Risk and Protective Factors on Mexican-Origin Youths' Academic Achievement,

Educational Expectations and Postsecondary Enrollment

by

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A Dissertation Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

Approved September 2017 by the
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ARIZONA STATE UNIVERSITY

December 2017

ABSTRACT

Both theoretical and empirical research has recognized the importance of contextual factors for Mexican-origin youths' educational outcomes. The roles of parents, teachers, and peers have been predictive of Mexican-origin youths' academic achievement, educational expectations, and decision to enroll in postsecondary education. However, few studies have examined the interdependence among sociocultural context characteristics in predicting Mexican-origin youths' educational outcomes. In this dissertation, two studies address this limitation by using a person-centered analytical approach. The first study identified profiles of Mexican-origin youth using culturally relevant family characteristics. The second study identified profiles of Mexican-origin youth using culturally relevant school characteristics. The links between profiles and youths' academic achievement, educational expectations, and postsecondary enrollment were examined in both studies. Overall, this dissertation contributes to the growing body of literature that aims to understand risk and protective processes related to Mexican-origin youths' academic achievement, educational expectations, and postsecondary enrollment.

i

ACKNOWLEDGMENTS

TABLE OF CONTENTS

iii

LIST OF TABLES

LIST OF FIGURES

Introduction

Baccalaureate degree attainment is essential in achieving upward social mobility and higher socioeconomic status in the United States (U.S.; Greenstone, Looney, Patashnik, & Yu, 2013). Individuals who hold baccalaureate degrees benefit from higher salaries, lower dependency on government assistance, better access to health care, less involvement in the criminal justice system, and a stronger dedication to the public good (Levin, 2009). Further, by 2020, projections are that 35% of jobs in the U.S. will require at least a baccalaureate degree (NCSL, 2014).

In the U.S., 33% of adults between the ages of 25 and 29 have earned at least a baccalaureate degree (NCES, 2013). However, ethnic differences persist: 63% of Asians, 41% of Whites, and 22% of Blacks as compared to 15% of Latinos hold a baccalaureate degree (Krogstad, 2016). These ethnic group differences emphasize the need to understand factors that may promote educational attainment among Latinos, as they have the lowest attainment levels of the four major ethnic/racial groups in the U.S. (Gándara, 2010; Umaña-Taylor, 2009).

Yet, educational attainment among Latinos has been changing rapidly in recent years, as a result of growth in both K-12 and postsecondary education. The high school dropout rate for Latinos has reached a record low, dropping from 32% in 2000 to 12% in 2014 (Krogstad, 2016). Even though the Latino high school dropout rate is still higher than Blacks (7%), Whites (5%) and Asians (1%; Krogstad, 2016), more Latino high school graduates have enrolled in postsecondary than in the past. In fact, the percentage of Latinos who enroll in postsecondary education is similar to that of their White peers (i.e., 69% versus 67%, respectively; Fry & Taylor, 2013).

Latinos are now the largest minority group among the nation's college student body for both community and four-year colleges, such that Latinos make up 16.5% of the nation's 18- to 24-year-old college population (Fry & Lopez, 2012). For the first time, Latinos' representation among the nation's college student body matched Latinos' overall population representation, also at 16.5% (Fry & Lopez, 2012). Therefore, some have argued that enrollment in postsecondary education may be becoming a more normative developmental transition after high school for Latinos (Lefkowitz, 2005).

From a developmental perspective, postsecondary education enrollment in young adulthood is influenced by the educational expectations developed during adolescence (Eccles & Wigfield, 2002; Mello, 2009; Mello, Monaghan, Anton-Stang, Roberts, & Worrell, 2012), as this is an important period for formulating realistic plans for the future (Steinberg, Graham, O'Brien, Woolard, Cauffman, & Banich, 2009). Educational expectations are considered to be a realistic self-assessment of students' future in the U.S. education system (Mickelson, 1990). Previous research on Latino youth demonstrated that educational expectations predicted actual postsecondary enrollment and completion in young adulthood (Mello et al., 2012). However, on average, Latinos often report expecting to complete lower levels of education compared to all other major racial/ethnic groups (Flores, Navarro, & DeWitz, 2008; Mau & Bikos, 2000; St-Hilaire, 2002). For example, 48% of young adult Latinos say they expect to earn a college degree or more, compared with 60% of the overall U.S. population (Pew Research Center, 2013). This gap has been explained by previous research as related to nativity, English proficiency, and familism values (Pew Research Center, 2013). For instance, Latino immigrants have relatively low educational expectations of earning a baccalaureate degree or higher (i.e.,

2

29%), compared with 64% of second-generation Latino youth, and 54% of the third and higher generations (Pew Research Center, 2013). In addition, 24% of Latinos who primarily speak Spanish plan to obtain a baccalaureate degree or more, compared to 49% of bilingual Latinos and 62% of English-dominant speaking Latinos (Pew Research Center, 2013). Lastly, nearly three-quarters (74%) of Latino youth who cut their education short during or right after high school say they did so because they had to support their family (Pew Research Center, 2013). Therefore, it is likely that youths' educational expectations are related to a combination of contextual factors (Eccles & Wigfield, 2002; Pew Research Center, 2013).

Furthermore, students' academic achievement in high school has been predictive of actual enrollment and completion of postsecondary education (Zarate & Gallimore, 2005). However, if students do not do well in high school, they may not meet the necessary requirements for enrollment in postsecondary education nor have the necessary skills to successfully persist in postsecondary education (Zarate & Gallimore, 2005). For Latino high school students, there is a significant gap in reading and mathematics achievement compared to White and Asian students (NCES, 2016). Moreover, Latino students, specifically Mexicans and Puerto Ricans, are less likely to meet proficiency standards on college-ready assessments compared to Whites and Asians (NCES, 2016). Low academic achievement among Latinos has been attributed to many different contextual factors. Some researchers have suggested poor parenting, poor English skills, and poor work ethic as primary reasons for Latinos' low academic achievement (Lopez, 2009). Whereas, others suggest the school context is disadvantageous for Latino youth. For example, Swail and colleagues (2005) noted substantial differences between Latino

3

and White students with regard to their pre-college academic preparation. Those differences included the number of remedial courses taken, scores on the college qualification index, their high school curricula, placement in advanced courses, and testing for college placement (Nora & Crisp, 2009; Swail, Cabrera, Lee, & Williams, 2005). Nearly 59% of Latino students were characterized as "not qualified" for postsecondary education, as compared to 41% of White students (Swail et al., 2005). Furthermore, studies of academic tracking have found that Latinos are more likely to be placed into lower academic tracks throughout their secondary schooling, which in turn affected their level of achievement and preparation for college enrollment (Oakes, 2005). With that being said, it is likely that both family and school contexts matter, but perhaps in different ways.

It is important to acknowledge, however, that there is substantial heterogeneity *within* the Latino population in the U.S. (Knight, Roosa, & Umaña-Taylor, 2009). Latino is defined as "a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race" (U.S. Census Bureau, 2010, p. 2). Significant to understanding patterns of Latinos' educational attainment is the distribution of those who identified as Latino in the U.S., 63% were Mexican followed by 9% Puerto Rican, 8% Central American, 8% Spanish, 5% South American, 4% Cuban, and 3% Dominican (Motel & Patten, 2012). For those 25 and older, 24% of Cubans have earned a baccalaureate degree compared to 16% of Puerto Ricans and 9% of Mexicans (Motel & Patten, 2012). As the largest and least educated Latino sub-group (Motel & Patten, 2012),

Mexican-origin[1] adults' educational attainment is an important focus (Umaña-Taylor, 2009).

Differences in educational attainment based on national origin could stem from two key distinctions among Latino national origin groups. First, socio-economic backgrounds differ by national origin; South Americans (i.e., Colombian, Ecuadorian, Peruvian, and Salvadoran) have an average household income of $48,000 and 16% poverty rate; whereas, Cubans, Mexicans and Puerto Ricans have an average household income of $38,000 and 24% poverty rate (Motel & Patten, 2012). Limited financial resources can often deter Latinos from pursuing postsecondary education (Lopez, 2009). Second, Mexican-origin Latinos account for 59% of the unauthorized population in the U.S. (Baker & Rytina, 2013); undocumented Latino students experience greater barriers to pursuing higher education due to their immigration status, even if they do well academically in high school (Perez, Espinoza, Ramos, Coronado, & Cortes, 2009; Contreras, 2011). Due to heterogeneity *within* the Latino population, it is important to examine the correlates of educational attainment for these distinct Latino subgroups.

