was that adolescent mothers' motivational beliefs and achievement-related strategies would mediate associations between contextual/individual factors and educational adjustment. Hypotheses regarding the process of achievement motivation were generally supported. Although the full mediation model was not testable, given non-significant associations between achievement-related strategies and educational adjustment, patterns of emerged associations throughout the achievement motivation process reflected study expectations. In line with expectations grounded in EVT (Eccles et al., 1998; Eccles & Wigfield, 2002), contextual/individual factors (i.e., academic motivation, maternal educational expectations, academic achievement/perseverance) at the time of pregnancy were significantly associated with the amount of time adolescent mothers spent at work, via educational expectations.

In particular, adolescents who (a) reported high academic motivation, (b) had mothers with high expectations, and (c) were currently enrolled in school (or had graduated or earned a GED), were more likely to report higher levels of educational expectations for themselves; high educational expectations, in turn, were associated with longer hours spent at work. Such findings underscore the significant role of adolescent

mothers' educational expectations for themselves as an important mechanism through which contextual/individual factors inform their future engagement in achievement-related strategies. This mechanism is critical to understand among Mexican-origin adolescent mothers, especially during the early years of parenting, as prior work has demonstrated that low educational attainment (Motel, & Patten, 2012) has negative consequences for mothers themselves and their offspring (e.g., financial instability, poor parenting; Borkowski et al., 2007).

Given that the full model could not be tested, more work is needed to understand the longitudinal process through which contextual/individual factors inform adolescent mothers' motivational beliefs, which in turn may inform engagement in achievement-related strategies, and ultimately educational adjustment. It is possible that other achievement-related strategies (e.g., avoidance of deviant peers, classroom engagement, finding mentoring relationships) may play a stronger role throughout the achievement motivation process for Mexican-origin adolescent mothers. Because adolescent mothers are a unique population characterized by specific needs regarding balancing childrearing and student demands, as well as negotiating their role as new mothers and developing adolescents, it is important to identify strategies that are salient specific to teen mothers. For instance, adolescent mothers may choose to engage in alternative strategies, such as forming new relationships with mentors (e.g., teachers, other teen mothers, family members), in effort to continue their education by learning about opportunities or pathways to higher education (Zimmerman, 2010).

Given that limited work has empirically explored the role of achievement-related strategies among Mexican-origin adolescent mothers, it will be important for scholars to

derive hypotheses based on findings from qualitative work that has documented the role of adolescents' active engagement in specific achievement-related strategies, alongside competing demands, to promote educational adjustment (SmithBattle, 2007). Furthermore, qualitative work may help shed light on how other important sources (e.g., peers, teachers, mothers, dating partners) may facilitate adolescent mothers ability to engage in achievement-related strategies (Cherry et al., 2015). Future studies should thus consider the inclusion of alternative achievement-related strategies as a step toward understanding the multiple pathways by which Mexican-origin adolescent mothers fulfill their educational endeavors.

Limitations and Future Directions

Although this study offers a unique contribution to the achievement motivation research with Mexican-origin adolescent mothers, an understudied high-risk population, several limitations should be noted regarding the methodology, specific variables assessed, and the generalizability of the current study. First, the current study relied exclusively on self-reported data. It is possible that survey data could have introduced shared-reporter and method bias into the analyses. Future studies should include information from additional reporters (e.g., fathers, dating partners, teachers) to gain a more comprehensive understanding of Mexican-origin adolescent mothers' achievement motivation and educational adjustment. Furthermore, it may also be beneficial for scholars to incorporate qualitative approaches to understanding young mothers' educational adjustment, as such approaches would allow researchers to obtain culturally specific information regarding the development of motivational beliefs and achievement-related strategies through the perspectives of Mexican-origin adolescent mothers.

Another important methodological limitation of the current study was the short-term assessment of adolescent mothers' educational attainment (i.e., one year), during which there was considerable stability. In particular, descriptive findings revealed that at both 4 and 5 years postpartum, adolescents' average level of educational attainment was consistently about 11 years of school completed. Such stability in educational adjustment may have limited the ability to statistically detect how and whether achievement-related strategies (i.e., employment and childcare hours per week) were directly linked with educational attainment over time. It is possible that direct links between achievement-related strategies and educational adjustment may emerge when observing associations over a longer period of time, as prior work suggests that ethnic-racial minority adolescent mothers continue their education at a slower pace and often with breaks in between, compared to non-parenting teens (Barr & Simons, 2012).

Next, future directions should include accounting for motherhood at the empirical level by motherhood specific variables (Barr & Simons, 2012). Because adolescent mothers face numerous unique challenges during pregnancy (e.g., social stigmas, institutional discrimination, limited resources), and especially across the transition to motherhood (SmithBattle, 2006; 2007), it is possible that motherhood-related factors (e.g., negotiations of autonomy, distancing from peers) may make certain aspects of familism values (i.e., emotional closeness, supportiveness) more influential throughout the achievement motivation process. By observing how the transition to adolescent motherhood may inform the functionality of familism values in relation to the formation of motivational beliefs and engagement in achievement-related strategies, scholarship can identify targets for intervention.

Additionally, the current study only examined two achievement-related strategies (i.e., hours per week of employment and childcare). It may be worthwhile for future studies to explore additional achievement-related strategies, such as strategies used by young mothers in connection with their motivational beliefs (e.g., after school tutoring, avoidance of deviant peers; Cherry et al., 2015; Eccles & Wigfield, 2002; Oyserman et al., 2007). Furthermore, given that the current study was not a school-based design, another important limitation is the lack of data on adolescent mothers' achievement-related experiences (e.g., grades, classroom engagement, advanced placement courses). Ideally, future work will include classroom level data prior to pregnancy in order to evaluate the role of previous achievement-related experiences on adolescent mothers' achievement motivation.

Lastly, with respect to the generalizability of study findings, it is possible that findings may differ for adolescent mothers from other ethnic-racial minority groups. Given the strong emphasis on family interdependence within Mexican culture (Sabogal et al., 1987; Suárez-Orozco & Suárez-Orozco, 2001), it is possible that the aspects of familism values (i.e., support and emotional closeness) examined in this research may be particularly salient to the achievement motivation process of Mexican-origin adolescents. Nevertheless, given that Mexican-origin adolescent mothers experience disproportionate rates of academic underachievement (Motel & Patten, 2012), an exclusive focus on this particular population has significant implications for intervention efforts.

Conclusion and Implications

Despite the above limitations, the current study contributes to the growing body of literature underscoring the supportive role of familism values on Latina adolescent

mothers' resilience to the challenges of teen motherhood and educational adjustment (Contreras et al., 2002; Stein et al., 2013; 2014). This is an important contribution to the current literature as it allows for a more complex understanding of how culturally driven *value systems* may function as underlying resources for improving the educational outcomes of marginalized and underrepresented populations. The current study examined variables associated with achievement motivation and educational adjustment among Mexican-origin adolescents with substantive interest given that adolescent mothers with higher levels of education have greater access to resources (e.g., employment opportunities, financial, supportive networks), which allow them to support the development of their offspring (Hellenga et al., 2002; SmithBattle, 2006; 2007).

Findings from the current study illustrate how theoretical associations within the achievement motivation process may be informed by familism values, a core value among Latino populations (Sabogal et al., 1987; Suárez-Orozco & Suárez-Orozco, 2001). Because Mexican-origin adolescent mothers are particularly vulnerable to educational maladjustment (Motel & Patten, 2012; National Vital Statistics Report, 2013), given unique barriers (e.g., parenting hassles) faced during pregnancy and postpartum, it is crucial to understand the process through which achievement motivation is developed, enhanced, and sustained. Likewise, it is equally important to identity culturally salient promotive and protective factors throughout the achievement motivation process. In the current study, familism values served a protective function as the endorsement of this value was directly related to higher levels of Mexican-origin adolescent mothers' educational attainment. Findings signify that the role of familism values may be an

important value to consider in promoting educational adjustment among Mexican-origin adolescent mothers.

Furthermore, familism values moderated associations throughout the achievement motivation process and ultimately informed young mothers' educational attainment. In the context of high levels of familism values, various protective associations within the achievement motivation process were enhanced. Enhanced associations included the links between academic motivation and educational utility beliefs, educational expectations and weekly employment hours, educational expectations and weekly childcare hours, and childcare hours and educational attainment. Furthermore, in the context of low familism values, the expected negative association between high levels of school discrimination and educational utility beliefs emerged as a positive association, indicating that experiencing high levels of school discrimination may incentivize the importance of educational attainment as a response or a coping strategy to confronting stereotypes and overcoming school discrimination

Study findings have important implications for intervention efforts that seek to improve the educational attainment of Mexican-origin adolescent mothers. Findings provide an increased understanding of how specific indices of familism values (i.e., emotional closeness, support) uniquely contribute to the achievement motivation of a largely understudied at-risk population. Although findings from the current study do not offer specific instructions to designing educational interventions with Mexican-origin adolescent mothers, findings provide important insights regarding the utility of cultural values as tools to promote resiliency and education adjustment among adolescent mothers. Finally, findings illustrate the need to continue to explore the promotive and

protective role of other salient culturally informed assets and resources (e.g., bilingualism), as such resources may advance understandings of adolescent mothers' educational trajectories and achievements.

CHAPTER 3

IDENTIFYING PROMOTIVE PROFILES AND LINKS TO MEXICAN-ORIGIN ADOLESCENT MOTHERS' EDUCATIONAL ADJUSTMENT

One important challenge of teenage pregnancy is that adolescents must negotiate their responsibilities as both young mothers and emerging adults throughout the course of continuing their education. These negotiations are largely based on cultural norms, social and familial expectations, and supportive resources. For instance, prior work has shown that extensive support (e.g., advice, childrearing, financial) from mothers or mother figures is common and often expected among Latino families with teen mothers (Contreras et al., 2002; Taylor, Chatters, & Jackson, 1993). Such cultural norms may interactively function or compete with other resources (e.g., dating partner support) that influence Latina adolescent mothers' opportunities to continue their education during pregnancy and postpartum (Cherry et al., 2015; Contreras et al., 2002). It is therefore possible that Latina adolescent mothers experience variability in their educational adjustment due to their utilization and perception of multiple culturally informed resources and assets (Contreras et al., 2002). Little is known, however, about the extent to which known promotive factors work together to inform the educational adjustment of Mexican-origin adolescent mothers. Thus, it is important to consider whether (a) different subgroups of pregnant Mexican-origin adolescents exist, based on unique patterns or constellations of known protective factors, and (b) how unique constellations of promotive factors may differentially inform young mothers' ability to continue their education postpartum.

The current study expands prior work by using a culturally informed person-centered approach to simultaneously consider different sub-dimensions of promotive factors to identify distinct classes of individuals (using latent profile analysis) who differ based on cultural and family resources and assets at the time of pregnancy. Specifically, the current study explored profiles across three domains based on social assets (i.e., family, peer, and dating partner support), aspirational assets (i.e., adolescents' and mothers' educational aspirations), and familial assets (i.e., familism values, familial ethnic socialization; see Figure 7). The goal of the current study was to identify distinct patterns of promotive factors experienced by pregnant Mexican-origin adolescents to gain a better understanding of how such factors may interactively contribute to postpartum educational adjustment (i.e., educational attainment, academic achievement/ persistence).

Understanding Mexican-origin Adolescent Mothers' Educational Adjustment

Much work has observed Latina adolescent mothers' potential for educational achievement through deficit assumptions, given that teen mothers are more likely to reside in low-income neighborhoods and experience considerable barriers (e.g., institutional discrimination, child rearing responsibilities, exposure to violence) to continuing their education postpartum (Hofferth, Reid, & Mott, 2001; Kennedy, 2006; Pillow, 2004). Additionally, scholars have emphasized the social stigma surrounding teen pregnancy and schooling. Qualitative studies have shown that adolescent mothers often perceive notions of social disgrace and lowered expectations from peers, educators, and administrators (Cherry et al., 2015; Hallman, 2007; SmithBattle, 2007). Similarly, empirical work with African American adolescents indicates that teen pregnancy may discourage adolescent mothers' educational pursuits postpartum (Barr & Simons, 2012).

In this way, research has primarily centered on the disadvantages and risk factors associated with the increased likelihood of young mothers' educational maladjustment (Mollborn, 2010).

Notably, some qualitative findings have emerged suggesting that despite the notable disadvantages surrounding teen pregnancy, many pregnant and parenting mothers reorganize their life priorities to focus on their children's outcomes, identifying education as a means to improving their circumstances, and ultimately promoting their educational endeavors (Cherry et al., 2015; Klaw, 2008; SmithBattle, 2006; 2007). Scholarship on teen parenting has posited that adolescent mothers' ability to continue their education during pregnancy and postpartum may be associated with the availability and use of diverse protective and promotive factors (Contreras et al., 2002; Morrison et al., 2010). For instance, studies have found that adolescent mothers who have greater access to familial resources (e.g., family support) and supportive peer networks are more likely to engage in strategies (e.g., obtain childcare, participation in after-school programs) that facilitate educational adjustment (e.g., school enrollment; Brosh, Weigel, & Evans, 2007; Sarri & Phillips, 2004; SmithBattle, 2006; Weed et al., 2000). Other work has found that adolescent mothers with the most supports (e.g., family help/support, community and public resources) were less likely to believe they were limited in their opportunities for educational success (Klaw, 2008; SmithBattle, 1995). Such findings illustrate the manifestation and potential function of multiple promotive factors across individual, familial, and contextual domains for adolescent mothers. To date, however, limited empirical work has examined the interplay between multiple promotive assets and resources to inform educational adjustment among pregnant and parenting adolescents.

Given the pervasive gap in educational adjustment (e.g., educational attainment, college enrollment) between non-parenting and parenting adolescent mothers (Barr & Simons, 2012; Escamilla & Santhiveeran, 2005), as well as inconsistencies in findings regarding teen pregnancy and postpartum educational adjustment, there is significant need for researchers to consider how unique patterns of promotive factors may inform young mothers' capacities to adapt successfully and continue their education postpartum (Mollborn, 2010).

Using Culturally Informed Models to Identify Promotive Profiles

To understand how promotive factors work together to foster adjustment among racial-ethnic minority youth, scholars have called attention to models grounded in cultural frameworks (García Coll et al., 1996; Kagitcibasi, 2012; Rogoff, 2003; Yosso, 2005). Culturally informed models provide a conceptual framework from which to understand the development and use of combined alternative resources that facilitate educational adjustment among non-traditional students (Yosso, 2005), such as pregnant Mexican-origin adolescents. Alternative resources comprise of a set of values and assets cultivated by marginalized communities of color. These alternative resources can be understood as cultural funds of knowledge, skills, and abilities fostered by racial-ethnic minorities to overcome significant social barriers (García Coll et al., 1996; Yosso, 2005). Such culturally informed resources are interconnected across various contexts and are predicted to promote the educational adjustment of Latina adolescent mothers (Contreras et al., 2002; Zhan & Sharraden, 2011).

Community Cultural Wealth (i.e., CCW) is one framework that has theoretically supported the interactive influence of unique cultural capital or assets as tools for

empowerment, perseverance, and social mobility among marginalized communities of color (Yosso, 2005). The CCW framework underscores the concurrent role of protective and promotive resources and assets across various domains, which typically have been undervalued or overlooked in prior literature (Yosso, 2005). CCW outlines six forms of cultural capital: resistant (i.e., empowerment following the experience or perception of overcoming challenges and inequalities), navigational (i.e., beneficial experiences and knowledge of maneuvering through social institutions), social (i.e., social networks or community resources), familial (i.e., sense of community through family and cultural knowledge and history), linguistic (i.e., ability to communicate in diverse languages or styles), and aspirational (i.e., hopes and expectations that individuals hold or perceive within their social context). According to CCW, dimensions of culture across these domains have important implications for why some at-risk racial-ethnic minority youth overcome adversity and attain high levels of educational achievement (Yosso, 2006).

Yosso's CCW framework posits that culturally informed resources empower racial-ethnic minority youth through experiences derived from intersections between race/ethnicity, class, language, gender, immigration status, and communal support. Although this conceptual framework does not make specific hypotheses as to whether certain resources are more meaningful than others, resilience research underscores the importance of determining how the interplay between promotive factors may mitigate contextual risks (i.e., protective factor model), such as low aspirational assets, and promote healthy development (Zimmerman et al., 2013). Thus, it is possible that different constellations of culturally informed resources and assets may provide *unique* benefits to Mexican-origin adolescent mothers' educational adjustment by compensating for the

effects of limited or competing resources (e.g., low social support, dating partner vs. family support), as well as enhancing the effects of promotive factors (e.g., high social support). Understanding how culturally informed factors function interactively to promote educational adjustment would be useful in tailoring intervention efforts to target the specific needs and endorse the strengths of different subgroups of Mexican-origin adolescent mothers.

To understand patterns of promotive processes among Latino youth, research has highlighted the interplay or interconnections between sociocultural forces and individual, family, and community characteristics (Kupermic et al., 2009). Scholars have identified the domains of social support, aspirations, and culturally rooted family values, attitudes, and behaviors as particularly salient promotive and protective processes in the lives of Latino adolescents (Bermudez & Mancini, 2013). These particular domains have been thought to determine the context in which Latino youth experience, interpret, and behave in relation to their educational pursuits (Kupermic et al., 2009). Importantly, given variability in individual characteristics and familial and contextual conditions of Mexican-origin families with teen mothers, it is essential to consider how different patterns across culturally informed domains may uniquely inform young mothers' educational adjustment.

Drawing from the CCW framework, and in line with scholars' recommendations, the current study focused on identifying subgroups of Mexican-origin adolescents distinguished by unique patterns of promotive factors across social, aspirational, and familial domains (Yosso, 2005; 2006). Social assets (e.g., social support) consist of networks of people and community resources. Aspirational assets (e.g., individual and

parental educational aspirations) describe the ability to have high hopes for the future in spite of social, economic, and institutional barriers one may consistently face. Familial assets (e.g., familism, familial ethnic socialization) refer to the cultural practices, support, and forms of knowledge that rely on familial relationships. These factors have been conceptualized as dynamic promotive and protective constructs under circumstances in which racial-ethnic minority individuals lack access to public services (e.g., social, education, health; Yosso, 2005).

Although various studies have documented positive associations between factors within cultural domains (i.e., social, aspirational, and familial assets), such as cultural beliefs and practices (e.g., familism, ethnic socialization), and racial-ethnic minority youths' educational adjustment (Awad, 2007; Chavous et al., 2003; Harding et al., 2015; Hughes et al., 2009; Umaña-Taylor et al., 2002), virtually no studies have empirically examined the influence of constellations of promotive factors across ecological levels (e.g., individual characteristics, peer influence, and parental/ familial influences) on Mexican-origin adolescent mothers' educational adjustment. Given theoretical conceptualizations emphasizing the interactive and differential influence of culturally informed resources on perseverance and social mobility among marginalized groups (García Coll et al., 1996; Yosso, 2005), particularly among Latina adolescent mothers (Contreras et al., 2002), the interactive effects of the above cultural mechanisms may play an integral role in the educational adjustment of Mexican-origin adolescent mothers. Accordingly, a comprehensive approach regarding the interactive benefits of differential patterns of promotive factors encountered by adolescent mothers is needed. Findings

regarding the direct (i.e., individual) and interactive effects of social, aspirational, and familial assets are reviewed below.

Social assets. For adolescent mothers, prior work has highlighted the important role of social support on their adjustment postpartum (Bunting & McAuley, 2004; Luster, Bates, & Fitzgerald et al., 2000). Social support is a multidimensional construct that includes the provision or perception of emotional, tangible, informational, and companionship support (Letourneau, Stewart, & Barnfather, 2004). Social support can be derived from family members, peers/friends, and significant others or dating partners (Sarafino, & Smith, 2012). Research with adolescent mothers indicates that integrative support from the family, peers, and dating partners may enhance young mothers' long-term adjustment (e.g., life satisfaction, psychosocial well-being; Brosh et al., 2007; Bunting & McAuley, 2004; Richardson, Barbour, & Bubenzer, 1995). Furthermore, studies with non-parenting adolescents have linked social support to youths' educational adjustment (Crean, 2004; DeGarmo & Martinez, 2006). In a study with Latino adolescents, DeGarmo and Martinez (2006) found that social support was predictive of academic well-being. Findings indicated that combined sources of social support (i.e., parent, school, peer) were more important than any one source of social support alone for Latino adolescents. Although limited work has examined the link between multiple sources of social support and adolescent mothers' educational adjustment, it is likely that adolescents who perceive high levels of support from a combination of family, peers, and dating partners may have greater resources to pursue their education postpartum.