To address heterogeneity within the Latino population, researchers have advocated for ethnic-homogenous research designs (i.e., within-group designs; García Coll, Crnic, Lamberty, Waskik, Jenkins, Garcia, et al., 1996; Knight et al., 2009; McLoyd, 1998). Ethnic-homogenous research designs allow for the examination of mechanisms operating within a specific group (García Coll et al. 1996; Knight et al., 2009; McLoyd, 1998), for example, the identification of culturally relevant risk and

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[1] The term Mexican-origin is used here to refer to those of Mexican national origin living in the U.S. including both immigrants and those born in the U.S.

protective factors for Mexican-origin youths' academic achievement, educational

expectations and enrollment in postsecondary education. Due to their high composition

within society and overrepresentation in disadvantaged settings, in combination with low

rates of baccalaureate degree attainment, Mexican-origin youth have become an

important focus of research on educational outcomes (Gándara, 2010). If Mexican-origin

youths' baccalaureate degree attainment does not improve, they will continue to be

overrepresented in low paying, less skilled jobs, which has substantial consequences for

the U.S. as they continue to make up a larger and larger percentage of the workforce

(Azziz, 2015; Gándara, 2010).

The first study aims to expand upon previous research that has demonstrated the

crucial role of family in youths' educational beliefs and behaviors (Juvonen & Wentzel,

1996; Wigfield, Eccles, Scheifele, Roeser, & Davis-Kean, 2006). The majority of this

work has primarily used variable-centered approaches to explore the impact of single

predictors in isolation from one another or controlling for other predictors (i.e., multiple

regression models; Gonzalez & Padilla, 1997; Kumpfer, Alvarado, Smith, & Bellamy,

2002; Martin & Marsh, 2006; Zimmerman, 2013), as compared to person-centered

approaches that allow for the identification of *patterns* across a group of predictors

(Magnusson, 1988). From a resilience perspective (Masten & Coatsworth, 1998;

Rutter, 1987; Zimmerman, 2013), the *pattern* of multiple culturally relevant family risk

and protective factors may more accurately reflect the complex nature of youths'

development (Ostaszewski & Zimmerman, 2006; Stoddard, Zimmerman, &

Bauermeister, 2012). The first goal of the study is to identify patterns of culturally

relevant risk and protective factors within families as suggested by theoretical and

empirical research. The second goal is to examine the associations between profiles and

Mexican-origin youths' academic achievement, educational expectations and

postsecondary enrollment. Family patterns of risk and protective factors will be

inferred using a resilience framework (Masten & Coatsworth, 1998; Rutter, 1987;

Zimmerman, 2013). Risk factors are likely to be related to the increased likelihood of

poor academic achievement, low educational expectations and not enrolling in

postsecondary education; whereas, protective factors may directly protect or counteract

the relation of risk on educational outcomes leading to greater academic achievement,

educational expectations and enrollment in postsecondary education.

The second study aims to examine the school context on Mexican-origin youths'

academic achievement, educational expectations and postsecondary enrollment. From a

resilience perspective (Masten & Coatsworth, 1998; Rutter, 1987; Zimmerman, 2013),

the *pattern* of culturally relevant risk and protective factors within schools may more

accurately reflect the complex nature of Mexican-origin youths' academic achievement,

educational expectations and postsecondary enrollment. Empirical evidence has

suggested that teachers and peers within the school context also play an important role in

youths' educational beliefs and behaviors (Juvonen & Wentzel, 1996; Wigfield et al.,

2006). The first goal of the study is to utilize a person-centered analytic approach

(Magnusson, 1988) to identify profiles of youth within their school context. The second

goal is to examine the associations between profiles and youths' academic achievement,

educational expectations and postsecondary enrollment.

The two studies are complimentary in their focus on the sociocultural processes

associated with Mexican-origin youths' academic achievement, educational expectations

7

and postsecondary enrollment. First, each study will demonstrate the ways in which culturally relevant risk and protective factors are associated with Mexican-origin youths' academic achievement, educational expectations and postsecondary enrollment, including patterns within the family context in the first study, and patterns within the school context in the second study. Second, each study used a longitudinal design to explore how profiles of contextual risk and protective factors contribute to Mexican-origin youths' prospective academic achievement, educational expectations and postsecondary enrollment. Lastly, these studies contributed to the growing body of literature on Latinos' educational attainment by striving to understand how patterns of culturally relevant risk and protective factors may be associated with greater academic achievement, higher educational expectations and more enrollments in postsecondary education for Mexican-origin youth (Gándara, 2010; Umaña-Taylor, 2009).

Study #1: Family Profiles on Mexican-Origin Youths' Academic Achievement, Educational Expectations and Postsecondary Enrollment

Latino youth have received increased attention in empirical research on educational outcomes as a result of the rapid growth of this segment of the U.S. population (Mather, 2016), in combination with concerns about Latino youths' academic success (Gándara, 2010). Scholars studying Latino youth have emphasized the importance of identifying culturally relevant factors that promote academic success (Gonzales, Germán, Kim, George, Fabrett, Millsap, & Dumka, 2008; Huynh & Fuligni, 2008) and factors that place these youth at increased risk for poor educational outcomes (Marrero, 2016; Schhneider, Martinez, & Ownes, 2006). The family context may be a source of both risk and protection for Latino youths' educational outcomes, but rarely have studies considered the *interrelations* among contextual risk and protective factors in efforts to predict Latino youths' academic achievement, educational expectations and postsecondary enrollment (Cauce, Cruz, Corona, & Conger, 2011; Rosas & Hamrick, 2002).

During early adolescence, students' academic achievement can initiate a trajectory of subsequent educational opportunities and choices that either enhance or impede their educational attainment (Zimmerman, 2013). For instance, students' academic achievement in high school has been predictive of actual enrollment and completion of postsecondary education (Sanchez, Usinger, & Thornton, 2015; Zarate & Gallimore, 2005). However, Latino high school students lag behind White and Asian students in their reading and mathematics achievement (NCES, 2016). Moreover, Latino students, specifically Mexicans and Puerto Ricans, are less likely to meet proficiency

standards on college-ready assessments compared to Whites and Asians (NCES, 2016). The gap in achievement for Latinos may be associated with differences in their contextual experiences.

This study is focused on adolescence, an important developmental period for formulating realistic plans for the future (Steinberg, Graham, O'Brien, Woolard, Cauffman, & Banich 2009). Educational expectations are considered to be a realistic self-assessment of students' future in the U.S. education system (Mickelson, 1990). Youths' educational expectations as early as 8th grade remain stable through adolescence and into early adulthood (Vasquez-Salgado & Chavira, 2014; Trusty, 2000). Yet, on average, Latino youth have low educational expectations regarding how much education they will actually complete, despite high educational aspirations that reflect their desire to attain more education (Lopez, 2009). For example, 89% of Latinos (aged 16 to 25) reported that a college degree was important for getting ahead in life; yet, only 48% of Latinos (aged 18 to 25) said they expected to earn a college degree (Lopez, 2009). Having high educational aspirations without being able to achieve them (i.e., aspirations-achievement paradox) may negatively affect youth by causing disappointment, frustration, and withdrawal from the educational system (Greenaway, Frye, & Cruwys, 2015; Hanson, 1994); therefore, scholars have suggested educational expectations are a better predictor of actual educational attainment than educational aspirations (Beal & Crockett, 2010).

Youths' decision to enroll in postsecondary education has lifelong implications, including higher salaries, lower dependency on government assistance, better access to health care, less involvement in the criminal justice system, and a stronger dedication to the public good (Levin, 2009). Furthermore, any postsecondary experience produced a

10

measurable benefit when compared with no postsecondary education, but the benefits of completing a baccalaureate degree or higher lead to significantly greater advantage (Baum & Payea, 2005). Importantly, the college enrollment rate for Latinos has increased over the past 10 years from 54% in 2004 to 70% in 2015 (Excelencía in Education, 2015), resulting in a higher rate of Latino students enrolling in postsecondary education directly after high school graduation. Yet, Mexican-origin youth are still less likely to enroll in postsecondary education compared to all other major ethnic groups and Latino sub-groups, except Puerto Ricans (Motel & Patten, 2012). Differences in postsecondary education enrollment rates have been attributed to contextual factors, such as poverty, poor academic achievement, and familial obligations (Excelencía in Education, 2015; Reardon, 2011; Fry, 2002).

Due to differences stated above, it is crucial to examine the sociocultural context in which Mexican-origin youth reside. Given the salience of the family context for Mexican-origin youths' educational outcomes (Sabogal, Marin, Otero-Sabogal, Marin, & Perez-Stable, 1987), this study focuses on culturally relevant family risk and protective factors using a resilience framework (Masten & Coatsworth, 1998; Rutter, 1987; Zimmerman, 2013). A resilience framework is a strengths-based perspective for understanding Mexican-origin youths' academic achievement, educational expectations and postsecondary enrollment by focusing attention on protective factors (Fergus & Zimmerman, 2005), which either operate directly or in opposition to risk factors, which help youth thrive in the face of adversity (Loeber & Farrington, 2012; Masten, Cutuli, Herbers, Reed, 2007; Rutter, 1987). However, the majority of this work has primarily used variable-centered approaches to explore the impact of *single* predictors in isolation

from one another or controlling for other predictors (i.e., multiple regression models; Gonzalez & Padilla, 1997; Kumpfer et al., 2002; Martin & Marsh, 2006; Zimmerman, 2013). The present study was designed to contribute to this body of research, first, by identifying *patterns* of culturally relevant family protective and risk factors, and second, by examining the associations between these potentially different profiles and Mexican-origin youths' educational outcomes assessed as three separate constructs: academic achievement, educational expectations, and postsecondary enrollment.

Family Characteristics as Predictors of Educational Outcomes

A resilience perspective and empirical research guided the selection of family characteristics that are culturally relevant risk and protective factors for Latino youths' educational outcomes. Youth can actively generate protective opportunities for themselves by forging connections to competent and caring adults in their families (Lopez & Lechuga, 2007). Extensive empirical and theoretical literature documents that significant others, such as parents, play an important role in youths' academic achievement, educational expectations, and enrollment in postsecondary education (Lopez, 2009; Perna, 2000; Eccles & Wigfield, 2002). Due to the cultural importance of family among Latinos (Sabogal et al., 1987) and the contextual importance of family on resilience (Luthar, Cicchetti, & Becker, 2000; Zimmerman, 2013), Latino youths' educational outcomes should be examined within the family context. Furthermore, Latino, and in particular Mexican-origin, families are characterized by strong age-related hierarchies; parents are generally the authority over their youth (Fuligni, 1998; Halgunseth, Ispa, & Rudy, 2006). Thus, parents are likely to be salient in shaping youths' educational outcomes.

Parental involvement in education is a broad construct that encompasses a range of parenting behaviors from discussing school-related matters with youth to being active in parent-teacher organizations (Pomerantz, Moorman, & Litwack, 2007). Overall, there is a positive relation between parental involvement and youths' educational outcomes (Hill, Tyson, & Bromell, 2009; Juang & Silbereisen, 2002). High parental involvement may be a protective factor that increases Mexican-origin youths' educational outcomes. However, previous research on parental involvement in education often distinguished between home-based and school-based involvement (Domina, 2005; Pomerantz et al., 2007; Sheldon & Epstein, 2005).

School-based involvement includes activities such as attendance at parent-teacher conferences and school meetings or events. On average, Latino parents are significantly less likely than White parents to attend general meetings and school events, act as a volunteer, or serve on school committees (Herrold, O'Donnell, & Mulligan, 2008; Vaden-Kiernan & McManus, 2005). Previous research has suggested Latino parents may experience greater economic, cultural, and linguistic barriers to engaging with schools than their White counterparts, which makes such involvement more challenging, if not impossible (Good, Masewicz, & Vogel, 2010; Reese, 2002; Stanton-Salazar, 2001). Latino parents may not be involved in school-based activities due to a lack of familiarity with the U.S. school system as many Latino parents were not educated in the U.S. (Chrispeels & Rivero, 2001; Zarate & Gallimore, 2005). For example, in 2015, 34% of Latino youths' mothers, and 38% of their fathers, lacked a high school diploma, compared with 9% of Black youths' mothers and fathers, and 5% of White youths' mothers and fathers (Child Trends, 2015a). Furthermore, Latino parents often lack time

to be involved in their youths' schooling due to having multiple jobs or working long hours (Carlisle, Stanley, & Kemple, 2005). The exposure to long working hours may prevent parents from engaging in the U.S. school system (Parra-Cardona, Cordova, Holtrop, Villarruel, & Wielding, 2008). Low rates of participation in school-based activities can restrict Latino parents' opportunities to advocate for their youth and may reinforce perceptions by school officials that the parents do not care about their youths' education (Chrispeels & Rivero, 2001; Zarate & Gallimore, 2005).

Few studies have examined Latino mothers' *and* fathers' involvement in school concurrently. One study suggested father and mother involvement in school were independently predictive of educational attainment at age 20 (Flouri & Buchanan, 2004). In a study focused on Mexican-origin fathers, Spanish-speaking fathers reported more negative perceptions of their child's school, less positive contacts with their child's teachers, and less involvement in their child's school than either English-speaking fathers or English/Spanish speaking mothers (Lopez, 2007). For Mexican immigrant mothers, qualitative studies found that they felt disrespected by the ways in which school personnel interacted with them during school meetings (Delgado & Stefancic, 2001; Goldenberg, 2014). For example, in these studies, mothers indicated teachers' lack of responsiveness to their English language needs, as translators were not provided, and mothers reported that teachers displayed very little respect and empathy during their conversations (Delgado & Stefancic, 2001; Goldenberg, 2014). Additionally, in a different study, Latino mothers reported that they were given the wrong information or minimally informed about their child's options, resources, and abilities (De Gaetano, 2007; Fernandez, 2002). Consequently, Latino and Mexican-origin mothers report feeling

14

awkward in the school and choosing to withdraw after their repeated attempts to advocate for their children were dismissed (Matias & Liou, 2015; Reynolds et al., 2014). Together, these studies suggest fathers and mothers may have unique experiences related to their involvement in their children's schools.

Barriers to school-based parental involvement for Mexican-origin parents do not, however, preclude *home-based* parental involvement in education that also may further youths' educational success. Home-based parental involvement includes assisting youth with homework, discussing school-related matters with youth, and engaging with youth in intellectual activities (Pomerantz et al., 2007). Latino mothers promoted their youths' academics by monitoring their homework; whereas Latino fathers encouraged their youth via narratives of the hardships that the family has experienced (Lopez, 2001; Stanton-Salazar, 2001; Zarate, 2007). Home-based parental involvement has been predictive of Latinos' success in education (Campos, 2008). For Latino immigrant youth, one study showed that the relation between mothers' home-based involvement and youths' educational outcomes was significantly greater than the relation between fathers' home-based involvement and youths' educational outcomes (Plunkett, Behnke, Sands, & Choi, 2009). Yet, it is important to acknowledge fathers' home-based involvement was still predictive of youths' educational outcomes suggesting the importance of including both mothers' and fathers' home-based involvement for future consideration of youths' educational outcomes (Plunkett et al., 2009).

In examining parental involvement in education among Mexican-origin families, it is critical to examine the contributions of both school-based *and* home-based involvement in education, as Mexican-origin parents may be more likely to be involved

in their youths' education outside of school. Studies using an expanded definition of parent involvement to include both school- and home-based activities have not documented consistent racial or ethnic group differences (Crosnoe, 2001; Desimone, 1999). It is also important to consider the potentially distinct involvement of mothers and fathers in youths' educational outcomes. For example, Latino fathers may not have the opportunity to be involved in school due to working long hours (Parra-Cardona et al., 2008); however, their narratives of hardship may encourage their youth to succeed academically (Lopez, 2001). Latino mothers may feel unwelcome at school (De Gaetano, 2007; Fernandez, 2002) and thus, engage in their youths' schooling at home (Stanton-Salazar, 2001; Zarate, 2007). This study builds on this area of research by including both home- *and* school-based involvement of mothers *and* fathers in developing profiles of risk and protective factors.