With respect to the variability and importance of specific supportive sources, prior work suggests that family support is often cited as the most important source of support

for young mothers, followed by peers and dating partner support (Brosh et al., 2007; Bunting & McAuley, 2004). Parenting models with Latina adolescent mothers suggest that family and peer support may be more likely to contribute to the educational expectancies and pursuits of young mothers (Contreras et al., 2002). Social support from family and peers has been posed to provide adolescent mothers with several resources (e.g., encouragement) and incentives (e.g., fulfilling expectations) to continuing their education postpartum (Brosh et al., 2007; Contreras et al., 2002; Hellenga, Aber, & Rhodes, 2002). Support from dating partners has received less attention in the teen parenting literature compared to family and peer support. Nevertheless, findings reveal that adolescent mothers who receive greater support from dating partners (i.e., husband, boyfriend) also report healthier postpartum adjustment (e.g., low depressive symptomatology, high parenting efficacy and self-esteem; Brosh et al., 2007; Richardson et al., 1995). Scholars suggest that supportive networks may instill in adolescent mothers a sense of pride for continuing their educational pursuits and achieving their academic goals throughout parenting (Brosh et al., 2007). Social support from multiple sources may create greater incentives and attainment value for adolescent mothers to continue their education. Thus, it is likely that adolescent mothers who perceive high levels of social support from dating partners, as well as family members and peers, may also be more likely to successfully continue their educational pursuits.

Regarding the interactive effects of social assets, much work has focused on the buffering effect of social support (e.g., family, community), such as mitigating the negative effects of stress (e.g., low socioeconomic status, neighborhood risk) on racial-ethnic minority youth's adjustment (McMahon, Felix, & Nagarajan, 2011; Scott et al.,

2015). For Latina adolescent mothers, in particular, scholars have suggested that social support may function by promoting positive outcomes among Latina adolescent mothers (Contreras et al., 2002). Researchers have begun to examine the interactive role of social assets with other factors to promote adjustment. For instance, in a longitudinal study of African American adolescents, Hurd and colleagues found that higher levels of support from a natural mentor (i.e., non-parental figure) promoted educational adjustment (i.e., educational attainment) by enhancing the effects of racial identity (i.e., private regard) on their beliefs about educational utility (Hurd, Sanchez, Zimmerman, & Caldwell, 2012). In a longitudinal study with the current sample of Mexican-origin adolescent mothers, Umaña-Taylor, Guimond, Updegraff, and Jahromi (2013) found that social support from mother figures interacted with pregnant adolescents' self-esteem to inform their parenting efficacy one year postpartum. Although social support (as reported by both adolescents and their mother figures) did not directly predict perceptions of parenting efficacy, social support interacted with self-esteem to predict parenting efficacy, such that high levels of social support buffered against the risks of low self-esteem on adolescent mothers' adjustment. Overall, these findings highlight the importance of examining the interactive effects of social assets with other promotive factors to promote adolescent mothers' adjustment over time. Likewise, it is possible that adolescents' social assets may interact with aspirational and familial assets to promote young mothers' educational adjustment.

Aspirational assets. Another important promotive factor to consider is educational aspirations. Educational aspirations refer to one's hopes or desires regarding how far an individual believes they or someone else will go in school (i.e., future educational attainment; Reynolds & Johnson, 2011). According to CCW perspectives, the

aspirational assets that individuals possess or interpret for themselves function as supportive resources that enable individuals to maintain an optimistic disposition regarding their future educational pursuits; this is true despite the challenges and barriers associated with situational-contexts (Yosso, 2005), such as those related to teen motherhood (e.g., childrearing responsibilities, school discrimination; SmithBattle, 2006). Aspirational assets may therefore function as important resources that directly inform adolescent mothers' capacities to form and sustain optimistic motivational beliefs and ultimately continue their education postpartum. Indeed, high individual educational aspirations have been consistently positively linked with adolescents' educational adjustment (i.e., ability beliefs, academic motivation, educational attainment; Beal & Crockett, 2010; Kirk, Lewis-Moss, Nilsen, & Colvin, 2011; Mellow, 2008; Plunkett & Bámaca-Gómez, 2003), including among parenting adolescents (Barr & Simons, 2012). Accordingly, educational aspirations have been discussed as beliefs that shape individuals' perceptions about their self-concept and school-related abilities (Beal & Crockett, 2010). The current study thus examined the role of adolescents' educational aspirations (i.e., how far adolescents would ideally like to go in school) as a promotive/protective asset.

In addition to the role of adolescents' educational aspirations for themselves, conceptual models of Latina teen parenting have alluded to the role of mothers (i.e., mothers of adolescents/ grandmother of infant), and particularly the aspirational beliefs of *mothers*, as critical for pregnant and parenting teens' educational adjustment (e.g., expectations, attainment; Contreras et al., 2002). Qualitative findings have supported the notion that mothers' aspirations for their parenting daughters' educational pursuits help

shape young mothers' perceptions about the importance of education and build confidence in their own abilities (Camarena, Minor, Milmer, & Ferrie, 1998). There is evidence to suggest that parents' educational aspirations for their children may inform youths' educational adjustment by promoting the use of additional resources to support educational pursuits. For instance, researchers have found that parents who hold higher educational aspirations dedicate more time and resources (e.g., effective parenting styles; greater parental involvement/supervision; homework help) to ameliorate adolescents' educational adjustment (e.g., grades; Spera, 2006; Sy & Schulenberg, 2005). Mothers may therefore devote greater resources (e.g., childcare, transportation) toward adolescents and impose fewer demands (e.g., financial, household responsibilities) when they have high educational aspirations for their daughters.

Despite findings highlighting the importance of both adolescents' and their mothers' educational aspirations, limited work has examined the role of adolescents' and mothers' aspirations simultaneously, particularly among Mexican-origin adolescent mothers. Qualitative work with adolescent mothers suggests that adolescent mothers who hold educational aspirations that differ widely (e.g., high school completion vs. college completion) from their mothers may encounter difficulties (e.g., depression, low motivation) in their educational endeavors (Camarena et al., 1998). Indeed, prior empirical work with non-parenting adolescents found that mismatched aspirations between adolescents and their parents was linked to a greater risk of maladjustment (Gallagher, 2016). In particular, adolescents who perceived their parents to hold higher college aspirations for them than they held for themselves were more likely to report higher levels of depressive symptoms (Gallagher, 2016). Such work highlights the

importance of simultaneously considering adolescents' and mothers' aspirations, as divergent educational aspirations may pose a strain on adolescents' achievement motivation due to feelings of high pressure or a fear of failure**.** Because qualitative work with adolescent mothers suggests that there is variability in adolescents' educational aspirations and mothers' aspirations for their adolescent daughters (Cherry et al., 2015; SmithBattle, 2006), it is important to understand how different patterns of adolescents' and mothers' educational aspirations may interact with other assets and resources to inform adolescent mothers' educational adjustment.

Importantly, previous work has shown that high educational aspirations, *alone*, are not sufficient to support youths' educational endeavors, as the effect of high aspirations may be weakened by additional barriers (stress, anxiety, economic hardship; Kirk et al., 2011). For instance, it is possible that despite high educational aspirations among adolescents and their mothers, adolescents may be less equipped to engage in strategies that facilitate educational adjustment when they lack additional forms of promotive resources (e.g., social support). Educational aspirations may therefore function together with other important cultural assets (e.g., familial ethnic socialization, familism values), as work with Latino families suggests that educational aspirations are a function of their educational values and goals, informed by community norms (Carpenter, 2008; Stanton-Salazar, 2011).

Because cultural norms (e.g., familism values) have been shown to facilitate relationship (e.g., family/community level) qualities among Latino families in the form of closeness and support (Campos, Ullman, Aguilera, & Schetter, 2014), it is possible that interactions between high levels of educational aspirations and cultural promotive factors

may increase the probability of positive and healthy adaptation. For example, high levels of educational aspirations may enhance the positive effects of supportive resources, such as familial or social support. Adolescents who encounter high levels of aspirational and familial assets may thus perceive greater incentives and support to overcome teen pregnancy barriers (e.g., child rearing responsibilities, parenting stress), which ultimately facilitate adolescents' abilities to continue their education postpartum. Although studies have not explicitly examined the differential effects of educational aspirations with other cultural assets (i.e., social and familial assets), it is likely that these factors may interact by enhancing or promoting the positive effects of promotive factors on adolescents' long-term educational adjustment.

Familial assets. A final context to consider is familial assets, or resources pertaining to family values and practices. In addition to experiencing the benefits of social and aspirational resources, scholars have posited that Latina adolescent mothers' educational adjustment may also benefit from the expectations and support embedded in family beliefs and cultural orientation (Contreras et al., 2002). Specifically, studies have identified *familism* values (i.e., closeness and emotional support; Sabogal, Marin, Otero-Sabogal, Marin, & Perez-Stable, 1987) and *familial ethnic socialization* (i.e., family efforts to teach or expose children to culturally relevant experiences; Umaña-Taylor, Alfaro, Bámaca, & Guimond, 2009) as important predictors of racial-ethnic minority youths' educational adjustment (e.g., academic perseverance, school attachment; Gonzales et al., 2008; Huynh & Fuligni, 2008; Stein, Gonzalez, Cupito, Kiang, & Supple, 2013). Furthermore, work with the current sample of Mexican-origin adolescent mothers, in particular, has supported the notion that familism values and familial ethnic

socialization practices inform adolescent mothers' educational adjustment postpartum (i.e., education utility beliefs; Bravo et al., 2014). Researchers suggest that for Mexican-origin adolescents, cultural value systems may function as motivating pathways by endorsing the importance of education to family adjustment and helping youth make informed educational decisions (Valadez, 2002). Findings coincide with conceptual models of Latina adolescent mothers' parenting competencies, which underscore the importance of family resources as pertinent to young mothers' adaptation and educational perseverance postpartum (Contreras et al., 2002).

Familism and familial ethnic socialization are distinct familial assets that may serve a collaborative or adaptive function with social and aspirational assets. Scholars pose that family values and behaviors interact with other promotive and protective factors to inform adolescents' development (Kiang, Andrews, Stein, Supple, & Gonzalez, 2013; Telzer, Gonzales, & Fuligni, 2014). Other work has demonstrated that familial assets (i.e., familism values) often occur alongside additional indicators of adaptive family functioning (e.g., frequent communication; Milan & Wortel, 2015). Although empirical work with Mexican-origin adolescent mothers has not previously distinguished whether the endorsement of familism or familial ethnic socialization practices contribute interactively with social and aspirational assets, it is likely that adolescent mothers' educational adjustment may be informed by mutually high levels of these promotive factors. Because Latino adolescents adhere to cultural orientations and traditions to differing degrees, in light of bicultural contexts, it is critical to understand how varying levels of familial assets interact with other factors to promote educational adjustment (Romero & Roberts, 2003).

Prior work with racial-ethnic minority families has supported the benefits of interactions between familial assets (e.g., cultural orientation) and culturally informed promotive and protective factors (e.g., social support). In a study with African American adolescents, Caldwell and colleagues found that adolescents' positive attitudes regarding their race enhanced the effect of father's support on risky behaviors (i.e., lower alcohol use; Caldwell, Sellers, Bernat, & Zimmerman, 2004). In another study with Mexican American adolescents, researchers investigated how perceived social support (i.e., family, friends, and significant other) and acculturation (Mexican/Anglo-orientation) interactively related to life satisfaction (i.e., global, family, friends, school, self, living environment). Findings suggested that higher levels of Mexican-orientation and perceived support were associated with greater life satisfaction among Latino adolescents (Edwards & Lopez, 2006). In a longitudinal study with the current sample of Mexican-origin adolescent mothers, Bravo and colleagues (2014) found that ethnic centrality moderated the association between adolescent mothers' familism values and educational adjustment (i.e., educational utility), such that adolescent mothers' endorsement of familism values during pregnancy was associated with significant increases in educational adjustment, but only when adolescents reported high levels of ethnic centrality.

The above findings underscore the potential interactive benefits of familial assets and culturally informed promotive/protective factors for promoting adjustment. The current study extends the prior literature by investigating the interactive effects of familial assets, alongside social and aspirational assets to understand how unique patterns of differing levels of these promotive factors may inform adjustment. A close

examination of the role of constellations of promotive factors may provide a more comprehensive understanding of the effects of diverse contexts experienced by Mexican-origin adolescent mothers. Constellations of relevant promotive factors may be particularly important during pregnancy, a time when education is commonly described as a newly realized tool of life improvement (SmithBattle, 2006). In order to target the specific needs of adolescents at the time of pregnancy, it is first necessary to determine whether there are underlying subgroups of adolescent mothers who can be distinguished by unique patterns of promotive and protective factors, which may differentially inform educational adjustment. One method used to classify individuals into groups based on shared characteristics is by using a person-centered approach (e.g., Latent Class Analyses; Laursen & Hoff, 2006; Magnusson & Stattin, 2007).

Person-Centered Approach to Understanding Promotive Factors

Despite findings demonstrating the promotive and protective role of social, aspirational, and familial assets on the development of youths' educational adjustment, our understanding of these cultural domains has predominantly emerged through variable-centered approaches, which use models that examine single factors at a time. Although variable-centered approaches have been instrumental to understanding adolescents' adjustment, such approaches are most beneficial for understanding relations between variables. A variable-centered approach is therefore useful in answering questions regarding how an individual variable is associated with another variable. Furthermore, variable-centered approaches assume that populations are homogenous regarding links between predictors and outcomes (Magnusson & Bergman, 1988). That is, variable-centered approaches identify processes, such as links between promotive

factors and educational adjustment, under the assumption that such processes operate similarly for all members of a group. Furthermore, a variable-centered approach assumes that all factors are weighted equally and function similarly. This approach does not allow an examination of how multiple (i.e., 3 or more) individual variables simultaneously interact to inform educational adjustment. A variable-centered approach is therefore limited as it cannot examine the interaction among multiple variables or identify patterns or subgroups defined by the unique and simultaneous interaction of multiple promotive and protective factors.

Conceptual models rooted in cultural perspectives have highlighted the importance of understanding how ethnic-racial minority youths' entire range of culturally salient factors interact together to inform their educational adjustment (Yosso, 2005). This is especially relevant to ethnic-racial minority adolescent mothers, as this population has been shown to live within diverse contexts, with respect to family structure and educational support, and consequently vary in their educational outcomes (Barr & Simons, 2012; Cherry et al., 2015; Contreras et al., 2002; SmithBattle, 2006; 2007). Because scholars have collectively stressed the importance of examining multiple promotive and protective factors that exist in conjunction with each other to fully understand patterns of development and typologies of resilient youth (García Coll et al., 1996; Kiang et al., 2013; Telzer et al., 2014), a person-centered approach is useful in understanding the systematic connection of promotive factors and differential links to adjustment among subgroups of adolescent mothers.

A person-centered approach is useful for uncovering the role of multiple promotive factors and offers an inclusive understanding of educational adjustment by

identifying patterns of factors and examining the differential effects on adjustment. Person-centered perspectives focus analyses at the individual level, rather than at the variable level, which allow for the identification of distinct groups or types of individuals who share specific attributes (Laursen & Hoff, 2006). Based on the assumption that development is the product of multiple sociocultural interactions (i.e., holistic interactionism), the person-centered approach allows for the assessment of unique patterns of promotive and protective factors to identify meaningful latent groups that share similar salient properties (Magnusson & Stattin, 2007). Further, a person-centered approach provides information about the quantitative variations of factors within and between latent profiles, the frequency or pervasiveness of specific profiles, and the differential relations between distinct profiles and educational adjustment. Finally, this approach considers the simultaneous effect of multiple factors (i.e., social support, maternal aspirations, familism, familial ethnic socialization).

Few studies have examined patterns of promotive and protective factors and the implications on racial-ethnic minority youths' educational adjustment using a person-centered approach. In one exception, researchers examined how strength-based assets buffered against the risk of school-based racial discrimination on academic persistence (i.e., engagement) in a cross-sectional study with African American adolescents (Butler-Barnes et al., 2013). A person-centered approach (i.e., using latent class analysis) was used to identify patterns of personal and cultural assets (i.e., racial pride, self-efficacy beliefs, self-acceptance). Three latent classes emerged and were characterized as having average, high, and lower assets. Adolescents who were classified as belonging to the *higher assets* group reported higher academic persistence in comparison to the *average*

and *low assets* groups. This study provided information regarding patterns of promotive factors experienced by unique subgroups of African American adolescents, suggesting that the most pervasive profile included the average assets group, and provided support for the relevance of understanding constellations of promotive factors. The current study builds on this work by assessing the longitudinal promotive function of distinct patterns of culturally informed factors across social, aspirational, and familial domains for an at-risk understudied population, Mexican-origin adolescent mothers.

A person-centered approach is uniquely equipped to provide insight on how patterns or combinations of specific factors simultaneously interact with each other and how the effects of patterns of factors vary across distinct subgroups of individuals. This is particularly advantageous in understanding adaptive patterns of promotive factors among adolescent mothers and links to educational adjustment, as the availability and utility of promotive factors is likely to vary among Latina adolescent mothers (Contreras et al., 2002). Because prior work has demonstrated that specific combinations of promotive factors (across familial, social, aspirational domains) may better explain the educational outcomes of ethnic-racial minority youth and adolescent mothers (e.g., Camarena et al., 1998; DeGarmo, & Martinez, 2006; Edwards & Lopez, 2006; Kupermic et al., 2009), findings indicate that it may be patterns of promotive factors, rather than individual promotive factors in isolation, that more accurately capture the variability in Mexican-origin adolescent mothers' educational adjustment. Thus, notions from previous findings highlight the significance of using a person-centered approach to understand patterns of concurrent promotive factors, as the significance of specific promotive factors may be

more meaningful for pregnant adolescents when assessed in conjunction with other relevant factors.

It is likely that distinct patterns of promotive factors may emerge among Mexican-origin adolescent mothers, as the reliance on specific resources and assets may compensate, compete, or interfere with the utility of other factors (Contreras et al., 2002). For instance, in a qualitative study with adolescent mothers, adolescents reported that family and peer social support (e.g., childcare, emotional, family advice) were instrumental to their educational pursuits (i.e., high school completion, college enrollment), despite perceptions of low dating partner support and low teacher educational aspirations (Cherry et al., 2015). In this study, scholars acknowledged that although teachers' aspirations and dating partner support are critical determinants of adolescent mothers' educational adjustment postpartum, high levels of supportive relationships may have compensated for shortages in other resources and nevertheless promote adjustment.

In another qualitative study, findings revealed that despite family and dating partner support (e.g., childrearing), young mothers felt less confidence in their likelihood of continuing their education postpartum (Weed et al., 2000). Scholars offered that low motivation among adolescent mothers might stem from low or mismatched educational aspirations (with family). The above findings suggest that although some factors have been identified as promotive, the beneficial effects of such factors may rely heavily on high levels of other promotive factors. Similarly, it is possible that for Mexican-origin adolescent mothers, constellations of promotive factors may differentially inform adjustment for different groups of adolescent mothers. In line with prior qualitative

findings (e.g., Brosh et al., 2007; Cherry et al., 2015, Hellenga et al., 2002; SmithBattle, 2006; 2007; Weed et al., 2000), a few possible constellations that may emerge include patterns of (a) low or ambiguous educational aspirations and high familism, familial ethnic socialization, social support (i.e., family, peer, dating partner), (b) low dating partner and peer support and high familism values, familial ethnic socialization, educational aspirations, family support, and (c) low familial ethnic socialization and high educational aspirations, familism values, and social support. It is possible that combinations of specific resources and assets may be particularly beneficial for some adolescent mothers and not others.

Although scant work has used a person-centered approach to examine the effects of promotive factors on Mexican-origin adolescent mothers' long-term educational adjustment, the identification of distinct patterns of promotive factors and the differential links to educational adjustment may contribute to the development of intervention efforts seeking to facilitate positive educational adjustment (e.g., school enrollment, high school completion, college attendance) for specific subgroups of at-risk adolescent mothers. By understanding how different protective factors may function interactively among this at-risk understudied population, across social, aspirational, and familial assets (i.e., key domains of resilience; Bermudez & Mancini, 2013), researchers can gain insight into how patterns of specific promotive factors differentially facilitate adolescent mothers' educational adjustment. Furthermore, a person-centered approach enables a more comprehensive understanding of how multiple factors promote adjustment in tandem, as protective and protective factors do not function in isolation from one another, but rather interrelate to promote resilience (Zimmerman et al., 2013).