Scholars have indicated that *parental aspirations*, in addition to specific behaviors, such as parental involvement in school, may also be important in explaining minority youths' academic outcomes (Fan & Chen, 2001; Reynolds & Gill, 1994; You & Nguyen, 2011). Youth who reported their parents aspired for them to attend college had greater academic achievement and educational expectations (Child Trends, 2015b). Mexican-origin parental aspirations have been shown to be associated positively with youths' postsecondary educational plans (Ceja, 2004). Parents' aspirations are based on their own educational experiences, insider knowledge about educational systems, as well as their perceptions of school climate and of their children's academic abilities (Ceja, 2004; Espino, 2016; Spera, Wentzel, & Matto, 2009). In addition, parents tend to have high aspirations of their children finishing college, even if this is something that they

16

were unable to accomplish themselves (Bank, Slavings, & Biddle, 1990; Espino, 2016). Latino parents are cited as having more influence over their children's educational aspirations than other ethnic groups (Espino, 2016; Qian & Blair, 1999). High parental aspirations may be a protective factor that may increase Mexican-origin youths' educational outcomes.

To date, much research on Latino parental aspirations on their youths' educational outcomes has focused on the relationship between mothers and youth (Behnke, Piercy, & Diversi, 2004). Historically, fathers have been underrepresented in developmental research (Marsiglio, Amato, Day, & Lamb, 2000). When fathers are included in developmental research, they are almost always from intact families (Zimmerman, Salem, & Notaro, 2000) and families of White middle-class backgrounds (Coley, 2001). Research with other ethnic/racial groups supports the association between fathers' aspirations and youths' educational outcomes (Ceja, 2004) and suggests potential differences in how mothers' and fathers' aspirations may be associated with youths' educational outcomes (Meng, 2009). For example, in a sample of Chinese youth, mothers' aspirations were strongly correlated with youths' expectations, but did not predict school continuation (Meng, 2009). In contrast, fathers' aspirations were not correlated with youths' expectations, but did significantly predict school continuation (Meng, 2009). In Mexican-origin families, cultural norms emphasize distinct parental roles, with mothers as caregivers and kinkeepers and fathers as authority figures and providers (Cauce & Domenech-Rodríguez, 2002; Updegraff, McHale, Zeiders, Umaña-Taylor, Perez-Brena, Wheeler, & De Jesús, 2014). These distinct roles may be suggestive

17

of different associations among mothers' aspirations, fathers' aspirations and youths' educational outcomes.

It is also important to consider the role of the families' *economic circumstances*, as economically disadvantaged youth are aware of the barriers they face in order to succeed at the same level as youth from non-disadvantaged circumstances (Destin & Oyserman, 2009), and thus might be disengaged from education and less likely to pursue postsecondary education (U.S. Department of Education, 2010). Students may be restrained from pursuing postsecondary education due to a lack of financial resources to pay for college (Destin & Oyserman, 2009; Rodriguez, Guido-DiBrito, Torres, & Talbot, 2000). Further, there is evidence that youths' own expectations for their educational attainment are inversely related to their families' economic hardship, but moderated by parents' education; for example, as parental financial problems increased, educational expectations declined among youth whose parents had low (but not high) educational attainment (Mortimer, Zhang, Hussemann, & Wu, 2014).

Parental education has been considered as a measure of the extent to which parents have familiarity with postsecondary education, which is related to the type of information and resources available to youth (McDonough, 1997; Useem, 1991, 1992; Walpole, 2007). The quality of information that students have about college affects Latino students' college choices more strongly than students from other ethnic/racial backgrounds (O'Connor, Hammack, & Scott, 2010). In addition, previous research suggests that the higher the parental levels of education, the more likely parents are to encourage their children to pursue postsecondary education (Ceja, 2004). Therefore, children whose parents never attend college have been found to be less likely than others

to enroll in 4-year institutions (Davis-Kean, 2005). High economic hardship and low parent educational attainment may be risk factors that decrease Mexican-origin youths' educational outcomes.

English language use is another important correlate of educational outcomes, which varies based on how long a family has resided in the U.S.; third generation and above Latinos are more likely to be proficient in English (Hakimzadeh & Cohn, 2007). For second generation Latinos, the use of Spanish declines as use of English increases; however, first-generation Latinos are least likely to be proficient in English (Taylor, Lopez, Martinez, & Velasco, 2012). Although many first-generation students can acquire the basic communication skills in English necessary to carry on an everyday conversations with others, they often have difficulty mastering the academic language required for schooling tasks (Collier & Morgan, 2008; Gándara, Rumberger, Maxwell-Jolly, & Callahan, 2003; Wong-Fillmore, & Snow, 2000). Students who lack proficiency in English are at a disadvantage in school (Portes & Rumbaut, 2001). English Language Learner (ELL) students tend to have lower grades, lower educational expectations, higher dropout rates (Bohon, Macpherson, & Atiles, 2005; Kerper Mora, 2002; Portes & Rumbaut, 2001), and lower college enrollment (Halle, Hair, Wandner, McNamara & Chien, 2013) than non-ELL students. *Limited English proficiency* may be a risk factor that decreases Mexican-origin youths' educational outcomes.

Cultural beliefs and values form the lens through which Latino youth experience their sociocultural environment (García Coll et al., 1996). *Familism* is a core cultural value that guides individual behavior, such as decision-making for enrollment in postsecondary education, which includes perceived support from the family (Sabogal et

al., 1987). Familial support has been associated with greater educational expectations, which positively relate to postsecondary education outcomes (Desmond & Turley, 2009; Pribesh & Downey, 1999; Quian & Blair, 1999). Values that emphasize family support may be a protective factor that increases Mexican-origin youths' educational outcomes. However, familism is also comprised of familial obligation values, which refers to a collection of values and behaviors related to youths' provision of assistance, support, and respect to their immediate and extended family (Fuligni, Tseng, & Lam, 1999). For Latinos, it may be difficult to balance academic pursuits and familial obligations (Lopez, 2009; Fuligni et al., 1999). For example, due to the financial pressure to support their family (Lopez, 2009), Latinos may be more likely to decide to work full-time rather than enroll in postsecondary education after high school (Fry, 2004). Familial obligation values may be a risk factor that decreases Mexican-origin youths' educational outcomes. Because Latinos tend to endorse both familial support and familial obligation values (Fuligni et al., 1999; Sabogal et al. 1987), it is critical to examine how they work in combination to contribute to youths' educational outcomes.

Variable-centered approaches are useful, but such models ignore theoretical tenets of the resilience perspective (Masten & Coatsworth, 1998; Rutter, 1987; Zimmerman, 2013), which posit that risk and protective factors operate *in combination* to create interactive processes or patterns (Fergus & Zimmerman, 2005) that contribute to youths' educational outcomes. Examining culturally informed family characteristics one at a time - in isolation - can limit understanding of the ecological realities of everyday lives and compromise efforts to build a foundation of knowledge to inform intervention efforts to

improve Latinos' educational outcomes. Thus, this study builds on existing work by identifying potentially different patterns of culturally relevant family characteristics.

Goal 1: Family Profiles of Culturally Relevant Risk and Protective Factors

Our understanding of risk and protective processes has emerged primarily from the use of models that investigate one or, more rarely, a few risk and protective factors at a time (i.e., variable-centered approaches; Lanza, Rhoades, Nix & Greenberg, 2010). Cumulative risk models have been one strategy employed by researchers interested in understanding the interrelations of multiple risk factors (Sameroff & Seifer, 1990). However, the cumulative risk approach ignores the interrelations of protective factors as counterbalancing to risk factors as well as masks the occurrence of unique or unusual constellations of both risk and protective patterns (Lanza et al., 2010).

Person-centered approaches aim to uncover underlying structures or patterns of variables that influence the processes of development (Bergman & Magnusson, 1997). Patterns allow individuals to be unique from one another, such that risk and protective factors do not operate in the same way for everyone and thus, person-centered approaches provide information about the commonness of particular patterns (Zeiders, Roosa, Knight, & Gonzales, 2013). A pattern-oriented approach is consistent with a resilience perspective (Masten & Coatsworth, 1998; Rutter, 1987; Zimmerman, 2013), which argues that the interrelationships between individuals and families are important to understand the potential for youth to succeed academically despite the presence of adverse conditions. Because little is known about the *patterns* that may exist within a sample of Mexican-origin families, the first goal of the study is to identify potentially different patterns of culturally relevant family risk and protective factors using the

21

following: maternal and paternal involvement in school and at home, maternal and paternal educational aspirations, family economic hardship, parents' education, youths' English proficiency and youths' familism support and obligation values.

In addition, a feature of this study, is the examination of structural and process variables within the same analysis . From a resilience perspective (Masten & Coatsworth, 1998; Rutter, 1987; Zimmerman, 2013), youth must first be at risk before resilience can occur; therefore, youths' structural environment must be taken into account. A potential source of risk may be within structural variables that encapsulate youths' socioeconomic environment such as family economic hardship and parents' education. However, resilience in and of itself is a process of adaption to risk. Resilience involves behaviors, thoughts and actions of youth as well as other important individuals in their environment (Masten & Coatsworth, 1998; Rutter, 1987; Zimmerman, 2013), which may provide youth the skills and/or resources necessary to successfully adapt to risk. The following were considered to be process variables: maternal and paternal involvement in school and at home, maternal and paternal educational aspirations, youths' English proficiency and youths' familism support and obligation values.

Given that research on this topic is in its beginning stages, hypotheses will be made cautiously. Hypothesized patterns will be discussed as relating to one another using a compensatory model (Garmezy, Masten, & Tellegen, 1984). First, one pattern that may exist is a *risk pattern*, in which the constellation of factors is made up of risk factors without any protective factors. For example, youth who are less proficient in English are also likely to have parents who are less proficient in English (Halle et al., 2013). Parents who are not proficient in English are less likely to be involved in their youths' schooling

(Reese, 2002; Stanton-Salazar, 2001), and more likely to live in poverty (Capps, Fix, Murray, Passel, & Herwantoro, 2005; Larsen, 2004) and have low levels educational attainment (Capps et al., 2005; Larsen, 2004) and be less familiar with the U.S. school system (Pong & Landale, 2013). Therefore, the constellation of low English proficiency, low parental involvement in school, and high economic hardship may emerge as one possible risk pattern for Mexican-origin youth.

It is also possible that *counteracting patterns* will emerge, in which the constellation of factors includes protective factors that counteract risk factors and creates an encouraging and protective environment in the context of risk. For example, economic hardship may encourage youth to succeed in school (Ceballo, Maurizi, Suárez, & Aretakis, 2014; Sanchez, Esparza, Colon, & Davis, 2010; Zalaquett. 2005). Education has been and still is a viable pathway out of poverty, especially for minority students (Crosnoe, Mistry, & Elder, 2002; Levine & Nidiffer, 1996). Families may be struggling financially due to parents' low educational attainment, so parents may be more inclined to have high educational aspirations for their youth, in the hopes they do not share the same fate (Bank et al., 1990; Espino, 2016). Parents' aspirations may be more influential for youth who endorse greater familism values (Espino, 2016; Qian & Blair, 1999). Therefore, Mexican-origin parents' high educational aspirations and youths' high familism values may create an environment in which youth can thrive academically despite high economic hardship and low parental education (Altschul, 2012).

Lastly, a pattern that may exist is a *direct-protective pattern*, in which the constellation of factors does not include any risk factors. For example, parents with higher educational aspirations for their youth are more likely to set higher standards for

their youth at home and in school leading to greater parental involvement in education (Reynolds & Walberg, 1992). Parents are more likely to invest time in their youths' education, if they have the economic means to do so (Altschul, 2012). Parents' who experience less economic hardship and thus, have greater economic resources available to youths' educational pursuits are more likely to have greater educational attainment (Davis-Kean, 2005). Therefore, the constellation of parents' high educational aspirations, high parental involvement in school and at home, high educational attainment and low economic hardship may suggest the existence of a direct-protective pattern for Mexican-origin youth.

Most importantly, risk and protective factors are not limited to one direction; for example, parental involvement at home, parental involvement in school, parental aspirations, parents' economic hardship, parents' education, familism values, and English proficiency may configure different patterns (i.e., risk, counteracting, and direct-protective patterns) based on risk and protective factors. It is anticipated that the configurations of risk and protective factors are not limited to simply a high-risk combination and low-risk combination such that more than two profiles will emerge. Therefore, a person-centered approach allows for the identification of numerous constellations of risk and protective factors (Bergman & Magnusson, 1997).

In addressing the first goal, gender and nativity will be included as covariates. Previous research has shown that risk and protective factors may differ based on gender and nativity. For example, Latino parents tend to hold higher educational aspirations for females in comparison to males (Gill & Reynolds, 1999; Hossler & Stage, 1992; Raty, 2006). In addition, Latino females are more likely to endorse greater familism support

24

values (Campos, Ullman, Aguilera, & Schetter, 2014); whereas, Latino males are more likely to endorse greater familism obligations (Colón & Sanchez, 2010; Sáenz & Ponjuan, 2009). Moreover, first-generation Latinos are least likely to be proficient in English (Taylor, Lopez, Martinez, & Velasco, 2012) and immigrant youth are more likely to endorse greater familism values (Stein, Gonzalez, Cupito, Kiang, & Supple, 2013). Therefore, while identifying family patterns of risk and protective factors, gender and nativity differences will be accounted for in the profiles.

Goal 2: Family Profiles on Mexican-origin Youths' Academic Achievement, Educational Expectations and Postsecondary Enrollment

The second goal of the study is to explore the associations between identified family profiles and Mexican-origin youths' educational outcomes assessed by three separate constructs: academic achievement, educational expectations and postsecondary enrollment. This approach will provide insight about how these different constellations serve to support or hinder Mexican-origin youths' educational outcomes. Risk patterns are likely to be associated with decreased academic achievement, educational expectations, and postsecondary enrollment; whereas, direct-protective patterns are likely to be associated with increased academic achievement, educational expectations, and postsecondary enrollment. Interestingly, counteractive patterns may vary in their relations to academic achievement, educational expectations, and postsecondary enrollment, providing potentially novel directions for future research and practice.

Variable-centered approaches have informed future research and practice by suggesting certain risk and protective factors are linearly predictive of educational outcomes in isolation from one another. For example, previous research has indicated low

25

parental involvement in school (Flouri & Buchanan, 2004), high economic hardship (Destin & Oyserman, 2009) and limited English proficiency (Portes & Rumbaut, 2001) as independent risk factors that predict Mexican-origin youths' poor educational outcomes. In addition, previous research has stressed high parental involvement at home (Plunkett et al., 2009), high parental education (Ceja, 2004), and high familism values (Desmond & Turley, 2009) as independent protective factors that positively predicted Mexican-origin youths' educational outcomes. However, these factors are likely to be associated with one another and not necessarily in a linear fashion such that individuals may not have all risk factors suggesting poor educational outcomes or all protective factors suggesting better educational outcomes, but a combination of both risk and protective factors resulting in different associations with educational outcomes. In addition, dependent upon the *constellation* of risk and protective factors, some risk and protective factors may be more prominent compared to others. Using a person-centered approach that emphasizes understanding risk and protective factors together rather than as separate, unrelated factors may allow future research and practice to focus its efforts to promote greater educational success for Mexican-origin youth.

Method

Participants

Data came from a larger longitudinal study of youth development and family socialization among 246 Mexican-origin youth and their families (Updegraff, McHale, Whiteman, Thayer, & Delgado, 2005). Participants were recruited through schools in and around a southwest metropolitan area. Based on the larger study goals, criteria for participation were as follows: (1) 7th graders and an older sibling were living at home

and not learning disabled, (2) biological mothers and biological or long-term adoptive

fathers (i.e., 10 or more years) were living at home, (3) mothers were of Mexican-origin

and (4) fathers worked at least 20 h per week. We focused on two-parent families, who

represent the predominant arrangement in Mexican-origin families in the U.S. (65 %;

U.S. Census Bureau, 2016).