The Current Study

The current study was guided by two main goals. First, Mexican-origin adolescent mothers' promotive profiles were examined based on social, aspirational, and familial domains, with a focus on the quantitative differences across profiles and the prevalence of promotive profiles (see Figure 7). Specifically, at least 3 patterns of promotive profiles were expected to emerge, given prior theoretical and empirical work suggesting that racial-ethnic minority adolescents and adolescent mothers experience variability in the levels and utility of cultural and familial assets and resources (Butler-Barnes et al., 2013; Cherry et al., 2015; Contreras et al., 2002; Hellenga et al., 2002; SmithBattle, 2006). Given the limited prior work regarding promotive profiles among Mexican-origin adolescent mothers, hypotheses about the pervasiveness of certain patterns over others cannot be specified. Next, key sociodemographic variables were examined as covariates of latent profiles (see Figure 8). Specifically, analyses examined whether adolescents' age, nativity status (i.e., U.S.-born vs. Mexico-born), economic hardship, coresidency (with mothers, dating partners, mothers and dating partners), other children, factors that have been linked with non-parenting and parenting adolescents' educational adjustment and motivation (Alivernini & Lucidi, 2011; Barr & Simons, 2012; Fry, 2005; Plunkett & Bámaca-Gómez; SmithBattle, 2006), uniquely informed the probability of membership into distinct promotive profile groups.

The second goal of the current study was to examine the differential longitudinal links between constellations or patterns of promotive factors and educational adjustment (i.e., educational attainment, academic achievement/persistence; see Figure 9). Although high levels of promotive factor constellations were expected to be more positively

associated with educational adjustment, compared to low levels of promotive factor constellations, it was expected that *distinct* patterns across promotive factors (aspirational, familial, social) would differentially inform young mothers' educational adjustment. For instance, groups classified by constellations consisting of high levels of social and familial assets, but low levels of aspirational assets, may be more at risk for educational maladjustment (e.g., high school dropout, lower attainment), compared to groups with constellations including moderate or average levels of aspirational, familial, and social assets. Furthermore, it was also expected that unique patterns *within* promotive factors would differentially inform educational adjustment. For example, constellations representing high levels of one type of social support (e.g., high family support), but low levels of other supports (e.g., low peer/friend and dating partner/significant other support), may still be positively linked with educational adjustment (e.g., high school completion), if accompanied by moderate or high levels of aspirational or familial assets. Similarly, constellations consisting of divergent educational aspirations (e.g., high aspirations desiring doctoral degree vs. low aspirations aimed at high school completion) between adolescents and mothers may pose a greater risk for adolescent mothers' educational adjustment, compared to constellations consisting of matching educational aspirations (e.g., moderate aspirations aimed at obtaining vocational degree).

The current study makes a significant contribution by identifying subgroups of individuals based on unique patterns or constellations of promotive factors and differential links to educational adjustment among a population with the highest rates of teen pregnancy and parenting in the United States (i.e., Mexican-origin). It is critical to examine the promotive profiles of Mexican-origin adolescent mothers, given that this

population disproportionately reports educational maladjustment (Boden et al., 2008). The current exploratory study provides a broad overview of promotive patterns based on culturally informed promotive/protective resources and assets encountered by Mexican-origin adolescents at the time of pregnancy. Findings from the current study have important implications for developing comprehensive community-based policies and practices aimed at improving the educational trajectories of unique subgroups of Mexican-origin adolescent mothers. Through a culturally informed understanding of how distinct patterns of promotive factors inform educational adjustment across the transition to motherhood and young adulthood, researchers and practitioners may gain a better understanding of the overlooked personal strengths and resources that drive achievement motivation.

Method

Participants

Data were from an ongoing longitudinal study of 204 Mexican-origin adolescent mothers and their mother figures, who were recruited from a large metropolitan area in a southwestern state in the United States (Umaña-Taylor et al., 2013). Adolescents' average age at Wave 1 (W1), or the time of pregnancy was 16.80 years (SD = 1.00). Mother figures (M_{age} = 41.22; *SD* = 6.81) included adolescents' biological mothers (89%) or other female kin (e.g., aunt, grandmother, stepmother). A majority of adolescent mothers (64 %) were born in the U.S., whereas a majority of mother figures (68.6%) were born in Mexico. At W1 a majority of adolescents were enrolled in school (58%) or had graduated or earned a GED (5%). At Wave 2 (W2) fewer adolescents were enrolled in school (40%) and an increasing percentage graduated or earned a GED (17%). At

Wave 3 (W3), fewer adolescents were enrolled in school (29%), but more reported graduating or earning a GED (29%). At Wave 4 (W4), fewer adolescents were attending school (21%) compared to those who had graduated or earned a GED (41%). At Wave 5 (W5), fewer adolescents (13%) attended school and more had graduated or earned a GED (46%). Finally, by Wave 6 (W6), only 10% of adolescent mothers reported attending school, compared to 52% who graduated or earned a GED. Next, the average level of educational attainment for adolescent mothers increased across waves, from W1 (M = 9.60, SD = 1.5), W2 (M = 10.3, SD = 1.4), W3 (M = 10.8, SD = 1.5), W4 (M = 11.1, SD = 1.5), W5 (M = 11.4, SD = 1.5), to W6 (M = 11.4, SD = 1.6).

Procedure

Pregnant adolescents were recruited from schools and community agencies. To participate in the study, participants had to be 15 to 18 years old, currently pregnant, of Mexican descent, not legally married, and have a mother figure who also was willing to participate. Participants were interviewed when the adolescent mother was approximately 30.87 weeks pregnant (W1), 10-months postpartum (W2), 24-months postpartum (W3), 36-months postpartum (W4), 48-months postpartum (W5), and 60-months postpartum (W6). At each wave, participants completed face-to-face semi-structured interviews (averaging approximately 1.5 to 2.5 hours in length), in which all questions were read out loud to them. Each participant received compensation for their participation ($25 at W1, $30 at W2, $35 at W3, $40 at W4, $50 at W5, and $60 at W6). A majority of adolescents (62.8%) completed their interviews in English and 68.6% of mother figures completed their interviews in Spanish at W1. Of the 204 adolescent mothers who participated at W1, 172 participated at W6.

Measures

Familism (W1). At W1, Adolescents' endorsement of familism values was measured with a 6-item subscale from the 16-item Mexican American Cultural Values Scale (Knight et al., 2010). Subscale items assessed adolescents' feelings support and of emotional closeness in the family. Adolescents rated their agreement with each statement (e.g., "It is always important to be united as a family") on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores indicated greater endorsement of familism. In the current study, the alpha coefficient at W1 was .76, Cronbach's alphas in the current study for adolescents' reports in English and Spanish were .80 and .66 at W1.

Familial ethnic socialization (W1). At W1, the 12-item Familial Ethnic Socialization Measure (FES; Umaña-Taylor, 2001; Umaña-Taylor, Yazedjian, & Bámaca-Gómez, 2004) was used to assess the degree to which participants perceived that their families socialized them with respect to their native culture (e.g., "My family teaches me about our family's ethnic/cultural background"). Respondents were asked to think about the past year and respond on a 5-point Likert-type scale with responses ranging from 1 (*not at all*) to 5 (*very much*), where higher scores indicated higher levels of FES. Cronbach's alpha at W1 was .90. Cronbach's alphas in the current study for adolescents' reports in English and Spanish were .89 and .70 at W1.

Social Support (W1). The Multidimensional Scale of Perceived Social Support (MSPSS; Canty-Mitchell & Zimet, 2000; Zimet, Dahlem, Zimet, & Farley, 1988) was used to measure adolescent mothers' perceptions of general social support from multiple sources (e.g., family, peers/friends, significant other/dating partner) at W1. The MSPSS consists of 12 items with three subscales. The *family support* subscale consists of 4 items

(e.g., “My family really tries to help me”) to assess the degree to which adolescent mothers perceive support from family members. The *peers/friends support* subscale consists of 4 items (e.g., “I can count on my friends when things go wrong”) to assess the degree to which adolescent mothers perceive support from friends. The *significant other support/ dating partner* subscale consists of 4 items (e.g., “I have a special person who is a real source of comfort to me”) referring to a “special person,” such as a boyfriend/girlfriend, teacher, or counselor, who adolescents perceive to provide support in their lives. Responses were rated on a 7-point Likert scale, with endpoints ranging from *strongly disagree* (1) to *strongly agree* (7). Higher scores within each subscale indicate higher levels of perceived support from either family, peers/friends, or significant others/dating partners. Cronbach’s alphas for family, peers/friends, significant other/dating partner support at W1 were .83, .89, and .94. Cronbach’s alphas in the current study for adolescents’ reports in English and Spanish were .81 and .86 at W1.

Education aspirations (W1). Adolescents and their mothers or mother figures each responded to one open-ended question to assess their educational aspirations for themselves or their pregnant daughters at W1: “How far would you *like* to go in school?; How far would you *like* your daughter to go in school?”. Responses were coded to reflect the number of years of schooling adolescents aspired or mothers’ aspired for their daughters (e.g., 10 = 10th grade; 12 = high school completion; 16 = bachelor’s degree; 20 = doctorate or professional degree). The range for adolescents’ self-reported aspirations at W1 was from 11th *grade* (11) to a *doctorate or professional degree* (20). The range for mother figures’ self-reported W1 aspirations for their daughters was from 10th *grade* (10) to a *doctorate or professional degree* (20).

Educational attainment (W6). Adolescent mothers' educational attainment (i.e., years of completed schooling) was self-reported at W6 via one item: "What is the highest level of education you completed?". The range for educational attainment at W6 was from *7th grade* (7) to *4-years of college or Bachelor's degree* (16).

Academic achievement/ persistence (W6). Adolescent mothers' self-reported academic achievement/ persistence was assessed at W6 via one item: "Are you currently attending school?" Responses were coded as *no, dropped out of high school* = 0; *Yes, currently enrolled or completed high school/ earned GED* = 1.

Covariates (W1). Data on adolescents' self-reported nativity status, age, economic hardship, coresidency, and whether they had other children at W1 were examined as covariates of W1 latent profile membership and as controls on W6 study outcomes (i.e., educational attainment, academic achievement/persistence). Adolescents' nativity status was coded using a binary scale (*Mexico-born* = 0, *U.S.-born* = 1). Adolescents' age at W1 ranged from 15 to 19 years of age. Adolescents' economic hardship at W1 was assessed using a 20-item measure (Barrera, Caples, & Tein, 2001), which included four subscales to assess economic hardship: financial strain (2 items; e.g., "In the next three months, how often do you think that you or your family will experience bad times such as poor housing or not having enough food?" with endpoints of *almost never* (1) and *almost always* (5); inability to make ends meet (3 items; e.g., "In the last three months, my/our expenses always exceed our income," with endpoints of *strongly disagree* (1) and *strongly agree* (5); not enough money for necessities (4 items; e.g., "We had enough money to afford the kind of car we needed," with endpoints of *strongly disagree* (1) and *strongly agree* (5); economic adjustments or cutbacks (9 items; e.g., "In

the last 3 months, has your family had to change food shopping or eating habits a lot to save money?" with responses coded as either *yes* (1) or *no* (0)). Responses were weighted to create a composite score (see Barrera et al., 2001), with higher scores indicating greater economic hardship. Cronbach's alpha, computed using the unweighted standardized economic hardship subscale scores, was .85. Next, analyses examined adolescents' W5 coresidency with mothers/ mother-figures, dating partners, or both mothers/mother-figures and dating partners (*yes, live together* = 1, and *no, did not live together* = 0) as predictors of latent profile membership. Finally, analyses examined whether the probability of latent profile membership differed by whether adolescents had other children (*no* = 0, *yes* = 1) at W1.

Planned Analyses

Protective profiles were estimated using latent profile analyses (LPA) in Mplus Version 7.4 (Muthén & Muthén, 1998–2007). To account for missing data, maximum likelihood estimation via the EM algorithm (Enders, 2010) will be used. LPA was used to identify unobserved subgroups with similar patterns of protective resources. Next, a series of models, beginning with a one profile model solution were estimated, followed by models increasing in the number of profiles to determine the best fitting model (Pastor, Barron, Miller, & Davis, 2007). The best fitting model was determined using the Akaïke Information Criterion (AIC: Akaïke, 1987), Bayesian information criteria (BIC; Schwartz, 1978), the adjusted BIC (ABIC); Tein, Coxe & Cham, 2013), the Voung-Lo-Mendell-Rubin (LMR; Lo, Mendell, & Rubin, 2001), and the Bootstrap Likelihood Ratio Test (BLRT; McLachlan & Peel, 2000). Entropy was also used as a secondary guiding factor in model selection (Lubke & Muthén, 2007). Decreases in the AIC, BIC, and

ABIC indicate an improvement in model fit (Lubke & Muthén, 2005). A significant LMR test value, however, would suggest that the model in which k profiles are specified is a better fitting than the k−1 profile model (Tofighi & Enders, 2007). The BLRT is a parametric likelihood ratio test obtained through resampling methods that compares a k-profiles model with a k-1-profiles model. A significant *p* value indicates that the k-1-profiles model should be rejected in favor of a k-profiles model.

Finally, the entropy indicates the precision with which the cases are classified into the various profiles. Although the entropy should not in itself be used to determine the model with the optimal number of profiles (Lubke & Muthén, 2007), it provides a useful summary of the classification accuracy. The entropy varies from 0 to 1, with values closer to 1 indicating a greater distinctiveness between the classes identified. The final solution was chosen based on the smaller information criterion values (AIC, BIC, & ABIC), a significant adjusted LRT and BLRT, as well as by evaluating the interpretability of each solution from theoretical perspectives and observations of large entropy values. A theoretical approach, guided by culturally informed frameworks (Contreras et al., 2002; Garc*í*a Coll, 1996; Yosso, 2005), was used to evaluate the interpretability of each solution to identify the best fitting model. This additional criterion considers the conceptual and theoretical relevance of emerged class solutions.

A series of LPAs were conducted, including 7 cultural and family assets and resources (i.e., mothers' educational aspirations for their daughters, adolescents' own educational aspirations, familism values, familial ethnic socialization, family support, peer/friend support, dating partner/significant other support) as observed indicators (see Figure 3). Observed indicators were allowed to correlate. By default, variances and co-

variances were constrained to be equal across profiles. Additionally, based on recommendations by Morin and colleagues (Morin, Maïano, Marsh, Janosz, & Nagengast, 2011), alternative models in which the variances of the indicators are freely estimated in all latent profiles were estimated in order to systematically test implicit invariance assumptions. In line with recommendations, 200 random sets of starting values were utilized to reduce issues with convergence on a local maximum (Pastor et al., 2007). The AIC, BIC, ABIC, LMR, BLRT, and entropy results for each analysis are presented (see Table 4). The final model was selected based on optimal fit indices as well as interpretability.

Next, a three-step approach was used to relate class membership to the external variables (i.e., covariates, outcomes) of interest. Based on recommendations from Bakk, Tekle and Vermunt (2013), after the latent class model is built for a set of indicator variables, based on the best betting LPA solution, then cases are assigned to latent classes and this classification is saved to a file using the "Save data" command within Mplus. In the third and final step, the latent profile classification scores, exported and saved (to create grouping variables) in the previous step, are related to external variables of interest. In line with recommendations from Clark and Muthén (2010), this approach is acceptable given that the final LPA model had an entropy of above .80.

Analyses examined whether group membership differed by nativity status and age at the time pregnancy (i.e., Wave 1; see Figure 4). To examine associations between profile membership and covariates, adolescents were assigned a promotive/protective profile membership. Using Mplus, adolescents' nativity status and age at W1 were regressed on promotive/protective profile membership probability in separate models.

Last, structural equation modeling in Mplus was used to examine the link between assigned promotive/protective profile membership probability and W6 educational attainment and W6 academic achievement/persistence (see Figure 5), controlling for adolescents' nativity status and age at W1.

Results

Descriptive and Correlational Analyses

For the sample as a whole, 64% of adolescents were born in the U.S. and were on average 16.81 (SD = 1.00, range = 15 – 19) years of age at W1 (i.e., third-trimester of pregnancy). Regarding educational aspirations at W1, on average adolescents reported that they would like to obtain more than an associate's degree (*M* = 14.62, *SD* = 2.10, range = 11 - 20); mothers reported that they would like for their pregnant adolescent daughters to obtain almost a bachelor's degree (*M* = 15.39, *SD* = 2.08, range = 10 - 20). On average, adolescents reported moderate to high levels of familism values (*M* = 4.60, *SD* = .43, range = 1.33 - 5), familial ethnic socialization (*M* = 3.43, *SD* = .78, range = 1.17 - 5), family support (*M* = 6.14, *SD* = .82, range = 3 - 7), peer support (*M* = 5.38, *SD* = 1.20, range = 1 - 7), dating partner or significant other support (*M* = 5.97, *SD* = 1.38, range = 1 - 7) at W1. With respect to W6 (i.e., 5 years postpartum) study outcomes, 38% of adolescent mothers reported dropping out of high school and 62% were either currently attending school or had earned a high school diploma or GED. At W6, adolescent mothers reported an 11^{th} grade education (*M* = 11.39, *SD* = 1.57, range = 7 - 16) as their highest mean level educational attainment (Table 5).

Bivariate correlations were examined between W1 aspirational, familial, and social support factors in relation to W1 covariates (i.e., age, nativity status, economic

hardship, coresidency, other children) and W6 outcomes (i.e., educational attainment, academic achievement/perseverance); results are presented in Table 3. With respect to adolescents' age at W1 and study variables, adolescents who were older at W1 reported higher levels of dating partner/significant other support at W1 and higher levels of educational attainment at W6. Next, adolescents who were Mexico-born reported higher levels of familial ethnic socialization and family support, compared to U.S.-born adolescents. Adolescents who were U.S.-born tended to report higher levels of W1 peer/friend support and higher levels of W6 educational attainment, compared to Mexico-born adolescents. Adolescents who reported higher levels of economic hardship at W1 tended to report lower levels of W1 social support (family, peer/friend, dating partner/significant other) and W1 educational aspirations for themselves, as well as lower levels of W6 educational attainment and a lower likelihood of W6 academic achievement/perseverance. Adolescents who reported coresiding with dating partners and mothers/dating partners at W1 tended to report higher levels of peer/friend support and dating partner/significant other support at W1. Adolescents who reported having other children at W1 tended to report lower levels of W6 educational adjustment.

In addition, adolescents' education aspirations for themselves and reports of peer support, along with mothers' education aspirations at W1, were positively associated with W6 educational adjustment. In particular, adolescent mothers tended to report higher levels of educational attainment and a greater likelihood of academic achievement/perseverance at W6 when adolescents reported higher levels of education aspirations and peer/friend support at the time of pregnancy, and when mothers reported higher education aspirations for their daughters. Adolescents who reported higher levels

of familism values at W1 also tended to report higher levels of familial ethnic socialization and family support at W1. Adolescents who reported higher levels of familial ethnic socialization at W1 tended to report higher levels of family support at W1. Adolescents who reported higher levels of family support at W1 also tended to report higher levels of peer/friend support and dating partner/significant other support at W1. Finally, adolescents who reported a higher level of educational attainment at W6 were more likely to be currently enrolled school or have earned a high school diploma or GED at W6.

Latent Profile Analyses of Promotive/Protective Factors

A series of LPAs were conducted that included seven promotive/protective factors at W1 (Table 4). In the current study, a three-class model fit the data best (BIC = 4117.982), compared to a two-class (BIC = 5315.843), four-class (BIC = 5257.684), five-class model (BIC = 5276.693), and six-class model (BIC = 5306.461). BIC differences between the three-class model and the two-class model (1197.86), the four-class model (1139.70), the five-class model (1158.71), and the six-class model (1188.48) all indicated strong evidence for model difference, supporting a three-class model as the best fitting model. The LMR-BLMR comparing the 3-class model to the 2-class model was a significant test ($p = .04$), indicating that the null model (i.e., the 3-class model) provides a significantly better fit to the observed data than the 2-class model. The LMR comparing the 3-class model to the 4-class, 5-class, and 6-class model, however, was not significant ($p = .24$, $p = .20$, $p = .73$, respectively). Next, the three-class model's average probabilities for W1 promotive/protective factors were 96% for class one, 95% for class two, and 94% for class three, signifying a robust identification across the three classes. In

line with expectations, emerged class solutions illustrated theoretical relevance, as groups varied not only regarding levels of resources and assets, but rather varied by patterns or constellations of reported resources and assets. The three-class model was thus selected as the final optimal number of promotive/protective constellations (i.e., latent profiles).

Table 6 reveals the standardized estimated means for the three latent profile classes of promotive/protective factors for pregnant Mexican-origin adolescent mothers. As shown, latent class 1 (23%, *n* = 47) represents a '*High Aspirational/ High Familial/ High Social'* profile with above average levels of mother and adolescent educational aspirations (i.e., almost Bachelor's degree), and relatively high or above average levels of familism values and familial ethnic socialization, and social support (family, peer/friend, dating partner/significant other). Latent class 2 (54%, *n* = 111) is the largest class and represents a '*Low Aspirational/ Average Familial/ High Social*' profile with low or below average mother and adolescent educational aspirations (i.e., 1 year past an Associate's Degree, Associate's Degree, technical/vocational degree, some college), average levels of familism and familial ethnic socialization, and average to mostly above average levels of family, peer/friend, and dating partner/significant other support. Finally, latent class 3 (23%, *n* = 46) is a '*Mixed Aspirational/ Average Familial/ Low Social*' profile with relatively high levels of mothers' educational aspirations (i.e., Bachelor's Degree), lower adolescent educational aspirations for themselves (i.e., slightly more than Associate's Degree, technical/vocational degree, or 2.6 years of education following high school/GED completion), average (relative to the current study average) to below average levels of familism values and familial ethnic socialization, and below average or low levels of family, peer/friend, and dating partner/significant other support (see Figure 10).

Predictors of Promotive/ Protective Profile Membership

Multinomial logistic regression models were individually estimated with nativity status (Mexico-born = 0; U.S.-born = 1), age, economic hardship, coresidency (with mothers, dating partners, both mothers and dating partners), and whether adolescents had other children at the time of pregnancy as predictors of latent profile membership. As shown in Table 7, findings indicated that adolescents' latent profile membership probability did not vary as a function of nativity status, age at the time of pregnancy, coresidency with their mothers, or whether they had other children at W1. Differences did emerge between latent profile groups, however, as a function of economic hardship. First, compared to the *High Aspirational/ High Familial/ High* Social latent profile group (i.e., Class 1), probability of membership into the *Low Aspirational/Average Familial/High Social* latent profile group (i.e., Class 2) did not differ as a function of economic hardship. Next, compared to the *High Aspirational/ High Familial/ High* Social latent profile group, probability of membership into the *Mixed Aspirational/Average Familial/Low Social* latent profile group (i.e., Class 3) was associated with a 1.40 greater likelihood of experiencing economic hardship at W1. Furthermore, compared to the *Mixed Aspirational/Average Familial/Low Social* latent profile group, probability of membership into the *Low Aspirational/Average Familial/High Social* latent profile group was associated with a 1.19 (i.e., 1/.84) lower likelihood of experiencing economic hardship.

Next, study findings indicated that latent profile membership varied as a function of coresidency with dating partners. Specifically, compared to the *High Aspirational/ High Familial/ High* Social latent profile group, *Low Aspirational/Average Familial/High*

Social latent profile group members were 3.57 times (i.e., 1/.28) less likely to coreside with dating partners at W1. Next, compared to the *High Aspirational/ High Familial/ High* Social latent profile group, *Mixed Aspirational/Average Familial/Low Social* latent profile group members were 4.17 times (i.e., 1/.24) less likely to coreside with dating partners at W1. Additionally, compared to the *Mixed Aspirational/Average Familial/Low Social* latent profile group, probability of membership into the *Low Aspirational/Average Familial/High Social* latent profile group did not vary based on coresidency with dating partners.

Furthermore, findings revealed that latent profile group varied as a function of coresidency with both mothers and dating partners. Specifically, relative to the *High Aspirational/ High Familial/ High* Social latent profile group, *Low Aspirational/Average Familial/High Social* latent profile group members were 4.34 times (i.e., 1/.23) less likely to coreside with both mothers and dating partners at W1. Next, relative to the *High Aspirational/ High Familial/ High* Social latent profile group, *Mixed Aspirational/Average Familial/Low Social* latent profile group members were 3.13 times (i.e., 1/.32) less likely to coreside with both their dating partner and mother at W1. Finally, compared to the *Mixed Aspirational/Average Familial/Low Social* latent profile group, probability of membership into the *Low Aspirational/Average Familial/High Social* latent profile group did not vary based on coresidency with both mothers and dating partners at W1.

Promotive/Protective Profile Membership Probability and Associations with Educational Adjustment

Study analyses examined whether membership probability had a differential level of educational attainment and likelihood of academic achievement/perseverance (i.e., graduated high school/earned GED or currently enrolled in school) at W6, controlling for adolescents' W1 nativity status, age at W1, W1 economic hardship, W1 coresidency with mothers and dating partners, and whether adolescents had other children at W1 (see Table 8). Results revealed that, taking into account study controls, compared to the *High Aspirational/ High Familial/ High* Social latent profile group (i.e., Class 1), probability of membership into the *Low Aspirational/Average Familial/High Social* latent profile group (i.e., Class 2) was associated with significantly lower educational attainment (i.e., .22 fewer years of education) at W6. Next, relative to the *High Aspirational/ High Familial/ High* Social latent profile group, the probability of membership into the *Mixed Aspirational/Average Familial/Low Social* latent profile group (i.e., Class 3) was also associated with a significantly lower level of educational attainment (i.e., .33 fewer years of education) at W6. Furthermore, compared to the *Mixed Aspirational/Average Familial/Low Social* latent profile group, probability of membership into the *Low Aspirational/Average Familial/High Social* latent profile group was not differentially associated with educational attainment at W6. Overall, findings indicated that membership into the *High Aspirational/ High Familial/ High* Social latent profile group was associated with a *higher* level of educational attainment at W6, compared to *Low Aspirational/Average Familial/High Social* and *Mixed Aspirational/Average Familial/Low Social* latent profile groups. Last, results revealed that latent profile group

membership was not differentially linked with academic achievement/perseverance at W6.

Discussion

Scholarship has called attention to the importance of investigating how culturally salient promotive factors interactively contribute to the adjustment of ethnic-racial minority adolescents (Bermudez & Mancini, 2013; Cabrera & The SRCD Ethnic Racial Issues Committee, 2013; García Coll et al., 1996; Kagitcibasi, 2012; Rogoff, 2003; Yosso, 2005). Researchers have posed that cultural factors, particularly across social, aspirational, and familial domains, may be especially beneficial for Latino adolescents' educational adjustment (DeGarmo, & Martinez, 2006; Edwards & Lopez, 2006; Kupermic et al., 2009), given the strong cultural emphasis on familial and social interdependence (Sabogal et al., 1987; Suárez-Orozco & Suárez-Orozco, 2001). Mexican-origin adolescent mothers, who are particularly vulnerable to educational underachievement (Motel & Patten, 2012), have been shown to greatly benefit, in terms of educational adjustment (e.g., attainment, perseverance), from culturally informed experiences and resources (e.g., maternal aspirations; Barr & Simons, 2012; Cherry et al., 2015). Despite the known benefits associated with educational adjustment for adolescent mothers and their offspring (e.g., financial independence, social mobility; SmithBattle, 2006), little is known about the profiles that characterize educationally successful adolescent mothers. The current study addressed this significant gap in the literature by examining how culturally salient promotive factors among this at-risk population interact with each other during pregnancy, a critical developmental time period during which the transition in context may place young mothers at greater risks for long-term educational

maladjustment (SmithBattle, 2007), to inform the long-term educational adjustment of Mexican-origin adolescent mothers.

Guided by a person-centered approach and culturally focused strength-based frameworks, the current study identified latent profiles (across social, aspirational, and familial domains) among Mexican-origin adolescents, examined variability in profile membership as a function of sociodemographic factors (i.e., nativity status, age, economic hardship, coresidency, other children), and examined how profile membership was associated with future educational adjustment (i.e., educational attainment, academic achievement/perseverance). Three distinct profiles emerged that were distinguished by unique patterns among study variables as a function of different levels of overall promotive/protective assets and resources accessible at the time of pregnancy. Furthermore, two sociodemographic factors (i.e., coresidency and economic hardship) emerged as significant predictors of membership into latent profiles; and membership in specific latent profiles significantly predicted educational attainment five years postpartum.

As discussed in further detail below, patterns of promotive/protective factors identified in the current study illustrate the importance of considering how the combination of aspirational, familial, and social factors work in tandem to inform Mexican-origin adolescent mothers' educational attainment over time. Furthermore, findings from the current study demonstrate the utility of applying a person-centered approach to understanding the interplay between multiple culturally salient promotive factors among an at-risk population.

Relative to the variable-centered approach, which centers on examining how the continuum of any given individual promotive factor is associated with a given outcome, the person-centered approach provided a descriptive context that more accurately represents the real-life experiences of subgroups of Mexican-origin adolescents. Because the person-centered approach allows for the simultaneous modeling of multiple factors interacting at once, this approach offers a considerable advantage over the variable-centered approach, which can only account for individual factors working in isolation from one another. By incorporating a culturally informed person-centered approach, scholars can gain a more comprehensive understanding of how specific resources and assets, at the time of pregnancy, interactively influence young mothers' longitudinal educational adjustment. Constellations of promotive factors among latent profile groups yielded important insights into the experiences and vulnerabilities of unique subgroups of at-risk Mexican-origin adolescents. Study findings may help support the effectiveness of intervention programs by refining programming to target the specific needs of adolescent mothers who share similar characteristics across aspirational, familial, and social domains.

A Person-Centered Approach to Mapping Multiple Promotive Factors

Despite the notable disadvantages surrounding teen pregnancy, research findings have demonstrated variability in adolescent mothers' educational adjustment, such that despite high rates of high school dropout, some adolescent mothers *indeed* successfully continue their educational endeavors during pregnancy and across the transition to motherhood and young adulthood (Cherry et al., 2015; Klaw, 2008; SmithBattle, 2006; 2007). Scholars have attributed variation in adolescent mothers' educational adjustment

to the availability and use of promotive and protective assets and resources (SmithBattle, 2006), particularly among Latina adolescent mothers (Contreras, 2002). Most studies that have examined links between promotive/protective factors and educational adjustment among adolescent mothers have used a variable-centered approach (e.g., Barr & Simons, 2012), which does not take into account group or individual differences regarding constellations of promotive factors and associations among variables. The current study advances prior understandings of promotive/protective factors among adolescent mothers by using a person-centered approach to identify groups of adolescents who shared patterns of promotive factors. This approach provided an assessment of group differences regarding patterns of promotive factors available or endorsed at the time of pregnancy, as well as the pervasiveness of latent profile groups, and differential links with sociodemographic factors and educational adjustment.

Based on theoretical assumptions that development is the product of multiple sociocultural interactions (i.e., holistic interactionism), the person-centered approach provided a more holistic understanding of unique patterns of culturally salient promotive/protective factors (Magnusson & Stattin, 2007). Special attention was given to describing (a) distinctions across profiles (e.g., quantitative differences) and (b) the pervasiveness of each latent protective profile. Because the availability and utility of promotive and protective factors has been shown to vary dramatically across ethnic-racial minority youth and adolescent mothers (Butler-Barnes et al., 2013; Cherry et al., 2015), it was expected that at least three distinct profiles of promotive/protective factors would emerge. Consistent with the variable-centered approach, at least one latent class was expected to emerge that would be characterized as the most promotive latent profile

group (i.e., adaptive class characterized by high levels of all assets/resources). Furthermore, it was also expected that emerged profiles would be distinguished based on unique patterns or constellations of promotive factors.

Latent Profiles among Pregnant Mexican-origin Adolescents

Examining pregnant Mexican-origin adolescents' profiles across three culturally salient domains, based on social assets (i.e., family, peer, and dating partner support), aspirational assets (i.e., adolescents' and mothers' educational aspirations), and familial assets (i.e., familism values, familial ethnic socialization) yielded three distinct profiles (i.e., *High Aspirational/ High Familial/ High Social*, *Low Aspirational/ Average Familial/ High Social*, and *Mixed Aspirational/ Average Familial/ Low Social*). In line with theoretical and empirically driven expectations, each latent profile group was distinguishable from one another based on unique constellations of promotive factors (Contreras et al. 2002), as well as with respect to the prevalence of each latent profile group (Butler-Barnes et al., 2013). Emerged latent profiles provided important insights to the amount of exposure pregnant adolescents had to specific promotive factors within each profile subgroup, as well as depicting the different levels of promotive factors within each latent profile group.

The *High Aspirational/ High Familial/ High Social* latent profile group, characterized by relatively high levels of familial, social, and aspirational assets, represented 23% (n = 47) of the study sample and demonstrated the most promotive function. Moreover, the *High Aspirational/ High Familial/ High Social* latent profile group was distinguished by higher levels of adolescents' educational aspirations (i.e., nearly a bachelor's degree), family ethnic socialization, family support, and dating

partner/significant other support, relative to the two other latent profile groups. Of note, the *High Aspirational/ High Familial/ High Social* latent profile group reported the highest levels of all observed promotive factors, with the exception of mothers' educational aspirations and peer/friend support. In particular, the *Mixed Aspirational/ Average Familial/ Low Social* latent profile group demonstrated higher levels of mothers' educational aspirations (i.e., beyond a bachelors' degree) and the *Low Aspirational/ Average Familial/ High Social* latent profile group also reported slightly higher levels of peer/friend support, compared to the *High Aspirational/ High Familial/ High Social* latent profile group.

The *Low Aspirational/ Average Familial/ High Social* latent profile group, characterized by low levels of educational aspirations, average levels of familial assets, and high levels of social support, was the most common profile with nearly 54% (n = 111) of Mexican-origin adolescent mothers experiencing this context of promotive/protective factors. In this latent profile group, mothers and adolescents reported the lowest educational aspirations, ranging from an Associate's degree to approximately three years of postsecondary education, with mothers reporting higher aspirations compared to adolescents. Adolescents in the *Low Aspirational/ Average Familial/ High Social* latent profile group also reported roughly higher levels of family ethnic socialization, family support, and dating partner support, compared to the *Mixed Aspirational/ Average Familial/ Low Social* latent profile group. Furthermore, the *Low Aspirational/ Average Familial/ High Social* latent profile group was distinguished as reporting the highest levels of peer/friend support, relative to the *High Aspirational/ High*

Familial/ High Social and *Mixed Aspirational/ Average Familial/ Low Social* latent profile groups.

Finally, the *Mixed Aspirational/ Average Familial/ Low Social* latent profile group, characterized by mismatched educational aspirations between mothers and adolescents, average familial assets, and low social support included 23% (n = 46) of the sample. Adolescents in this latent profile group were distinguished by having the highest mother-reported educational aspirations for their daughters (i.e., slightly beyond a bachelor's degree), as well as having the largest gap between mothers' and adolescents' educational aspirations, which differed by about one and a half years of education. Furthermore, adolescents in the *Mixed Aspirational/ Average Familial/ Low Social* latent profile group were also differentiated for having the lowest levels of family ethnic socialization and social support (i.e., family, peer/ friend, dating partner/significant other). Compared to the *High Aspirational/ High Familial/ High Social* and *Low Aspirational/ Average Familial/ High Social* latent profile groups, adolescents in the *Mixed Aspirational/ Average Familial/ Low Social* latent profile group differed largely by having lower levels of peer/friend support and even lower levels of dating partner/significant other support.

Overall, results from the current study resemble findings from Butler-Barnes and colleagues' (2013) study of African American adolescents, in which three distinct latent profiles of personal and cultural assets (i.e., racial pride, self-efficacy, self-acceptance) emerged that were characterized as *high*, *average*, and *low*, based on levels of study assets. Consistent with theoretical expectations from a variable-centered approach, the *High Aspirational/ High Familial/ High Social* latent profile group was characterized as

the most promotive latent profile group due to relatively high levels of resources and assets across aspirational, familial, and social domains. Findings from the currently study, however, demonstrated that although the *High Aspirational/ High Familial/ High Social* latent profile group was indeed the most adaptive, this group was not necessarily characterized by having the highest levels of *all* assets/resources, but rather the highest levels of specific promotive factors across aspirational, familial, and social domains (i.e., adolescents' educational aspirations, family ethnic socialization, family support, dating partner/significant other support).

Contrary to expectations based on prior work using a variable-centered approach, which has underscored the relevance of cumulatively high levels of promotive factors (e.g., Hurd et al., 2012; Kirk et al., 2011; Mellow, 2008; Spera, 2006; Sy & Schulenberg, 2005), and consistent with expectations from a person-centered approach, study findings demonstrate the true complexity of promotive/protective factors experienced by Mexican-origin adolescents and the need to identify patterns of promotive factors. Specifically, latent profiles indicated that the pregnant adolescents did not simply experience promotive/protective factors in terms of high, moderate, or low levels, but rather in terms of distinct patterns or constellations of resources and assets (e.g., one latent profile consisted of low aspirations, moderate family resources, and high social support). Thus, findings support prior theoretical notions from parenting models with Latina adolescent mothers (Contreras et al., 2002) by demonstrating the interactive nature of patterns of culturally informed resources and assets among pregnant Latina adolescents. Furthermore, findings revealed that Mexican-origin adolescents indeed

experienced diverse contexts with respect to differing levels of culturally informed promotive/protective factors at the time of pregnancy.

Findings from the current study illustrate the need to consider the interplay between promotive factors within unique constellations that characterize subgroups of adolescents during pregnancy. For example, although the *Mixed Aspirational/ Average Familial/ Low Social* profile had the highest level of mother educational aspirations, this profile was characterized as having the most pronounced mismatch between mothers' and adolescents' education aspirations. This important distinction, regarding the co-existence of high and low educational aspirations (at the time of pregnancy), signifies an important risk factor, as incongruent educational aspirations between adolescent mothers and their mothers have been linked with educational maladjustment (e.g., low achievement motivation; Camarena et al., 1998; Hellenga et al., 2002). This finding underscores the value of using a person-centered approach to understanding interactions among multiple promotive factors as a variable-centered approach may yield misleading findings when considering the adaptability of the *Mixed Aspirational/ Average Familial/ Low Social* profile. For example, a variable-centered approach may gather that adolescents who have mothers with the highest levels of educational aspirations for their daughters may be more likely to experience long-term educational adjustment. However, the pattern-centered approach demonstrated that it was not the level of individual promotive factors, such as high levels of mothers' educational aspirations, that informed educational adjustment, but rather the patterns of multiple promotive factors together that jointly informed adolescent mothers' long-term educational adjustment. Thus, the current findings demonstrate the value in simultaneously examining constellations of multiple

promotive/protective factors, as it is the patterns of promotive factors, and not solely high levels of any single variable, that has implications for the adjustment of adolescent mothers.

Identifying the Pervasiveness of Latent Profiles among Adolescent Mothers

Alongside describing the patterns of promotive/protective factors among pregnant Mexican-origin adolescents, the person-centered approach provided information regarding the pervasiveness of each profile. The pervasiveness of the *High Aspirational/ High Familial/ High Social* latent profile group was parallel to the perverseness of the *Mixed Aspirational/ Average Familial/ Low Social* latent profile group. These two latent groups, which each represented less than 25% of pregnant Mexican-origin adolescents, jointly resemble about half of the participants in the current study. Findings regarding the pervasiveness of these particular latent profiles illustrate the different experiences of pregnant Mexican-origin adolescents, and highlight the need to better understand the different types of support needed for unique subgroups of adolescent mothers, as some groups significantly lack support across aspirational and social domains, while other groups of adolescents appear to be equipped with adaptive levels of resources and assets.

Notably, the most pervasive profile was the *Low Aspirational/ Average Familial/ High Social* latent profile group. The prevalence of the *Low Aspirational/ Average Familial/ High Social* latent profile group aligns with prior research with ethnic-racial minority adolescent mothers (Barr & Simons, 2012), suggesting that the transition to pregnancy can often have severe consequences for motivational beliefs (Cherry et al., 2015). The prevalence of the *Low Aspirational/ Average Familial/ High Social* latent profile group suggests that for a majority of Mexican origin adolescents in the current

study, mothers and adolescents reported low to moderate levels of educational aspirations, ranging from high school completion to three-years of postsecondary education (during adolescents' third trimester of pregnancy). Such findings regarding the prevalence of this particular subgroup of adolescents, characterized by low aspirational resources and assets, highlights the overwhelming need for interventions to target the educational aspirations of families with pregnant adolescents. Furthermore, the prevalence of the *Low Aspirational/ Average Familial/ High Social* latent profile group also underlines the need to understand factors that linked to the existence of such patterns of factors.