At Time 1 (T1), mothers and fathers averaged 39 years-old ($SD = 4.63$) and 42

years-old ($SD = 5.80$). Most parents were born in Mexico (70%) and preferred to

complete the interview in Spanish (67%). Parents reported an average of 10 years of

education ($M = 10.34$; $SD = 3.74$ for mothers, and $M = 9.88$, $SD = 4.37$ for fathers).

Parents came from a range of socioeconomic levels; the median family income was

$40,000 (range from $3,000 to over $250,000). Youth average age was 12.51 ($SD = 0.58$)

and 51% ($n = 125$) were female. Youth were most likely to be born in the U.S. (62%; $n =$

153) and the majority preferred to complete the interview in English (83%).

At Time 2 (T2), five years after the initial wave of data collection, over 75% of

the families participated ($n = 185$). Youth were now 17.72 ($SD = .57$) years of age. Those

who did not participate could not be located ($n = 43$), had moved to Mexico ($n = 2$),

could not presently participate or were difficult to contact ($n = 8$), or refused to

participate ($n = 8$). When compared to the participant families ($n = 185$), non-participant

families at T2 ($n = 61$) reported significantly lower income at T1 ($M = \$37,632$; SD

=$28,606 for non-participant families and $M = \$59,517$; $SD = \$48,395$ for participant

families) and lower maternal education ($M = 9.48$; $SD = 3.45$ for non-participant families

and $M = 10.62$; $SD = 3.79$ for participant families) and paternal education ($M = 9.06$; SD

= 4.13 for non-participant families and $M = 10.16$; $SD = 4.43$).

At Time 3 (T3), seven years after the initial wave of data collection and two years after T2, over 70% of the families participated ($n = 173$). Youth were now young adults that averaged 19.60 ($SD = .66$) years of age. Those who did not participate could not be located ($n = 45$), had moved to Mexico ($n = 4$), could not presently participate or were difficult to contact ($n = 4$), or refused to participate ($n = 8$). When compared to the participant families ($n = 173$), non-participant families at T3 ($n = 73$) reported significantly lower income at T1 ($M = \$41,636$; $SD = \$39,095$ for non-participant families and $M = \$59,137$; $SD = \$46,674$ for participant families), lower maternal education ($M = 9.35$; $SD = 3.53$ for non-participant families and $M = 10.75$; $SD = 3.75$ for participant families), and lower paternal education ($M = 8.49$; $SD = 4.08$ for non-participant families and $M = 10.46$; $SD = 4.37$ for participant families).

Procedures

The same procedures were used at each wave of data collection. Trained bilingual interviewers collected data in separate home interviews in family members' preferred language (either English or Spanish). At the beginning of the interview, interviewers obtained informed consent for parents and minor children and assent from youth under 18 years of age. Due to variability in reading abilities, interviewers read questions aloud and entered responses into a laptop computer. Home interviews averaged between 2 to 3 hours in duration. Families were given a $100 honorarium for the interviews at T1, $125 at T2, and each family member was paid $75 at T3. The Institutional Review Board approved all procedures.

Measures

All measures were forward and back-translated into Spanish for local Mexican dialect (Foster & Martinez, 1995). All final translations were reviewed by a third native Mexican-origin translator and discrepancies were resolved by the research team. Cronbach's alphas for all measures were acceptable for English- and Spanish-speaking participants; for efficiency, all alphas are reported for the overall sample rather than separately by language.

Maternal and Paternal Involvement at Home (Profile Predictor; T1). The Parent Involvement at Home subscale originated from a parent survey instrument from Smith, Connell, Wright, Sizer, Norman, Hurley, and Walker (1997). The subscale assessed the frequency with which parents engage in a number of involvement behaviors at home. Youth reported separately on mothers' and fathers' involvement using a 4-point frequency scale ranging from (1) *almost every day* to (4) *never*. Involvement included such behaviors as "checking homework," "helping with homework," and "taking educational trips." Higher scores indicated greater involvement at home. The bivariate correlation between mothers' and fathers' involvement at home was $r = .66$ ($p < .01$), and the pairwise t-test indicated a significant mean difference between mothers' and fathers' involvement, $t(245) = 4.34$, $p < .01$, with mothers ($M = 2.73$; $SD = .59$) scoring higher than fathers ($M = 2.54$; $SD = .65$), with a modest effect size, $d = .42$. Cronbach's alpha for mother's involvement at home was .67 and for father's involvement at home was .76. Youths' reports of mothers' and fathers' involvement were included in the profile analysis.

Maternal and Paternal Involvement in School (Profile Predictor; T1). This measure was adapted from Epstein and Salinas (1993) to assess parents' involvement in

their children's education. A sample item was "In the past year, I talked to my 7th grade child's teacher to learn about my child's progress in school." Both mothers and fathers responded using a 4-point frequency scale, ranging from (1) *never* to (4) *many times.* Higher scores indicated greater involvement in school. The bivariate correlation between mothers' and fathers' involvement in school was $r = .13$ ($p = .05$), and a pairwise *t*-test revealed significant differences between mothers (M = 2.53; $SD = .58$) and fathers (M = 2.25; $SD = .60$), t (243) = 5.60, $p < .01$, $d = .31$. Mothers were significantly more likely to be involved in school compared to fathers. Cronbach's alpha for mother's involvement in school was .67 and for father's involvement in school was .76. Mothers' and fathers' scores were both included as predictors in the latent profile analysis.

Maternal and Paternal Educational Aspirations (Profile Predictor; T1). This measure was designed to assess parents' educational aspirations for their child. Mothers and fathers responded to the following item: "How far would you like [Child's Name] to go in school?" Response choices were on a continuous scale representing the total number of years of education (e.g., 12 = *high school diploma*, 21 = *MD, JD, DO, DDS, OR Ph.D.*; see Enrollment in Postsecondary Education). The bivariate correlation between mothers' and fathers' educational aspirations for their child was $r = .42$ ($p < .01$), and mothers' and fathers' reports were not significantly different, t (242) = 0.63, $p = .53$. Mothers' educational aspirations ($M = 16.73$; $SD = .1.87$) and fathers' educational aspirations ($M = 16.65$; $SD = .1.89$) were equivalent to greater than a baccalaureate degree. Mothers' and fathers' educational aspirations were both included as predictors in the latent profile analysis.

Parents' Perceptions of Economic Hardship (Profile Predictor; T1). Four

scales were used to examine parents' perceptions of economic hardship: Inability to make

ends meet (2 items), Not enough money for necessities (4 items), Economic adjustment

or cutbacks (9 items) and Financial strain (2 items; Conger & Elder, 1994). These scales

operate equivalently across ethnicities (European American versus Mexican American)

and language use (English versus Spanish; Barrera, Caples, & Tein, 2001). A composite

score of the four scales was computed for mothers and fathers. The bivariate correlation

between mothers' and fathers' perceptions of economic hardship was $r = .61$ ($p < .01$),

and mothers' and fathers' reports were not significantly different, $t(243) = 0.07$, $p = .94$.

The average score for parents' perceptions of economic hardship was 0.00 ($SD = 2.68$)

with higher scores representing greater economic hardship was used in the latent profile

analysis. .

      Parents' Education (Profile Predictor; T1). Both mothers and fathers reported

their highest level of education completed on a continuous scale (e.g., 01-11 = *1 through*

11 years of school completed but didn't finish high school, 11.5 = *GED*, 12 = *High School*

Graduate, 13 = *1 Year College, Vocational or Technical School*, 14 = *2 Years College,*

Vocational or Technical School, 15 = *3 Years College, Vocational or Technical School*,

16 = *College Degree (BS/BA)*, 17 = *Some advanced work, but no Graduate Degree*, 18 =

Master's Degree (MS/MA), 19 = *Some work toward Doctorate or Advanced Degree*, and

21 = *MD, JD, DO, DDS, OR PH.D.*). The bivariate correlation between mothers' and

fathers' education was $r = .65$ ($p < .01$), and a pairwise t-test revealed significant (but

small) difference between mothers (M = 10.35; $SD = 3.73$) and fathers ($M = 9.88$; $SD =$

4.37), $t(244) = 2.14$, $p < .05$, $d = .12$. The average score for parents' education was 10.10

(*SD* = 3.68), which is equivalent to approximately 10 years of school, was used in the latent profile analysis. .

Familism Values (Profile Predictor; T1). Youth completed the family support and obligation values subscales of the Mexican American Cultural Values Scale (Knight et al., 2010). The support/closeness (e.g., "It is always important to be united as a family") subscale included 6 items, and the obligations subscale (e.g., "Children should be taught that it is their duty to care for their parents when their parents get old") included 5 items. Participants used a 5-point scale, ranging from (1) *strongly disagree* to (5) *strongly agree*. Higher scores indicated higher levels of support and obligation. The average report of support was 4.39 (*SD* = .58) and obligations was 4.25 (*SD* = .59). Cronbach's alphas were .74 for support and .66 for obligations.

English Proficiency (Profile Predictor; T1). Items to measure English proficiency were drawn from the Acculturation Rating Scale for Mexican Americans-II by Cuéllar, Arnold, & Maldonado, 1995. The following items were included: "I speak English" "I write in English", "I think in English", "I enjoy listening to music in English", "I enjoy watching TV/movies in English", and "I enjoy reading (e.g., books) in English". All items were answered on a 5-point Likert scale ranging from (1) *not at all* to (5) *extremely often or almost always*. Higher scores indicate greater English proficiency. The average English proficiency was 4.00 (*SD* = .49). Cronbach's alpha was .82.

Academic Achievement (Distal Outcome; T2). School grades were obtained from youths' report cards during the home interview. Grade point average (GPA) was calculated from grades in math, science, social studies, and language arts. Letter grades

were assigned numerical scores (A = 4 and so forth), such that high scores signified higher grades. The average GPA was 2.81 (*SD* = .46).

Educational Expectations (Distal Outcome; T2). Youth reported on their *educational expectations* by responding to the following item: "How far do you really think you will go in school?" Response choices were on a continuous scale representing the total number of years of education (e.g., 01-11 = *1 through 11 years of school completed but didn't finish High School*, 11.5 = *GED*, 12 = *High School Graduate*, 13 = *1 Year College, Vocational or Technical School*, 14 = *2 Years College, Vocational or Technical School*, 15 = *3 Years College, Vocational or Technical School*, 16 = *College Degree (BS/BA)*, 17 = *Some advanced work, but no Graduate Degree*, 18 = *Master's Degree (MS/MA)*, 19 = *Some work toward Doctorate or Advanced Degree*, and 21 = *MD, JD, DO, DDS, OR PH.D.*). The average was 15.40 (*SD* = 2.23), which is equivalent to approximately 3 years of college, vocational or technical school.

Enrollment in Postsecondary Education (Distal Outcome; T3). Youth reported their highest level of education completed on a continuous scale (e.g., 01-11 = *1 through 11 years of school completed but didn't finish high school*, 11.5 = *GED*, 12 = *High School Graduate*, 13 = *1 Year College, Vocational or Technical School*, 14 = *2 Years College, Vocational or Technical School*, 15 = *3 Years College, Vocational or Technical School*, 16 = *College Degree (BS/BA)*). Educational attainment at age 20 that is greater than 12 indicated enrollment in postsecondary education. The average was 12.81 (*SD* = 2.06).

Covariates (T1). Youth reported on their own gender (0 = *female*; 1 = *male*). Mothers reported on the country of birth for their child (0 = *U.S.-born*; 1= *Mexico-born*).

Plan of Analysis

33

Latent profile analysis (LPA) was used to identify profiles of culturally relevant risk and protective factors within the sociocultural context of families (see Figure 1). An advantage of LPA as a person-centered approach is that, whereas traditional methods of variable-oriented analytic strategies assume that the population under study is homogeneous, LPA enables researchers to detect population heterogeneity (Lubke & Muthén, 2005; Muthén & Muthén, 2000). LPA estimates the probability of an individual's membership in a profile based on a series of item scores. These latent profiles are categories of a latent variable; each one of which contains individuals who are similar to each other and different from individuals in other groups (Hayenga & Corpus, 2010, Lubke & Muthén, 2005; Muthén & Muthén, 2000).

Latent profiles were then used to explore the relation between profiles and Mexican-origin youths' educational outcomes (Asparouhov & Muthén, 2013). Several approaches are available for estimating the relation of latent class membership to distal outcomes. A three-step approach is commonly used, but has problems with estimation bias and confidence interval coverage. Proposed improvements include the correction method of Bolck, Croon, and Hagenaars (modified BCH; 2004), Vermunt's (2010) maximum likelihood (ML) approach, and the inclusive three-step approach of Lanza, Tan, and Bray (2013). Dziak and colleagues (2016) has suggested based on simulations that the modified BCH method outperforms all other methods; therefore, the modified BCH method was used for all analyses.

LPA analyses were conducted using Mplus 7.4 (Muthén & Muthén, 2015) and a modified BCH approach to identify profiles and their relations to distal outcomes (Asparouhov & Muthén, 2013; Bakk & Vermunt, 2014). The first step in the modified

BCH procedure is to estimate the LPA with covariates (Asparouhov & Muthén, 2013; Bakk & Vermunt, 2014). LPA analyses begin with a one profile solution followed by models increasing in the number of profiles until Mplus can no longer find a reliable solution (Pastor, Barron, Miller, & Davis, 2007). The following factors were included in the LPA analyses: mothers' and fathers' involvement in school and at home, parental educational aspirations, family economic hardship, parents' education, youths' English proficiency, and youths' familism support and obligation values. All analyses included gender and nativity as covariates. The second step is to determine the measurement error for the most likely class variable (Asparouhov & Muthén, 2013). The main drawback of the modified BCH approach is that it is based on weighting the observations with weights that can take negative values when entropy is low (Asparouhov & Muthén, 2013). It is suggested that this method is only appropriate when the entropy is greater than .80 (Asparouhov & Muthén, 2013; Bakk & Vermunt, 2014). The third step is to estimate the desired LPA model where the latent class variable is measured by the most likely class variable and the measurement error is fixed to the values computed in the second step (Asparouhov & Muthén, 2013). In doing so, the means across latent profiles are evaluated for each continuous distal outcome, including Mexican-origin youths' academic achievement, educational expectations, and postsecondary enrollment in this study.

In all models, to avoid convergence on a local maximum, 500 random sets of starting values, 50 final stage optimizations, and 50 iterations in the initial stage was used (Collins & Lanza, 2010). To account for missing data, maximum likelihood estimation via the FIML algorithm was used (Enders, 2010). Additionally, the indicators were not

allowed to intercorrelate, consistent with the assumption of local independence in LPA (Marsh et al., 2009). The following fit criteria was used to assess model fit: Akaike Information Criterion (AIC: Bozdogan, 1987); Bayesian Information Criterion (BIC; Schwartz, 1978); Adjusted BIC (Sclove, 1987); Bootstrap Likelihood Ratio Test (McLachlan & Peel, 2000); and the Lo-Mendell-Rubin Likelihood Ratio Test (Lo, Mendell, & Rubin, 2001). When evaluating information criteria one should pick the model with the lowest model fit indices (i.e., AIC, BIC and ABIC) because the lowest value suggests the best fitting model (Nylund et al., 2007). To examine relative fit comparison, the Lo-Mendell-Rubin Likelihood Ratio Test (LMRT), the adjusted Lo-Mendell-Rubin-Likelihood Ratio Test (ALRT) and the parameter Bootstrap Likelihood Ratio Test (BLRT) were used to test for a significant difference between the model of interest and the more parsimonious model (i.e., the model with one less class). Statistically significant *p*-values suggest the model fits the data significantly better than the more parsimonious model (Nylund et al., 2007). For example, if a 3-profile model is statistically significant according to a *p*-value less than .05 then the 3-profile model has better relative fit in comparison to the 2-profile model (Nylund et al., 2007). The final model was selected based on optimal fit indices as well as interpretability.

Results

The results are organized around two goals: (1) to identify patterns of culturally relevant risk and protective factors within the context of families for Mexican-origin youth; and (2) to examine the links between family profiles and Mexican-origin youths' academic achievement, educational expectations, and postsecondary enrollment.