Sociodemographic Predictors of Latent Profile Membership

Scholars have posited that the characteristics of multiple contexts, including family, school, and neighborhoods, may function as early precursors to perceptions of available resources and the development of adolescent mothers' competence as young student-mothers (Contreras et al., 2002; Cherry et al., 2000; Mollborn, 2010; Weed et al., 2000). Therefore, it is likely that specific combinations of promotive factors may be informed by key sociodemographic characteristics. By examining links between key sociodemographic factors and latent profile membership, researchers may inform future programming efforts through an understanding of factors that increase the odds or risks of membership into adaptive or maladaptive latent profiles.

Contextual factors at the time of pregnancy have been posed to impact the educational trajectories of Latina adolescent mothers (Contreras et al., 2002). The current person-centered approach allowed for the cross-sectional examination of links between the probability of latent profile membership and important sociodemographic factors (i.e.,

nativity status, age, economic hardship, co-residency, and other children). Results indicated that the probability of latent profile membership varied as a function of economic hardship, coresidency with dating partners, and coresidency with both mothers and dating partners.

Regarding economic hardship, findings indicated that adolescents who were in the *Low Aspirational/ Average Familial/ High Social* latent profile group experienced the highest levels of economic hardship, followed by adolescents in the *Mixed Aspirational/ Average Familial/ Low Social* latent profile group. Compared to these two groups, adolescents in the *High Aspirational/ High Familial/ High Social* latent profile group were the least likely to experience economic hardship. Consistent with prior literature suggesting that low income may lower adolescent mothers' motivational beliefs regarding their potential to continue their education (Barr & Simons, 2012; SmithBattle, 2006), it is not surprising that the two groups characterized by low aspirational assets and mixed (i.e., mismatched) aspirational assets were more likely to experience economic hardship, relative to the *High Aspirational/ High Familial/ High Social* latent profile group.

It may be that adolescents in the *Low Aspirational/ Average Familial/ High Social and Mixed Aspirational/ Average Familial/ Low Social* latent profile groups may be particularly vulnerable to educational maladjustment as adolescents with low economic means have been found to lack access to quality peers, schools, and neighborhoods, which can impede the development of optimistic educational aspirations (Pillow, 2004; Weed et al., 2002). Furthermore, researchers have offered that Mexican-origin adolescents who perceive fewer financial resources may also lower their educational

aspirations as they may feel pressure to leave school to financially contribute to their families (Plunkett & Bámaca-Gómez, 2003). Thus, study findings imply that economic hardship may be exacerbated when it is coupled with a set of other critical factors across aspirational, familial, and social domains. Furthermore, it is possible that pregnant Mexican-origin adolescents who perceive fewer economic hardships may also have more resources (e.g., transportation, childrearing assistance) to maintain high educational aspirations and potentially continue their education (Cherry et al., 2014; Weed et al., 2000). Findings offer a nuanced approach to understanding how economic hardship may provide an explanation for the promotive/protective contexts experienced by Mexican-origin adolescents at the time of pregnancy.

Next, findings indicated that adolescents in the *High Aspirational/ High Familial/ High Social* latent profile group were more likely to coreside with either dating partners or with both mothers and dating partners, compared to adolescents in the *Low Aspirational/ Average Familial/ High Social* and *Mixed Aspirational/ Average Familial/ Low Social* latent profile groups. Interestingly, it was expected that coresidence with mothers alone, and not dating partners alone, would be linked with membership into the high resource/ asset latent profile group, given findings highlighting the significance of adolescents' interdependency with their mothers (Contreras et al., 2002; Hellenga et al., 2002; Mollborn, 2011). Instead, findings signify that coresidency with dating partners (at the time of pregnancy) may carry important benefits for adolescent mothers' promotive profiles. It is possible that adolescents who reside with their dating partners may have the support of the mother and/or the family of their dating partner. Alternatively, for those adolescents who reported coresiding with both their mothers and their dating partners, the

key protective factor may be the mothers' willingness to support the romantic relationship of their pregnant adolescent daughter and partner. Thus, coresidency with both mothers and dating partners may serve as an indicator of the quality of the relationships within adolescent mother family households.

Relationship qualities between pregnant adolescents, mothers, and dating partners may be one important target for interventions, as improving relations within families may facilitate teen parents' access to resources and motivation to continue their education. Although there may be no immediate policy prescriptions regarding co-residency patterns and promotive profiles among pregnant adolescents, it is critical to recognize the significance of coresidency with dating partners, as this family structure has typically been understood as a liability rather than an asset (Mollborn, 2011). More work will be needed to tease apart the contributions of living with dating partners (and mothers) on adolescent mothers' educational adjustment.

Contrary to expectations, findings indicated that pregnant adolescents' probability of membership into specific promotive profiles was not distinguishable by adolescents' nativity status (i.e., U.S. verses Mexico born), their age at the time of pregnancy, exclusive coresidency with mothers, and whether they had additional children at the time of pregnancy. Notably, findings from bivariate correlations indicated that adolescents in the *High Aspirational/ High Familial/ High Social* latent profile group were more likely to be Mexico-born (45%), compared to the *Low Aspirational/ Average Familial/ High Social* (32%) and *Mixed Aspirational/ Average Familial/ Low Social* (35%) latent profile groups. Null findings regarding the association between nativity status and latent profile membership may be attributed to the length of time adolescents spent in the U.S., as

descriptive findings illustrated that on average, adolescents across all three latent profiles reporting living in the U.S. for about 13 years. It is possible that adolescents' country of origin has less of an impact on their perceptions and access to resources and assets when they have acculturated to mainstream society. Indeed, prior work suggests that educational resilience among Mexican-origin youth may be related to acculturation factors that compete with the mainstream U.S. (e.g., language proficiency, educational background; Plunkett & Bámaca-Gómez, 2006). Thus, it is possible that future work may find differential links between nativity status and latent profiles if there is variability in important indices of acculturation.

Regarding the null effects of pregnant adolescents' age, exclusive coresidency with mothers, and whether they had additional children at the time of pregnancy on latent profile membership, it may be that these factors were not differentially linked with emerged profiles given the limited variability in study covariates. In particular, descriptive findings revealed that adolescents in each latent profile ranged from 16.6 to 17 years of age. In addition, a majority of adolescent mothers across groups reported coresiding with their mothers at the time of pregnancy (85% to 91%). Furthermore, with respect to multiple teen pregnancies, only adolescents in the *High Aspirational/ High Familial/ High Social* latent profile group (11%) and the *Low Aspirational/ Average Familial/ High Social* latent profile group (7%) reported having other children. Given that adolescent mothers have been found to experience educational maladjustment when they are younger in age, do not coreside with their mother, and have had multiple teen pregnancies (Barr & Simons, 2012; SmithBattle, 2006), it is possible that findings between these factors and latent profiles may emerge with more diverse samples of

adolescent mothers. Additionally, given that the ability to detect hypothesized associations between underlying latent profiles and demographic variables may have been constrained due to the relatively small sample size in the current study, more work will be needed to determine whether these null findings are due to low power to detect effects or if indeed latent profiles are independent from these sociodemographic factors.

Latent Profiles among Pregnant Mexican-origin adolescents and Longitudinal Educational Adjustment

Finally, the person-centered approach to understanding latent profiles at the time of pregnancy allowed for the examination of links between distinct profiles of promotive/protective factors and educational adjustment (i.e., educational attainment; academic achievement/perseverance) over time. As hypothesized, adolescents in the *High Aspirational/ High Familial/ High Social* latent profile group demonstrated the highest level of educational attainment (i.e., 11.58), five years postpartum (controlling for nativity, age, economic hardship, coresidency, other children). This finding is consistent with expectations and prior work using variable-centered approaches, suggesting that high levels of aspirational, familial, and social assets are particularly beneficial to adolescent mothers' educational adjustment (Barr & Simons, 2012; Leadbeater, 1999).

An important caveat, however, is that being relatively high in most promotive factors did not necessarily mean that adolescents in that latent profile group would score the highest on all promotive factors. Specifically, although adolescents in the *High Aspirational/ High Familial/ High Social* latent profile group were described as relatively high on all promotive/protective domains, given that the means of promotive/protective factors were either high or above the study average, these adolescents did not have the

highest levels of all resources and assets. In fact, the *Mixed Aspirational/ Average Familial/ Low Social* latent profile group had the highest levels of mother education aspirations, and the *Low Aspirational/ Average Familial/ High Social* latent profile group had the highest levels of peer/friend support. One explanation for why membership into the *High Aspirational/ High Familial/ High Social* latent profile group was related to significantly higher levels of educational attainment, despite not having the highest levels of all promotive/protective assets (although still characterized by relatively high levels of assets), may be due to benefits associated with the specific constellations of observed promotive factors. For instance, the *High Aspirational/ High Familial/ High Social* latent profile group was descriptively high on all assets, with the exception of peer support, which fell just below the study average. Given that the *High Aspirational/ High Familial/ High Social* latent profile group was the most educationally successful of all groups, it is possible that the role of peers/friends may be less significant to young mothers' educational adjustment when considering the joint support of family members and dating partners. Furthermore, it is important to note that although the *High Aspirational/ High Familial/ High Social* latent profile group did not have the highest education aspirations from mothers, the educational aspirations of mothers and adolescents were nearly identical regarding the level of education that was aspired. This finding highlights the importance of understanding the function of patterns or constellations of promotive factors, in conjunction with overall extent to which promotive/protective factors were cumulatively experienced.

Contrary to study expectations, latent profiles were not differentially linked with academic achievement/persistence. This null finding is likely due to the limited

variability in adolescent mothers' school enrollment or completion of high school/GED five years postpartum. Findings indicated that about 58% to 61% of adolescent mothers across latent profile groups were either currently enrolled in school or had graduated high school/earned a GED. Future work should consider examining additional indices of educational adjustment, such as engagement (e.g., homework completion, classroom participation), in relation to latent profile membership, as there is likely to be more variability in young mothers' classroom behaviors.

Limitations and Future Directions

Findings from the current study should be considered alongside important study limitations. First, all data were self-reported (by either adolescents or their mothers) and collected using survey methods. This limitation may introduce shared-reporter and method bias. Future studies should consider incorporating data from other important sources such as teachers, fathers, or peers who can offer a more complete understanding of the promotive contexts that adolescent mothers experience. Furthermore, it may be beneficial for scholars to assess profiles using other methods, such as a daily diary approach, which would enable researchers to learn more about how constellations of culturally salient factors contribute to daily promotive functioning among pregnant adolescents. Next, the current study assessed aspirational assets and resources among adolescents and mothers using a single-item (e.g., how far would you your daughter to go in school). Future work should examine additional indicators of aspirational contexts, such as adolescents' and mothers' beliefs about their possible selves, which tap into multidimensional aspects of aspirational assets (e.g., feared selves; Oyserman et al., 2007).

In addition, caution must be exercised when generalizing study findings to adolescent mothers from other ethnic-racial groups. Latent profiles were assessed across aspirational, familial, and social domains, domains that have been stressed as particularly relevant to ethnic-racial minority, and especially Latino adolescents. It is possible that specific assets, such as family ethnic socialization, may be particularly relevant to the adjustment of Latino adolescents, given a strong adherence to family interdependence among Mexican-origin families (Sabogal et al., 1987; Suárez-Orozco & Suárez-Orozco, 2001). Still, because Mexican-origin adolescent mothers have been largely understudied and remain disproportionally at risk for educational maladjustment (Motel & Patten, 2012), a sole focus on this vulnerable population has significant implications for designing culturally relevant intervention strategies (SmithBattle, 2006; 2007).

Finally, the current study included reports from mothers and their pregnant adolescent daughters. Thus, another limitation of this study was the exclusion of the biological father of the child (i.e., co-parent/ dating partner). Although prior work has largely excluded biological fathers (Cherry et al., 2015; Hellenga et al., 2002; Weed et al., 2000), and prior work has shown that Latina adolescent mothers are more dependent on their own mothers for support (Contreras et al., 2002; Leadbeater, 1999), scholars have increasingly advocated for the inclusion of biological fathers. Given study findings highlighting the link between coresidency with biological fathers (i.e., dating partners) and promotive profile membership (i.e., *High Aspirational/ High Familial/ High Social*), including reports from biological fathers may provide important insights into the supportive context experienced by both adolescent mothers and biological fathers (e.g.,

quality of relationships, negotiation of coparenting responsibilities, shared educational aspirations or educational utility beliefs).

Conclusion and Implications

The body of research connecting culturally driven factors with educational adjustment among adolescent mothers and Latino populations is growing. Cultural assets and resources represent personal strengths and channel support through values, expectations, and instrumental and emotional provisions. The interactive process of how, when, and why specific culturally informed assets and resources may be more meaningful than others to the educational adjustment of adolescent mothers remains unclear. For adolescent mothers, who experience disproportionate rates of educational maladjustment (Motel & Patten, 2012) and are particularly susceptible to experiencing barriers (e.g., parenting hassles, depression; Hellenga et al., 2002; Leadbeater, 1999) to continuing their education postpartum, an understanding of how distinct patterns of promotive/protective factors inform educational adjustment across the transition to motherhood and young adulthood is critical.

The current study identified three distinct patterns of latent profiles based on aspirational, social, and familial factors. Findings suggested that Mexican-origin adolescent mothers who reported the highest levels of educational attainment (five years postpartum) also reported high levels of aspirational, familial, and social assets. In particular, the most successful adolescent mothers where distinguished by the following profile characteristics at the time of pregnancy: mothers held high educational aspirations for their daughters (i.e., nearly bachelors' degree level), adolescents reported high educational aspirations for themselves that were *equivalent* to their mothers' aspirations,

adolescents endorsed high levels of familism and family ethnic socialization, adolescents perceived high levels of family and dating partner support. Peer/friend support did not seem to carry as much weight, compared to family and dating partner support, as the most successful latent profile (i.e., *High Aspirational/ High Familial/ High Social)* reported moderate or average levels of peer support.

Findings from the current study provide an advanced understanding of how culturally informed factors independently and interactively contribute to the educational adjustment of Mexican-origin adolescent mothers. Using a person-centered approach, study findings demonstrated that constellations of assets and resources, across aspirational, familial, and social domains, indeed contributed to Mexican-origin adolescent mothers' educational attainment. Furthermore, findings shed light on the importance of patterns of coresidency with mothers and dating partners, as well as economic hardship, as these sociodemographic factors at the time of pregnancy were linked with the probability of latent profile membership. To further advance understandings of profiles among Mexican-origin adolescent mothers, future directions should consider the inclusion of additional culturally salient factors (e.g., language, navigational skills). Through such inclusion, researchers can improve intervention efforts with Mexican-origin adolescent mothers by generating a holistic understanding of accessible resources and assets that may foster resilience and ultimately promote educational adjustment for this at-risk population.

Study findings have important implications for interventions and provide valuable insight into patterns or constellations of culturally salient factors that are most beneficial for Mexican-origin adolescent mothers' educational attainment. For instance, when

tailoring and implementing programs for pregnant and parenting Mexican-origin adolescents, scholars may consider the importance of establishing and maintaining healthy relationships between mothers or mother figures, adolescents, and dating partners, as mothers' and dating partners' provisions of social support may benefit adolescent mothers' achievement motivation and well-being (Cherry et al., 2015). Furthermore, programming with Mexican-origin adolescent mothers should consider importance of communicating educational goals between family members, and importantly raising the educational aspirations of adolescent mothers with an emphasis on post secondary education. By incorporating culturally salient factors and value systems as core components of intervention programming, interventions may provide new and effective opportunities to promote educational success among Mexican-origin adolescent mothers.

CHAPTER 4

OVERALL DISCUSSION

Understanding how culturally driven factors inform the process of achievement motivation is necessary for developing successful intervention programs and policies to improve the educational adjustment of at-risk populations, such as Mexican-origin adolescent mothers. Because educational adjustment (e.g., high school completion, post secondary education) has been identified as key to promoting young mothers' and their offspring's educational, psychological, and behavioral adjustment (Barr & Simons, 2012; Leadbeater, 1999; SmithBattle, 2007), a comprehensive culturally-situated understanding of factors and processes that inform achievement motivation and adjustment outcomes for this marginalized and underrepresented population is critical. Guided by tenets from expectancy-value theory (i.e., Eccles & Wigfield, 2002), cultural asset-based frameworks (García Coll et al., 1996; Yosso, 2005), and conceptual models of Latina adolescent mothers' parenting experiences (Contreras et al., 2002), findings from Study 1 and Study 2 underscore the promotive and protective role of *culturally informed* assets and resources. Jointly, findings from the two studies in this dissertation contribute to the growing body of knowledge emphasizing the dynamic functions of culturally salient factors in the promotion of educational adjustment among ethnic-racial minority populations (Bermudez & Mancini, 2013; García Coll et al., 1996; Gonzales et al., 2008; Yosso, 2005).

In Study 1, findings provide an empirical replication of theoretical associations within the achievement motivation process, as outlined by the EVT framework (Eccles et al., 1998; Eccles & Wigfield, 2002), among Mexican-origin adolescents from the time of

pregnancy to five years postpartum. Consistent with theoretical expectations, significant associations emerged between (a) contextual (i.e., income, mothers' educational expectations for pregnant daughters, school discrimination) and individual factors (i.e., academic achievement/perseverance, academic motivation) and motivational beliefs (i.e., educational expectations, educational utility beliefs); (b) motivational beliefs and achievement-related strategies (i.e., hours per week of employment and childcare); and (c) achievement-related strategies and educational adjustment (i.e., educational attainment, academic achievement/perseverance). Furthermore, findings from Study 1 identified *familism values* as a critical component of the achievement motivation process for Mexican-origin adolescent mothers and supported hypotheses regarding the dual role of familism values as *both* a promotive and protective factor throughout achievement motivation. Findings from Study 1 suggest that the role of familism values is essential to facilitating the process of achievement motivation among Mexican-origin adolescent mothers and illustrate the need to continue to explore additional cultural resources to advance understandings of adolescent mothers' educational adjustment.

Whereas Study 1 findings demonstrated the role of familism values as *both* a protective and promotive factor throughout achievement motivation, Study 2 identified constellations of promotive/ protective factors (across social, aspirational, and familial domains) to understand how distinct promotive patterns among this at-risk population informed their educational adjustment. Using a person-centered approach, three distinct profiles emerged (i.e., *High Aspirational/ High Familial/ High Social*, *Low Aspirational/ Average Familial/ High Social*, and *Mixed Aspirational/ Average Familial/ Low Social*), that were distinguished by unique patterns among study variables (i.e., adolescents' and

mothers' educational aspirations; family, peer, and dating partner support; familism values, familial ethnic socialization), as a function of different levels of overall promotive/protective assets and resources accessible at the time of pregnancy. Furthermore coresidency and economic hardship emerged as significant predictors of membership into promotive profiles; and membership in the *High Aspirational/ High Familial/ High Social* latent profile group significantly predicted educational attainment five years postpartum. Findings from Study 2 provide a more comprehensive understanding of how specific resources and assets interactively influence young mothers' educational adjustment. Specifically, findings from Study 2 exemplify the significance of considering how the combination of aspirational, familial, and social factors work collectively to promote Mexican-origin adolescent mothers' educational attainment.

Findings from the two dissertation studies have significant implications for facilitating the educational adjustment of Mexican-origin adolescents across the transition to motherhood and young adulthood. Building on prior research that has stressed the significance of investigating culturally informed values and beliefs to promote racial-ethnic minority youths' adjustment (García Coll et al., 1996; Rogoff, 2003), findings from the present dissertation emphasize the relevance of incorporating culturally salient assets and resources as a constructive approach to promoting Mexican-origin adolescent mothers' educational adjustment. By integrating a broader perspective of culturally relevant factors, and understanding how they function independently and collectively, as well as how they are used by Mexican-origin adolescent mothers, findings shed light on

the need for scholars to develop a comprehensive strengths-based approach to promoting educational adjustment among high-risk populations.

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APPENDIX A

FIGURES

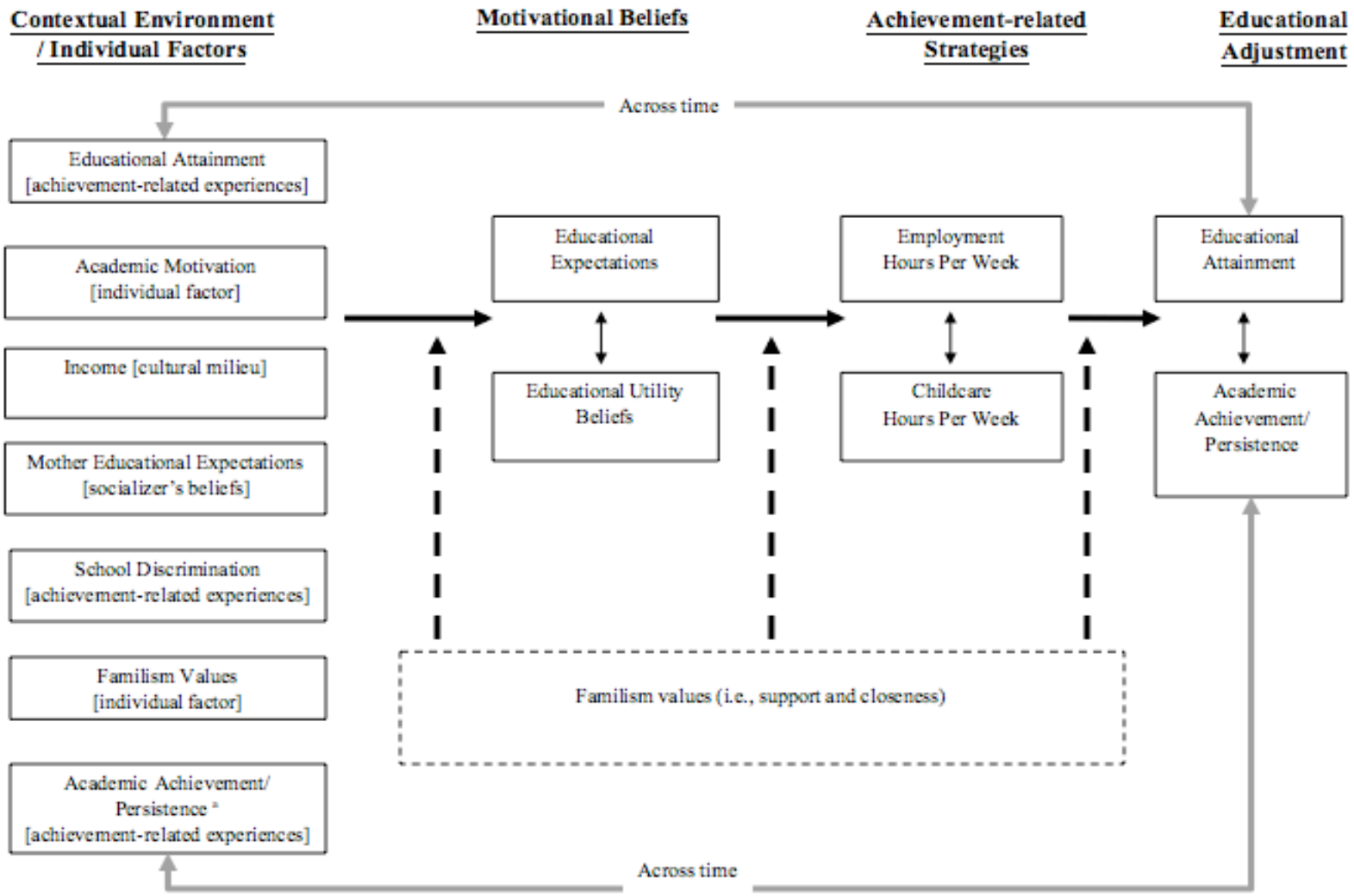


Figure 1. Conceptual model of the achievement motivation process, unfolding over time, among Mexican-origin adolescent mothers (from pregnancy to 5 years postpartum). Grey lines indicate a feedback loop over time. Dashed lines signify expected moderation. [a] 0 = school dropout, 1 = High school or GED completion/currently enrolled in school.

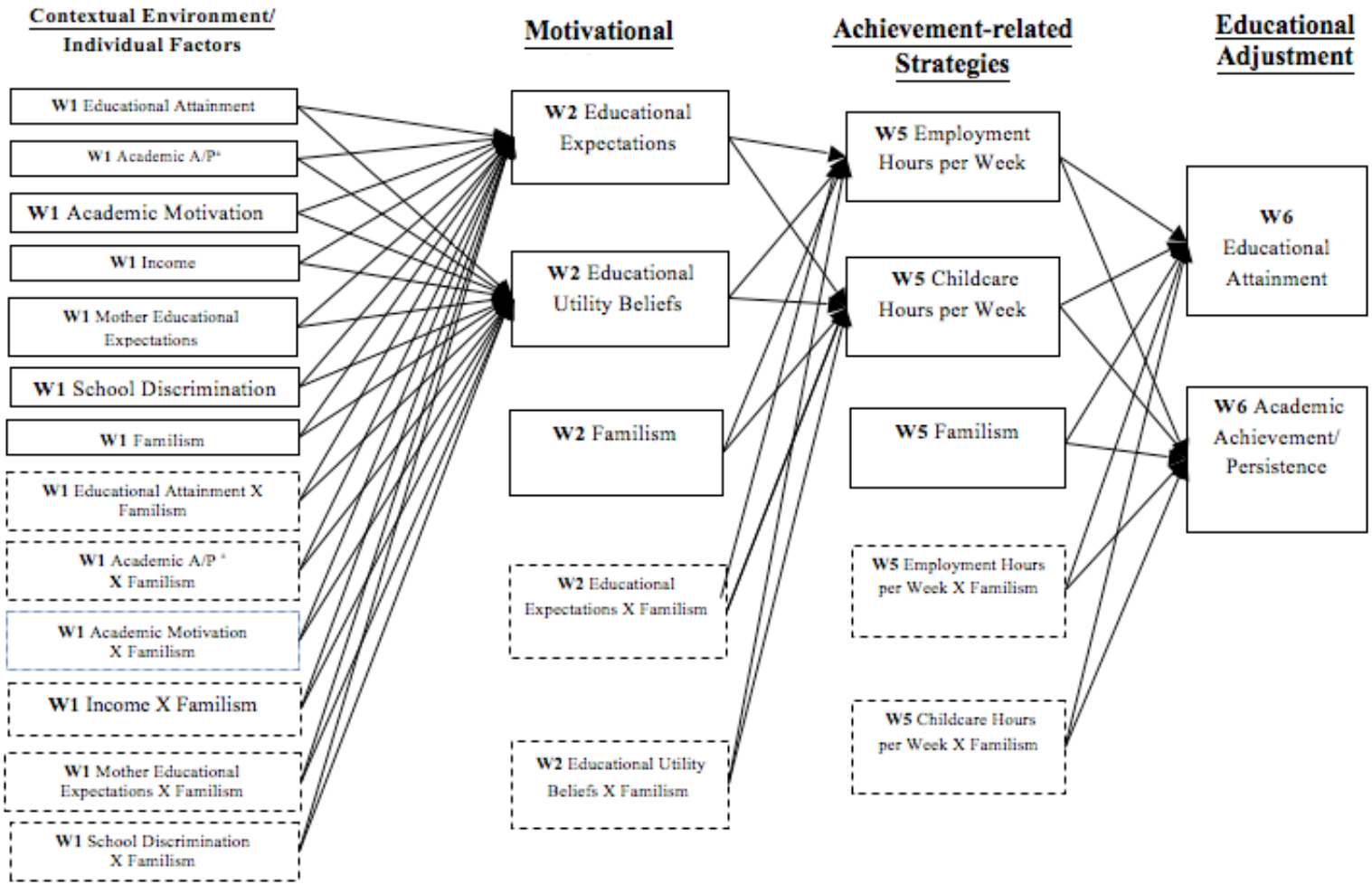


Figure 2. Path model examining the promotive and protective effects of familism (i.e., support or emotional closeness) throughout achievement motivation process. Dashed boxes indicate interaction terms. Study controls include adolescents' W1 nativity status, W2 primary caregiving, W1 to W5 relationship stability, and W5 coresidency, number of people in the home, parenting hassles, children's temperament, repeat pregnancy, risky behavior, depressive symptomatology, career-orientation. W1 = Wave 1; W2 = Wave 2; W5 = Wave 5; W6 = Wave 6. [a] A/P = achievement/ persistence (0 = school dropout, 1 = High

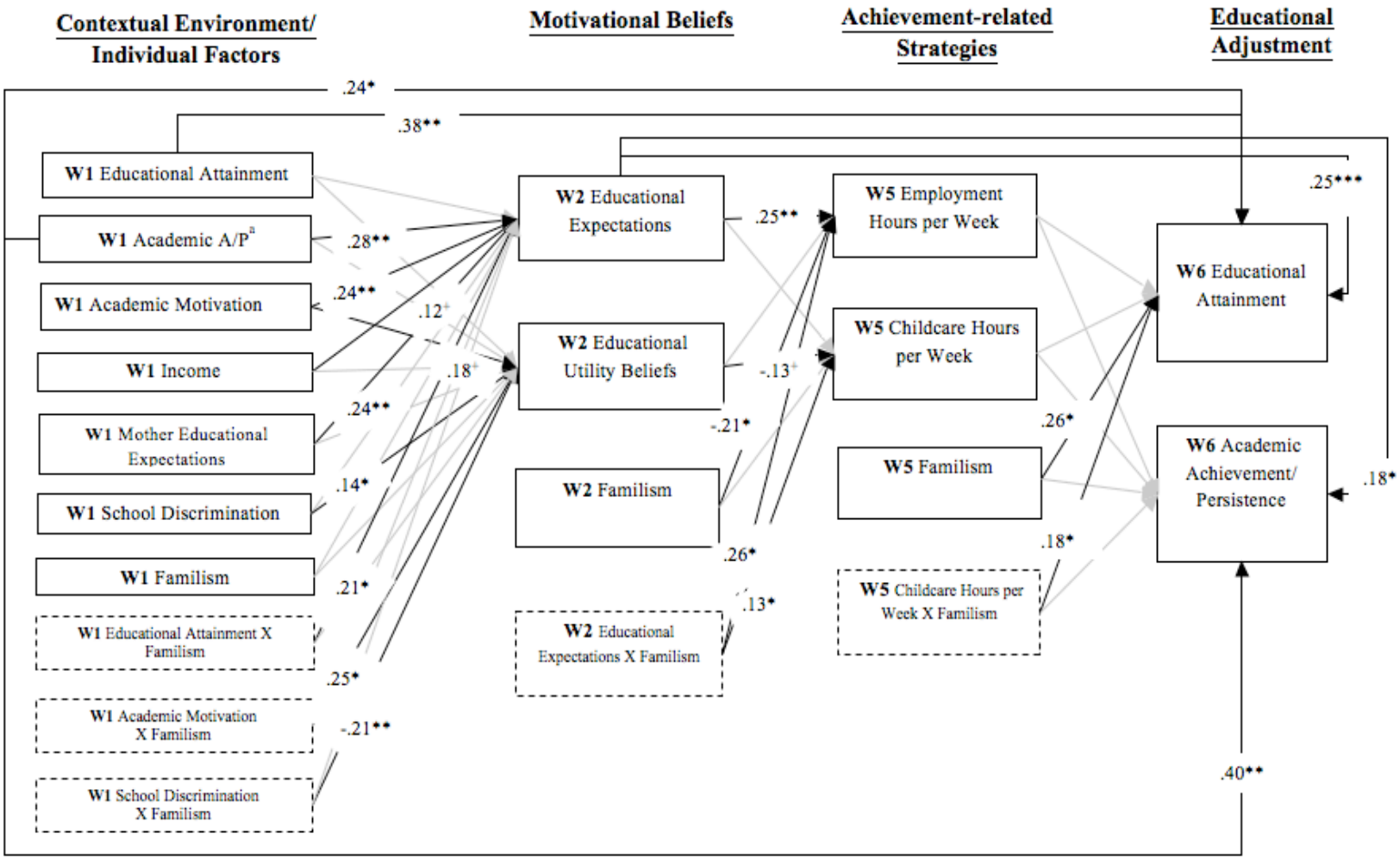
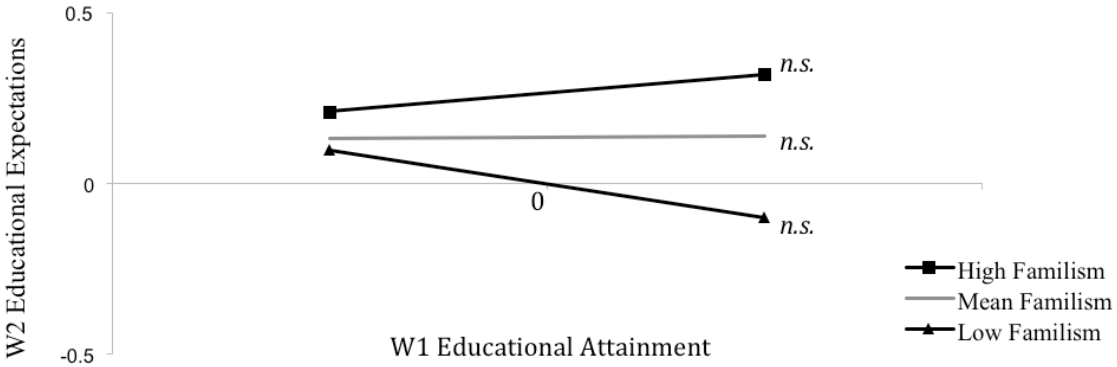
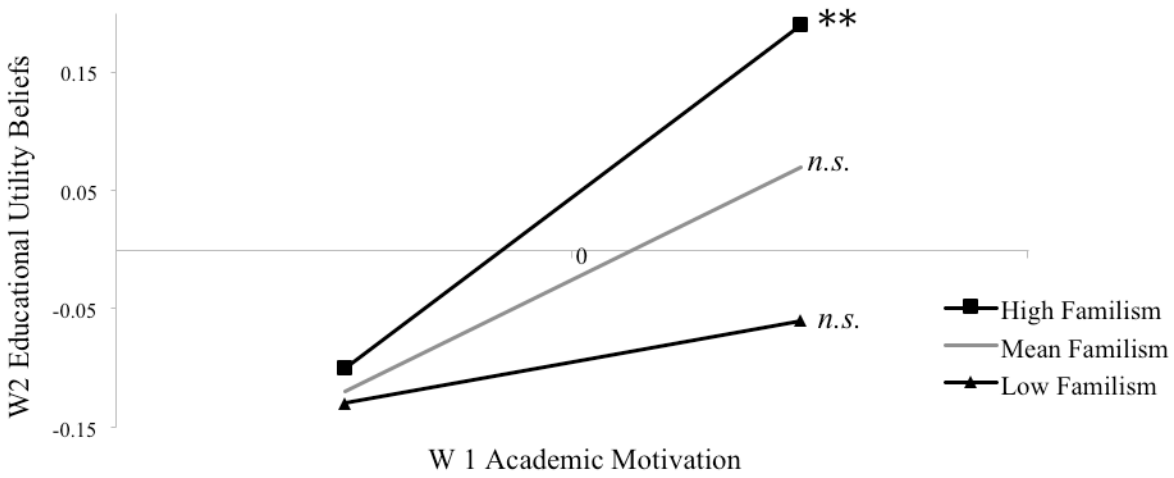


Figure 3. Examination of the promotive and protective effects of familism (i.e., support or emotional closeness) throughout achievement motivation process, χ^2 (df = 146) = 154.52, p = .30; CFI = 0.98; RMSEA = .02 (90% C.I.: .00 - .04); SRMR = .07. Dashed boxes indicate interaction terms. Only significant interactions are displayed. Study controls are not displayed. W1 = Wave 1; W2 = Wave 2; W5 = Wave 5; W6 = Wave 6. [a] A/P = achievement/ persistence (0 = school dropout, 1 = High school or GED completion /currently enrolled in school). $^{+}p < .10$, $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

(a) Association between W1 educational attainment and W2 educational expectations, as moderated by familism values



(b) Association between W1 academic motivation and W2 educational utility beliefs, as moderated by familism values



(c) Association between W1 school discrimination and W2 educational utility beliefs, as moderated by familism values

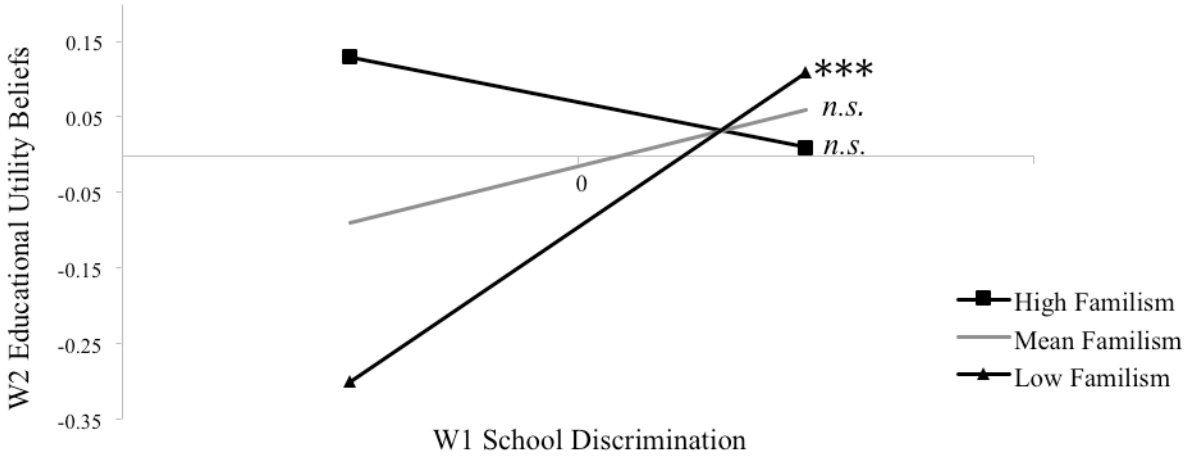
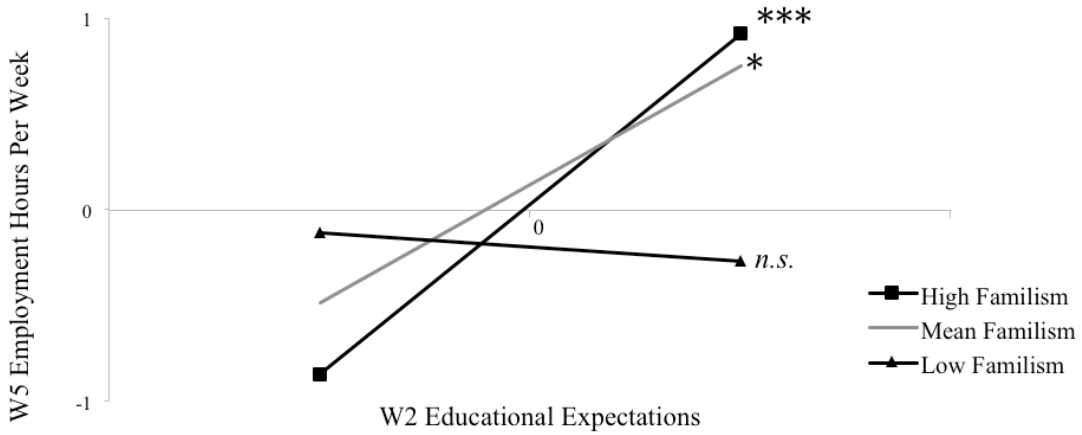


Figure 4. Moderation effects of (a) W1 familism values on the association between W1 educational attainment and W2 educational expectations, (b) W1 familism values on the association between W1 academic motivation and W2 educational utility beliefs, and (c) W1 familism values on the association between W1 school discrimination and W2 educational utility beliefs.

Note. Independent and dependent variables are grand mean centered, zeros on each axis represent the mean of each variable. *Denotes significant slope at $p < .05$; ***denotes significant slope at $p < .001$.

(a) Association between W2 educational expectations and W5 employment hours per week, as moderated by familism values



(b) Association between W2 educational expectations and W5 childcare hours per week, as moderated by familism values

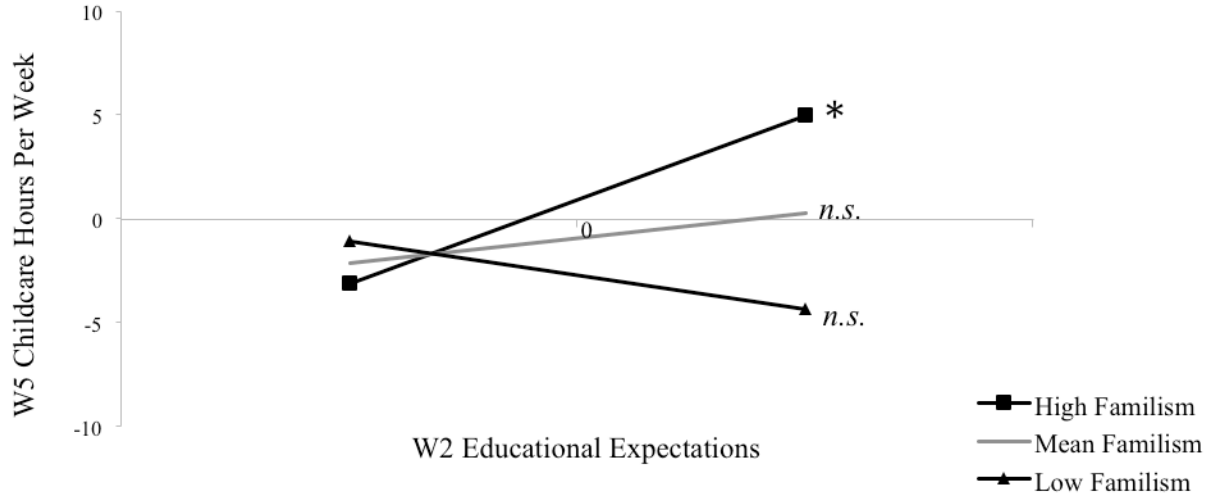


Figure 5. Moderation effects of (a) W2 familism values on the association between W2 educational expectations and W5 employment hours per week and (b) W2 familism values on the association between W2 educational expectations and W5 childcare hours per week.

Note. Independent and dependent variables are grand mean centered, zeros on each axis represent the mean of each variable. *Denotes significant slope at $p < .05$; *** denotes significant slope at $p < .001$.

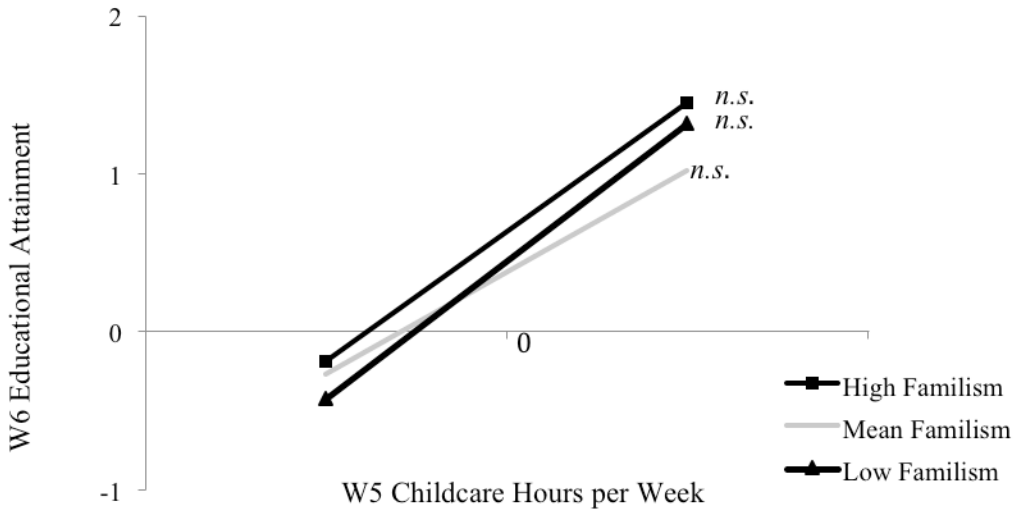


Figure 6. Moderation effects of W5 familism values on the association between W5 childcare hours per week and W6 educational attainment.

Note. Independent and dependent variables are grand mean centered, zeros on each axis represent the mean of each variable.

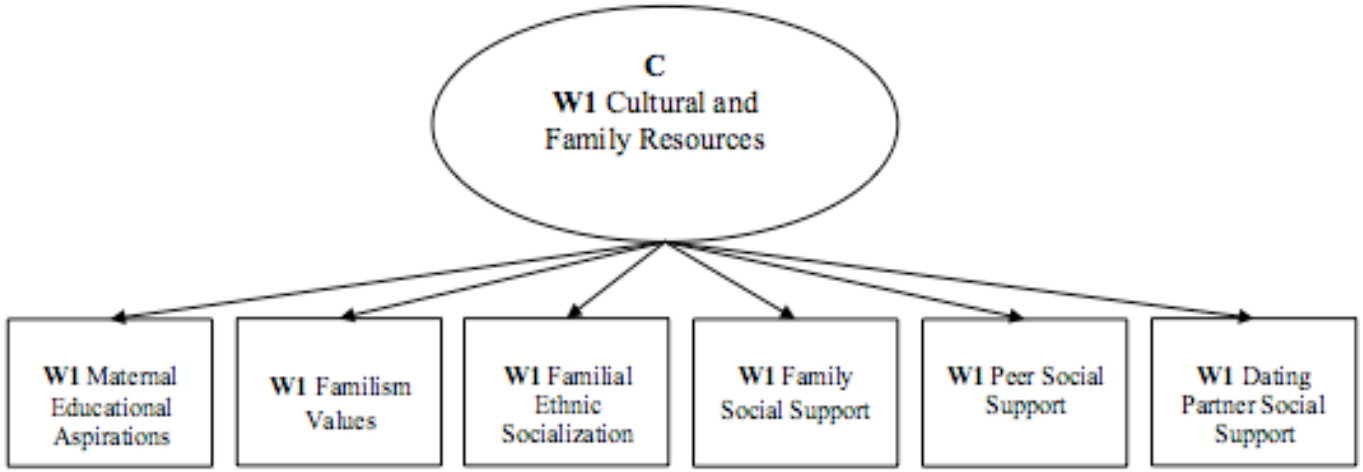


Figure 7. Proposed model of promotive profiles at the time of pregnancy based on aspirational, familial, and social domains.

Note. W1 = Wave 1; C = class membership.

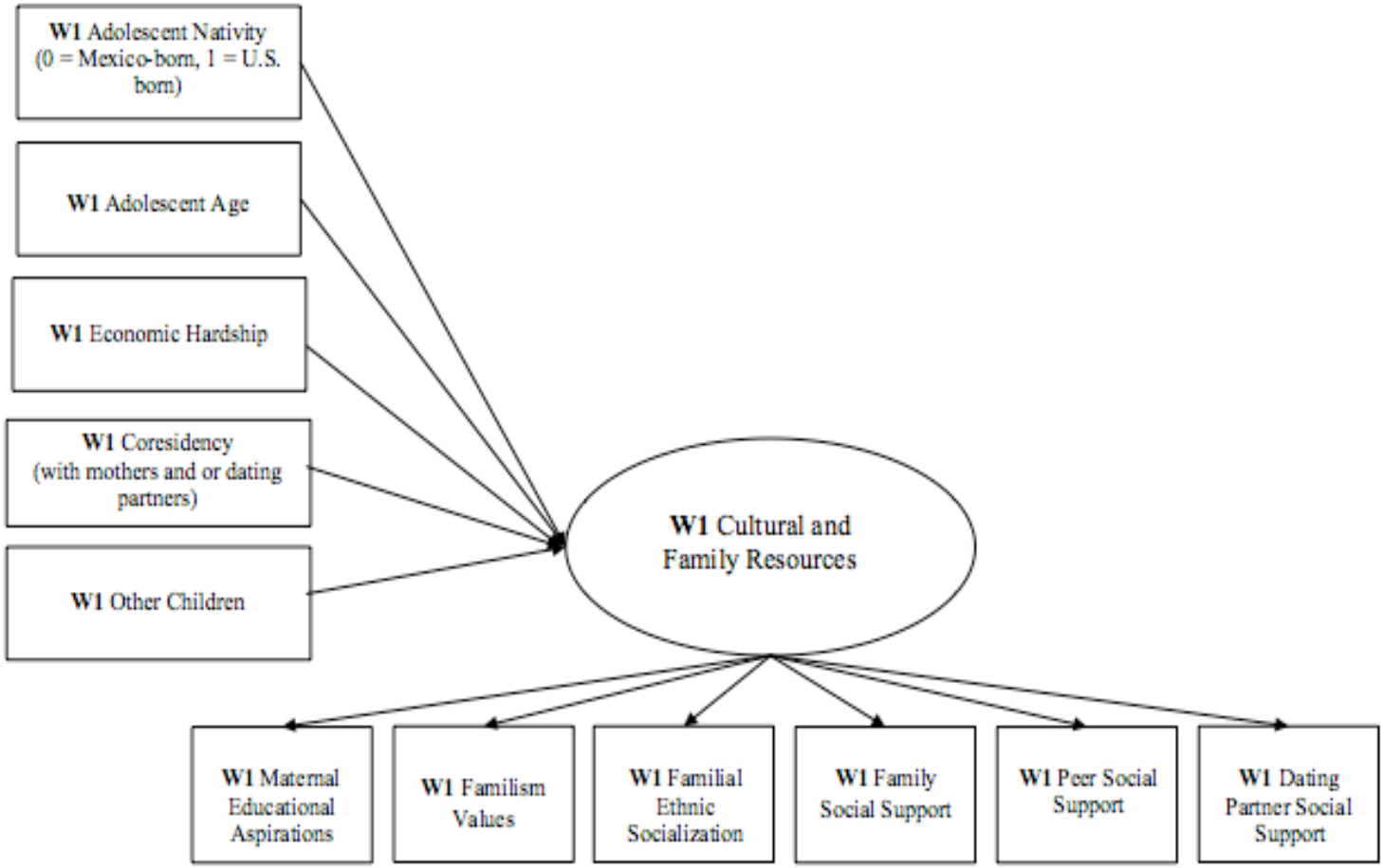


Figure 8. Analyses examining links between W1 covariates at the time of pregnancy (i.e., W1) and the probability of membership in promotive profile groups. Note. W1 = Wave 1.

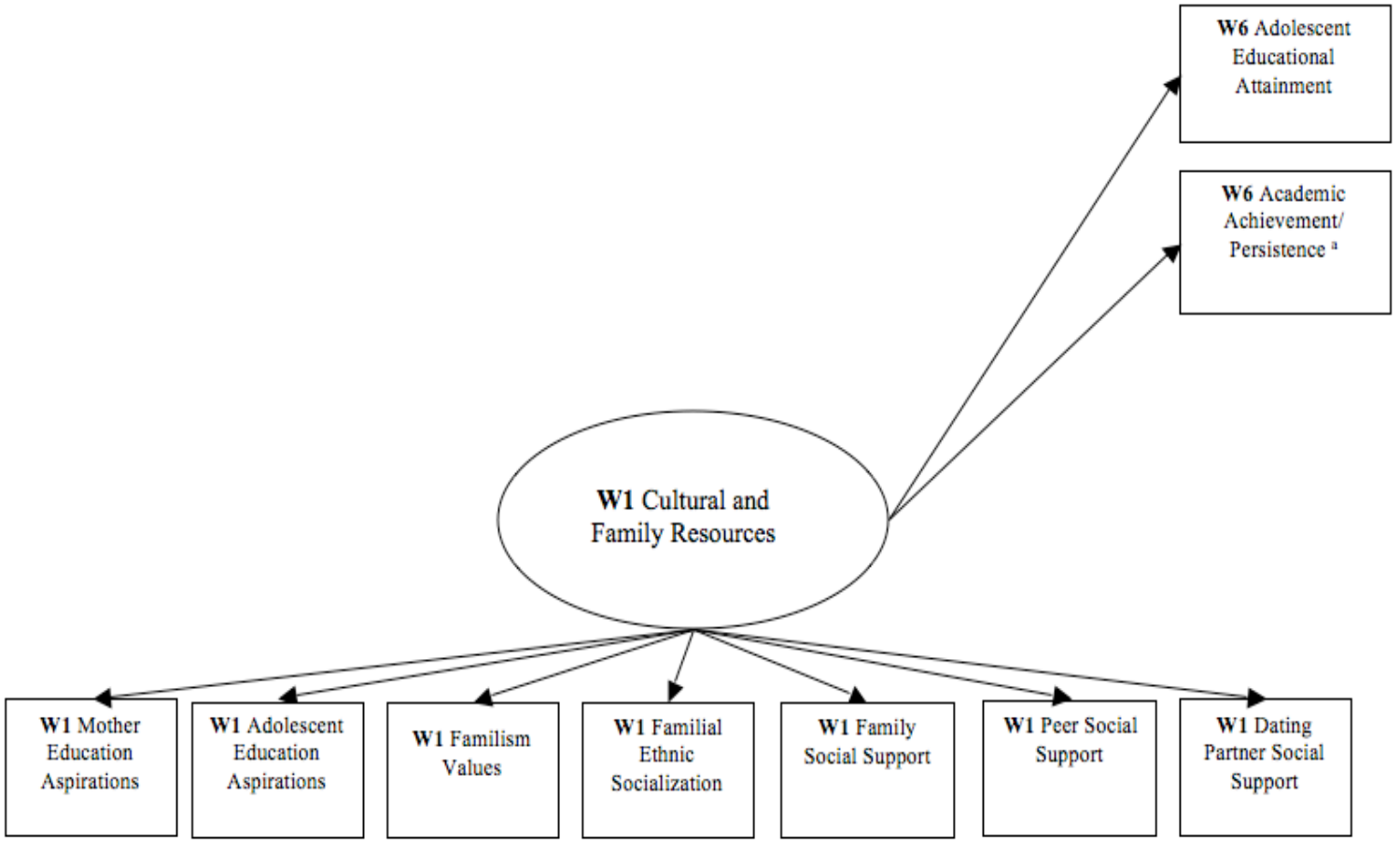


Figure 9. Proposed model of promotive profiles at the time of pregnancy and links to educational adjustment, 5 years postpartum.

Note. [a] = 0 = school dropout, 1 = High school or GED completion /currently enrolled in school. W1 = Wave 1; W6 = Wave 6. All analyses controlled for adolescents' nativity status, age, economic hardship, coresidency, and whether they had other children at W1.

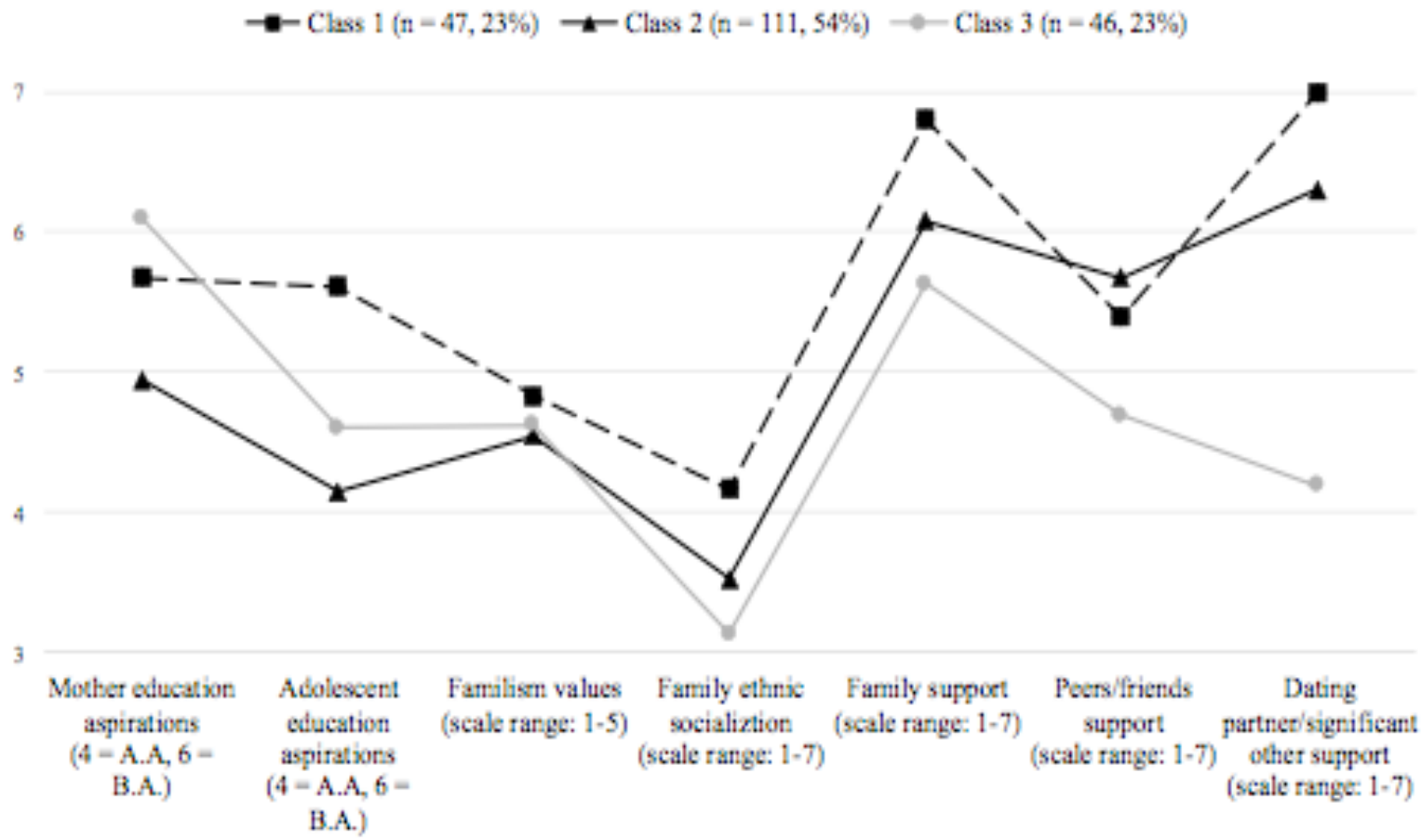


Figure 10. Standardized mean estimates for the 3-profile solution based on familial, social, and aspirational assets (N = 204).

Note. Class 1 = *High Aspirational/ High Familial/ High Social*. Class 2 = *Low Aspirational/ Average Familial/ High Social*. Class 3 = *Mixed Aspirational/ Average Familial/ Low Social*.

APPENDIX B

TABLES

Table 1

Demographic Characteristics of Study Participants (N = 204) [a]

	M (*SD*)
Demographics	
W1 U.S. born	64%
W1 MX born	36%
W1 Length of time in U.S.	12.8 (5.14), Range 0 - 19
Educational Demographics	
	(*n* = 204)
W1 Enrolled in School	58%
W1 GED/High School [b]	5%
W1 Dropout	37%
	(*n* = 194)
W2 Enrolled in School	40%
W2 GED/High School	18%
W2 Dropout	43%
	(*n* = 173)
W3 Enrolled in School	29%
W3 GED/High School	29%
W3 Dropout	42%
	(*n* = 171)
W4 Enrolled in School	21%
W4 GED/High School	41%
W4 Dropout	37%
	(*n* = 173)
W5 Enrolled in School	13%
W5 GED/High School	46%
W5 Dropout	41%
	(*n* = 172)
W6 Enrolled in School	10%
W6 GED/High School	52%
W6 Dropout	38%
W5 Employment	(*n* = 173)
Not working for pay	52%
Currently employed	48%
< 36 Hours/week	10%
≥36 Hours/week	30%

Hours/week	15.3 (18.05), Range = 0 - 60
Career-oriented	39%
W5 Childcare	(*n* = 172)
No childcare	41%
Obtained/enrolled	59%
Hours per week	15.3 (18.05), Range = 4 - 154
Age when childcare started	1.44 (1.44), Range = 0 - 4
Household Information	
W1 Household income [c]	(*n* = 198) $27,323 ($19,893), Range = $94- $114,000
W5 Total people in home	(*n* = 173) 5 (2.6), Range = 1 - 14
W5 Mother coresidency (0 = *No*, 1 = *Yes*)	(*n* =173) 37%
W5 Partner coresidency (0 = *No*, 1 = *Yes*)	(*n* = 173) 6%
W5 Mother and partner coresidency (0 = *No*, 1 = *Yes*)	(*n* = 173) 37%
W5 Partner coresidency (0 = *No*, 1 = *Yes*)	(*n* = 173) 6%
W5 Mother and partner coresidency (0 = *No*, 1 = *Yes*)	(*n* = 173) 26%
W5 Repeat teen pregnancy (0 = *No*, 1 = Y*es*)	(*n* = 173) 53%

Relationship Status

	(n = 131)
W5 Not married or cohabiting	32%
W5 Married/Cohabiting	68%
W1 to W5 Stable Romantic Relationship (204) [d]	27%

Note. W1 = Wave 1, W3 = Wave 3, W4 = Wave 4, W5 = Wave 5. [a] All percentages presented in Table 1 are based on valid cases at each wave of interest; [b] Earned GED or High School graduate but no longer enrolled in school; [c] Mean household income was reported by young mothers' mother figures; [d] Stable romantic relationship with same partner from W1 to W5.

Table 2

Means, Standard Deviations, and Correlations among Key Study Variables (N = 204)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1. W1 Educational Attainment	--														
2. W1 Academic A/P[a]	.49***	--													
3. W1 Academic motivation	.27*	.23**	--												
4. W1 Family income	.20*	.23**	.09	--											
5. W1 Mother educational expectations	.08	.28***	-.01	.26**	--										
6. W1 School discrimination	.06	.00	.19*	-.05	.01	--									
7. W1 Familism values	.01	.02	.18*	.01	-.05	.07	--								
8. W2 Educational expectations	.32***	.43***	.32***	.23**	.13+	.09	.03	--							
9. W2 Educational utility beliefs	.05	.03	.25**	-.06	.01	.15*	.20**	.16*	--						
10. W2 Familism values	.04	-.01	.12	.01	-.03	.05	.35***	.05	.29***	--					
11. W5 Employment hours/week	.16*	.21*	.10	.20*	.17*	-.02	-.01	.31*	-.02	.02	--				
12. W5 Childcare hours/week	.03	.15	-.02	.22*	.12	.05	.09	.14	-.01	-.01	.48**	--			
13. W5 Familism values	.02	-.05	.04	-.07	.08	-.00	.43***	.06	.17*	.45***	.08	-.21**	--		
14. W6 Educational Attainment	.59***	.59***	.25**	.23**	.28***	.01	-.01	.50***	.06	.12	.32*	.18*	.08	--	
15. W6 Academic A/P[a]	.38***	.51***	.21**	.16*	.23**	.09	-.03	.44***	-.05	.07	.29*	.22*	.10	.63***	--
Mean	9.60	.63	3.32	27,323	15.39	1.52	4.60	14.03	4.54	4.59	15.73	17.87	4.64	11.39	.62
SD	1.45	.48	.47	19,893	2.08	.72	.43	2.37	.511	.45	18.05	20.89	.44	1.57	.48
Range	6 - 12	0 - 1	1 - 4	94-114,000	10 - 20	1 - 4	1.33 - 5	7 - 20	1.6 - 5	1.33 - 5	0 - 60	0 - 154	2.17 - 5	7 - 16	0 - 1

Note. * $p < .05$ ** $p < .01$, *** $p < .001$. [a] A/P = achievement/ persistence (0 = school dropout, 1 = High school or GED completion /currently enrolled in school). W1 = Wave 1, W3 = Wave 3, W4 = Wave 4, W5 = Wave 5.

Table 3

Means, Standard Deviations, and Correlations among Key Study Variables (N = 204)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
1. W1 Age	--															
2. W1 Nativity status [a]	.06	--														
3. W1 Economic hardship	-.07	-.03	--													
4. W1 Coresidency with mothers	-.07	-.08	.03	--												
5. W1 Coresidency with dating partners	.15*	-.18*	.03	-.07	--											
6. W1 Coresidency with mothers/dating partners	.09	-.18*	.06	.18*	.17*	--										
7. W1 Other children	.15*	.07	.14*	-.02	.10	.03	--									
8. W1 Mother education aspirations [b]	.02	.11	-.08	-.01	-.11	-.08	-.07	--								
9. W1 Adolescent education aspirations [b]	.01	.07	-.16*	-.03	-.12	-.10	-.09	.16*	--							
10. W1 Familism values	-.01	.05	-.01	-.05	.13	.10	.04	-.10	.11	--						
11. W1 Familial ethnic socialization	.02	-.14*	.03	-.06	-.05	-.09	-.05	-.07	.06	.21**	--					
12. W1 Family support	.01	-.12	-.27**	.03	.11	.08	-.11	.02	.08	.27***	.17*	--				
13. W1 Peer/friend support	-.03	.14*	-.26**	-.03	-.17*	-.20**	-.09	.07	.12	.04	.03	.23**	--			
14. W1 Dating partner/significant other support	.19**	-.01	-.18*	-.10	.25*	.20**	-.01	.02	.05	.05	.04	.23**	.12	--		
15. W6 Educational attainment	.18*	.23**	-.16*	-.12	-.12	-.11	-.18*	.28***	.23**	-.01	-.07	.06	.18*	.01	--	
16. W6 Academic A/P [c]	.08	.06	-.20**	-.11	.09	-.02	-.19*	.23**	.17*	-.03	-.03	-.01	.19*	.05	.63***	--
Mean	16.81	.64	-.02	.87	.23	.18	.06	15.4	14.6	4.60	3.43	6.14	5.38	5.97	11.39	.62
SD	1.00	.48	2.5	.34	.42	.39	.25	2.08	2.10	.43	.78	.82	1.20	1.38	1.57	.48
Range	15 – 19	0 – 1	-.4 – 8.3	0 – 1	0 – 1	0 – 1	0 – 1	10 – 20	11 -20	1.3 – 5	1.2 – 5	3 – 7	1 – 7	1 – 7	7 – 16	0 – 1
Scale Range	--	0 – 1	--	0 – 1	0 – 1	0 – 1	0 – 1	--	--	1 – 5	1 – 5	1 – 7	1 – 7	1 – 7	--	0 – 1

Note. * $p < .05$ ** $p < .01$, *** $p < .001$. [a] 0 = Mexico-born 1 = U.S.-born. [b] Responses were coded to reflect the number of years of schooling reported (e.g., 10 = 10th grade; 12 = high school completion; 16 = bachelor's degree; 20 = doctorate or professional degree). [c] A/P = achievement/ persistence (0 = school dropout, 1 = High school or GED completion /currently enrolled in school). W1 = Wave 1, W3 = Wave 3, W4 = Wave 4, W5 = Wave 5.

Table 4

Goodness-of-fit Criteria for Various Latent Class Models at Wave 1 (3rd trimester of pregnancy; N = 204)

Number Of Classes	Degrees of Freedom	AIC	BIC	ABIC	LMR	BLMR	Entropy	Solution %	N for each class
1	20	5527.233	5593.595	5530.229	---	---	1.0	100	C1 = 204
2	41	5179.800	5315.843	5185.943	2 v 1 Value < .001***	.00***	.92	88%	C1 = 86 C2 = 118
3	**62**	**3835.941**	**4117.982**	**3848.676**	**3 v 2 Value = .04***	**.00***	**.88**	**71%**	**C1 = 47** **C2 = 111** **C3 = 46**
4	83	4982.280	5257.684	4994.715	4 v 3 Value = .24	.00***	.91	48%	C1 = 88 C2 = 17 C3 = 48 C4 = 51
5	104	4931.608	5276.693	4947.190	5 v 4 Value = 0.20	.00***	.89	42%	C1 = 35 C2 = 48 C3 = 29 C4 = 56 C5 = 36
6	125	4891.696	5306.461	4910.423	6 v 5 Value = .73	.00***	.88	26%	C1 = 17 C2 = 39 C3 = 36 C4 = 32 C5 = 53 C6 = 27

Note. AIC = adjusted information criterion; BIC = Bayesian information criterion; ABIC = adjusted Bayesian information criterion; LMR = Lo-Mendell-Rubin; BLMR = Bootstrap Lo-Mendell-Rubin. Solution % is the percentage of times solution was selected out of 1000 random sets of starting values. Dashes indicate criterion was not calculated for the model. Bolded text indicates the best-fitting solution. * $p < .05$, *** $p <$

Table 5

Demographic Characteristics of Study Participants [a]

	Full Sample (N = 204)	**Class 1 (*n* = 47)**	**Class 2 (*n* = 111)**	**Class 3 (*n* = 46)**
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Demographics				
W1 U.S. born	64%	55%	68%	65%
W1 MX born	36%	45%	32%	35%
W1 Length of time in U.S.	12.8 (5), Range = 0 - 19	12.6 (5), Range = 0 - 18	13.0 (5), Range = 1 - 19	12.5 (7), Range = 1 - 18
W1 Age	16.8 (1.00), Range = 15 - 19	17.0 (.99), Range = 15 - 19	16.8 (.98), Range = 15 - 19	16.6 (1.0), Range = 15 - 19
W1 Mother Figures' Educational Attainment	9.0 (3.33), Range = 1 - 18	9.3 (3.9), Range = 2 - 18	9.1 (3.3), Range = 1 - 18	8.4 (2.9), Range = 3 - 16
Adolescent Mother Education Demographics [a]				
	(*n* = 204)	(*n* = 47)	(*n* = 111)	(*n* = 46)
W1 Enrolled in School	58%	64%	55%	61%
W1 GED/High School [b]	5%	6%	5%	4%
W1 Dropout	37%	30%	40%	35%
	(*n* = 102)	(*n* = 27)	(*n* = 50)	(*n* = 25)
W1 Educational Attainment [c]	9.6 (1.5), Range = 6 - 12	9.9 (1.4), Range = 8 - 12	9.6 (1.5), Range = 6 - 12	9.4 (1.5), Range = 6 - 12
	(*n* = 194)	(*n* = 43)	(*n* = 105)	(*n* = 46)
W2 Enrolled in School	40%	36%	39%	46%
W2 GED/High School	18%	31%	14%	11%
W2 Dropout	43%	33%	47%	43%
	(*n* = 122)	(*n* = 30)	(*n* = 64)	(*n* = 28)
W2 Educational Attainment	10.3 (1.4), Range = 5 - 13	10.6 (1.3), Range = 8 - 12	10.3 (1.4), Range = 7 - 12	10.2 (1.7), Range = 5 - 13
	(*n* = 173)	(*n* = 36)	(*n* = 95)	(*n* = 42)
W3 Enrolled in School	29%	39%	25%	29%
W3 GED/High School	29%	25%	35%	19%
W3 Dropout	42%	36%	40%	52%
	(*n* = 126)	(*n* = 32)	(*n* = 65)	(*n* = 29)
W3 Educational Attainment	10.8 (1.5), Range = 6 - 14	11.1 (1.4), Range = 8 - 14	10.8 (1.4), Range = 6 - 13	10.6 (1.7), Range = 7 - 13
	(*n* = 171)	(*n* = 41)	(*n* = 94)	(*n* = 36)
W4 Enrolled in School	21%	27%	16%	28%
W4 GED/High School	41%	37%	48%	30%

W4 Dropout	37%	36%	36%	42%
W4 Educational Attainment	(*n* = 168) 11.1 (1.5), Range = 7 - 14	(*n* = 40) 11.2 (1.6), Range = 8 - 14	(*n* = 91) 11.2 (1.5), Range = 7 - 14	(*n* = 37) 10.9 (1.8), Range = 7 – 14
	(*n* = 173)	(*n* = 37)	(*n* = 97)	(*n* = 39)
W5 Enrolled in School	13%	22%	9%	15%
W5 GED/High School	46%	43%	51%	36%
W5 Dropout	41%	35%	40%	49%
W5 Educational Attainment	(*n* = 173) 11.4 (1.5), Range = 7 - 14	(*n* = 38) 11.5 (1.4), Range = 8 - 14	(*n* = 97) 11.3 (1.5), Range = 7 - 14	(*n* = 38) 11.2 (1.1), Range = 7 - 14
	(*n* = 172)	(*n* = 36)	(*n* = 98)	(*n* = 38)
W6 Enrolled in School	10%	11%	9%	6%
W6 GED/High School	52%	55%	52%	50%
W6 Dropout	38%	34%	39%	44%
W6 Educational Attainment	(*n* = 172) 11.4 (1.6), Range = 7 - 16	(*n* = 40) 12.1 (1.5), Range = 8 - 16	(*n* = 93) 11.4 (1.6), Range = 7 - 16	(*n* = 39) 11.2 (1.7), Range = 7 - 15

Household Information

W1 Household income [d]	(*n* = 198) $27,323 ($19,893), Range = $94- $114,000	(*n* = 46) $27,915 ($18,528), Range = $1,600- 99,600	(*n* = 106) $26,363 ($19,688), Range = $94- 114,000	(*n* = 46) $28,945 ($ 21,896), Range = $800- 106,200
W1 Total people in home	(*n* = 204) 4.8 (2.5), Range = 1 - 16	(*n* = 47) 4.8 (2.8), Range = 1 - 12	(*n* = 111) 4.8 (2.4), Range = 1 - 14	(*n* = 46) 4.9 (2.6), Range = 1 - 16
W1 Mother coresidency	(*n* = 204) 87%	(*n* = 47) 91%	(*n* = 111) 85%	(*n* = 46) 87%
W1 Partner coresidency	(*n* = 204) 23%	(*n* = 47) 43%	(*n* = 111) 17%	(*n* = 46) 15%
W1 Mother and partner coresidency	(*n* = 204) 18%	(*n* = 47) 36%	(*n* = 111) 11%	(*n* = 46) 15%
W1 Other children	(*n* = 204) 6%	(*n* = 47) 11%	(*n* = 111) 7%	(*n* = 46) 0%

Relationship Status

	(*n* = 144)	(*n* = 30)	(*n* = 80)	(*n* = 34)
W1 Not married or cohabiting	60%	52%	63%	74%
W1 Married/Cohabiting	40%	48%	37%	26%
W1 Currently in Romantic Relationship	71%	74%	72%	69%

Note. W1 = Wave 1, W3 = Wave 3, W4 = Wave 4, W5 = Wave 5, W6 = Wave 6. [a] Percentages presented in Table 5 are based on valid cases at each wave of interest; [b] Earned GED or High School graduate but not currently enrolled in school; [c] Educational attainment reflects the highest number of school years completed (e.g., 10 = 10th grade; 12 = high school completion; 16 = bachelor's degree; 18 = master's degree).[d] Household income was reported by adolescents' mother figures.

Table 6
Parameter estimates for 3-profile model of promotive/protective cultural factors

		Promotive/Protective Profiles		
		Class 1	**Class 2**	**Class 3**
W1 Latent Profile Membership Proportions		23% (n = 47)	54% (n = 111)	23% (n = 46)
Factors	*Overall Factor Means*	*Within-Profile Factor Means*		
Factor 1. **Mother education aspirations** (i.e., "How far would you *like* your daughter to go in school?")	15.39	15.67	14.94	16.10
Factor 2. **Adolescent education aspirations** (i.e., "How far would you *like* to go in school?")	14.62	15.61	14.14	14.60
Factor 3. **Familism values** (e.g., "Family provides a sense of security because they will always be there for you")	4.60	4.83	4.54	4.62
Factor 4. **Familial ethnic socialization** (e.g., "My family feels a strong attachment to our ethnic/cultural background")	3.43	4.16	3.52	3.13
Factor 5. **Family support** (e.g., "My family is willing to help me make decisions")	6.14	6.80	6.08	5.63
Factor 6. **Peer/friend support** (e.g., "My friends really try to help me")	5.38	5.39	5.67	4.69
Factor 7. **Dating partner/ significant other support** (e.g., "There is a special person who is around when I am in need")	5.97	6.99	6.30	4.19

Note. **Class 1** (23%) = *High Aspirational/ High Familial/ High Social*. **Class 2** (54%) = *Low Aspirational/ Average Familial/ High Social*. **Class 3** (23%) = *Mixed Aspirational/ Average Familial/ Low Social*. **Education aspirations** (1-item) was coded to reflect the number of years of schooling that mothers' aspired for their pregnant daughters or that adolescents aspired for themselves (e.g., 10 =

10th grade; 12 = high school completion; 16 = bachelor's degree; 20 = doctorate or professional degree). **Familism values** (6-item support and emotional closeness subscale) was rated using a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). **Familial ethnic socialization** (12-item scale) was rated on 5-point Likert-type scale, ranging from 1 (*not at all*) to 5 (*very much*). **Social Support** (12-item scale; 4-item subscales: family support, peers/friends, dating partner/significant other) responses were rated on a 7-point Likert scale, with endpoints ranging from *strongly disagree* (1) to *strongly agree* (7).

Table 7

Odds ratios from multinomial logistic regression models predicting latent profile membership probability for a 3-profile solution (N = 204)

W1 Covariates	Latent Profile Group Means			W1 Latent Profile Comparisons					
	***High Aspirational/ High Familial/ High Social* (Class 1, 23%)**	***Low Aspirational/ Average Familial/ High Social* (Class 2, 54%)**	***Mixed Aspirational/ Average Familial/ Low Social* (Class 3, 23%)**	**Class 1 [reference group] vs. Class 2**		**Class 1 [reference group] vs. Class 3**		**Class 3 [reference group] vs. Class 2**	
				OR (95% CI)	*p*	OR (95% CI)	*p*	OR (95% CI)	*p*
Nativity Status (0 = *Mexico-born*, 1 = *U.S. born*)	55%	68%	65%	1.68 (.84, 3.4)	.15	1.51 (.66, 3.5)	.33	1.11 (.54, 2.30)	.78
Age	17.0	16.8	16.6	0.81 (.58, 1.2)	.24	0.68 (.45, 1.0)	.07	1.2 (.84, 1.7)	.31
Economic Hardship [a]	-.89	-.10	1.05	1.17 (1.0, 1.4)	.06	**1.40*** ** (1.2, 1.7)	< .001	**.84*** (.73, .96)	.01
Coresidency with Mothers (0 = *no*, 1 = *yes*)	91%	85%	87%	0.51 (.16, 1.6)	.26	0.62 (.16, 2.4)	.48	0.83 (.31, 2.3)	.71
Coresidency with dating	43%	17%	15%	**0.28**** (.13,	.001	**0.24**** (.09, .65)	.005	1.15 (.45, 3.0)	.77

partners (0 = *no*, 1 = *yes*)				.60)					
Coresidency with both mothers and dating partners (0 = *no*, 1 = *yes*)	36%	11%	15%	**0.23**** (.10, .54)	.001	**0.32*** (.11, .86)	.02	0.74 (.27, 2.0)	.55
Other children (0 = *no*, 1 = *yes*)	11%	7%	0%	0.65 (.20, 2.1)	.48	NA [b]	--	NA	--

Note. [a] Economic hardship was calculated using a weighted sum score, which ranged from -4.4 to 8.29. [b] Odds ratios could not be calculated for comparisons including Class 1, given that Class 1 did not have other children. Significant differences in covariates predicting latent profile membership are identified as follows: * $p < .05$. ** $p < .01$. *** $p < .001$

Table 8

Model estimates with latent profile membership probability for a 3-profile solution predicting W6 educational adjustment (N = 204)

	W1 Latent Profile Group Means (adjusting for study controls)			**W1 Latent Profile Comparisons**								
				Class 1 [reference group] vs. Class 2			**Class 1 [reference group] vs. Class 3**			**Class 3 [reference group] vs. Class 2**		
W6 Outcomes	*High Aspirational/ High Familial/ High Social* (Class 1, 23%)	*Low Aspirational/ Average Familial/ High Social* (Class 2, 54%)	*Mixed Aspirational/ Average Familial/ Low Social* (Class 3, 23%)	β (95% CI)	OR (95% CI)	*p*	β (95% CI)	OR (95% CI)	*p*	β (95% CI)	OR (95% CI)	*p*
Educational Attainment [a]	11.58	11.36	11.25	**-.22*** (-.32, -.19)	--	.03	**-.33**** (-.41, -.26)	--	.005	-.11 (-.32, .11)	--	.33
Academic Achievement/ Perserverance [b]	61%	60%	58%	--	1.04 (.62, 2.1)	.38	--	1.13 (.35, 3.6)	.52	--	.92 (.26, 1.3)	.31

Note. Beta values are presented for continuous outcomes and odds ratios are presented for categorical outcomes. [a] Educational attainment reflects the highest number of school years completed (e.g., 10 = 10th grade; 12 = high school completion; 16 = bachelor's degree; 18 = master's degree) and ranged from 7th grade to a bachelor's degree. [b] 0 = high school dropout, 1 = currently enrolled in school/earned a high school diploma or GED. Significant differences in latent profile membership predicting W6 educational adjustment (controlling for W1 nativity status, age, economic hardship, coresidency, other children) are identified as follows: * $p < .05$. ** $p < .01$