Goal 1: Family Profiles of Culturally Relevant Risk and Protective Factors

Multiple fit statistics indicated the three-profile solution was the best fitting model (see Table 2). First, the three-profile solution model had lower AIC, BIC and ABIC estimates than the two-profile solution. Second, the LMRT, ALRT and BLRT indicated that the three-profile solution improved fit from the two-profile solution, and that the four-profile solution did not improve model fit from the three-profile solution (see Table 2).The average latent class probabilities for the three-profile solution also indicated that profile membership was well differentiated (see Table 3), and the latent profiles were interpretable.

As LPA does not assign participants to groups but predicts the probability of membership in a group, the estimated means for each predictor for each profile are weighted by estimated profile probabilities. The profile estimated means for each predictor are shown in Table 4 and the standardized profile estimated means for each predictor are shown in Table 5. In addition, to better describe each profile, the estimated means were discussed relative to one another. Lastly, gender and nativity (covariates in these models) are also described.

It is notable that all three profiles were similar in mothers' and fathers' educational aspirations for youth; such that all parents reported that they wanted their adolescents to earn at least a four-year college degree. Mothers and fathers in all three groups also reported moderately high (i.e., above the midpoint of the scale) levels of involvement at home and school. Further, mothers reported higher levels of involvement in all three groups. In addition, adolescents' reports of familism values were above a 4.0 on a 5.0 scale for all three groups for both obligations and support. Below we address the

ways in which profiles differed, but note that in these process-oriented variables, groups were very similar (see Tables 4 and 5).

The first profile (50% of the sample; 52% female; 73% U.S.-born) was labeled *High SES*. Youth in this profile had the highest levels of parent education of all three groups. Of note, this was the only profile where parents' average education was a high school degree. In addition, this profile included families characterized by the lowest level of economic hardship of all three groups. This profile is reflective of a direct-protective profile because youth scored high on many protective factors and low on risk factors. There were no gender differences across profiles, but U.S.-born youth were significantly more likely to be in the *High SES* profile than the other two profiles (see Table 6).

The second profile (37% of the sample; 53% female; 52% U.S.-born), was labeled *Low Education, Moderate Hardship*. Youth in this profile had parents who earned slightly more than an 8th grade education, and their families' experienced moderate economic hardship (see Table 4 and Table 5). This profile was considered to be a counteractive profile such that youth scored high on a risk factor (i.e., low parent education), but youth also possessed a factor (i.e., moderate economic hardship) that was not outright risky or protective suggesting that the factor could be counteractive dependent on the combination. Further, parents' low education was also in the context of the above noted strengths that were similar across all groups (i.e., parental involvement, parental aspirations, and youth familism values). There were no gender differences in profile membership, but a significantly higher proportion of youth were Mexico-born relative to U.S.-born in this profile as compared to the Profile 1 (see Table 6).

38

The last profile, (13% of the sample; 42% female; 52% U.S.-born), was labeled

Low SES. In this profile (relative to the other two), youth experienced the highest levels

of family economic hardship and lowest levels of parent education, suggesting risks

associated with their socioeconomic resources. In addition, youth in this profile had the

lowest English proficiency relative to all other profiles (see Table 4 and Table 5). This

profile was considered to be a counteractive profile. Youth scored high on some risk

factors (i.e., high economic hardship, low parent education, and limited English

proficiency). However, present risks were also in the context of the above noted strengths

that were similar across all groups (i.e., parental involvement, parental aspirations, and

youth familism values). There were no gender differences, but Mexico-born youth were

overrepresented relative to Profile 1 (see Table 6).

In sum, three distinct profiles emerged; however, it may be in the similarities

across profiles wherein patterns of structure and process within families may be best

understood. Our findings suggested that the socioeconomic structure of the family mainly

contributed to the heterogeneity within our sample. Yet, as the socioeconomic structure

of the family changed across profiles, a majority of familial processes remained similarly

high across profiles.

Goal 2: Family Profiles on Mexican-origin Youths' Academic Achievement,

Educational Expectations and Postsecondary Enrollment

A Wald test was conducted to examine latent profile differences for each of the

three educational outcomes: academic achievement, educational expectations, and

postsecondary enrollment, with pairwise *t*-tests in follow-up to a significant Wald test to

identify differences among the three profiles (see Table 7).

39

For academic achievement, there were no significant differences among the three profiles, X^2 (2, N =246) = 4.02, *p*=.13. In contrast, for educational expectations, there was a significant Wald test, X^2 (2, N =246) = 15.11, *p*<.01; pairwise *t*-tests showed that youth in the *High SES* profile reported significantly higher educational expectations than youth in the *Low Education, Moderate Hardship* profile, t (244) = 7.26, p < .01, and youth in the *Low SES* profile, t (244) = 10.95, p < .01. Finally, with regard to postsecondary enrollment, a significant Wald test, X^2 (2, N =246) = 39.98, *p*<.01, in combination with follow-up *t*-tests indicated profile differences such that youth in the *High SES* profile reported significantly higher postsecondary enrollment than youth in the *Low Education, Moderate Hardship*, t (244) = 26.63, p < .01, and youth in the *Low SES* profile, t (244) = 28.82, p < .01.

Discussion

Scholars have called attention to the importance of investigating how culturally relevant risk and protective factors *interactively* contribute to the educational adjustment of ethnic/racial minority youth (Bermudez & Mancini, 2013; García Coll et al., 1996; Yosso, 2005). Mexican-origin youth may be particularly vulnerable to poor educational adjustment due to their overrepresentation in disadvantaged settings, in combination with low rates of baccalaureate degree attainment (Gándara, 2010; Krogstad, 2016). Cultural factors, particularly across individual and familial domains, may be especially beneficial for Mexican-origin youths' educational adjustment (DeGarmo, & Martinez, 2006; Edwards & Lopez, 2006; Kupermic et al., 2009), given the strong cultural emphasis on familial and social interdependence in Latino culture (Sabogal et al., 1987).

Guided by resilience (Masten & Coatsworth, 1998; Rutter, 1987; Zimmerman,

2013) and person-oriented (Magnusson, 1988) frameworks, this study contributed to the growing body of literature on Mexican-origin youths' educational outcomes in the U.S. (Gándara, 2010; Umaña-Taylor, 2009). First, this study investigated *patterns* of culturally relevant risk and protective factors within families as suggested by theoretical and empirical research. As such, this study moves beyond variable-oriented research examining single dimensions of familial characteristics to highlight profiles of culturally relevant family risk and protective predictors. Profiles allow individuals to be unique from one another, such that risk and protective factors do not operate in the same way for everyone (Zeiders et al., 2013). For example, one profile was direct-protective suggesting some individuals experienced little to no risk; whereas, other profiles were counteractive suggesting more varying experiences of risk and protection. Second, to my knowledge, this study is the first to consider the interrelations among family contextual risk and protective factors in efforts to predict Mexican-origin youths' academic achievement, educational expectations and postsecondary enrollment. Examining the interrelations among risk and protective factors allows researchers to better understand the combination of factors that put youth at a disadvantage in their educational outcomes as well as the combination of factors that promote resiliency in educational outcomes. Third, this study examined family contextual risk and protective factors and their relations to educational outcomes over a critical developmental period of early adolescence to early adulthood. Experiences in early adolescence set a trajectory for subsequent educational opportunities and choices that either enhance or impede youths' educational attainment (Zimmerman, 2013). Taken together, this study highlighted unique profiles of risk and protective factors within a sample of two-parent Mexican-origin families and their relations to

youths' later academic achievement, educational expectations and postsecondary enrollment.

Patterns of Culturally Relevant Family Risk and Protective Factors

Person-centered approaches complement more common variable-oriented strategies by providing a descriptive context that portrays the real-life experiences of subgroups of Mexican-origin youth. Because the person-centered approach allows for the simultaneous modeling of multiple risk and protective factors, this offers insights that are distinct from variable-centered approaches. The benefit of a person-oriented approach is the ability to capture different combinations of factors that describe the lived experiences of youth. By incorporating a person-centered framework with an ethnic-homogenous design, the current study examined variability among Mexican-origin youths' family risk and protective characteristics. Evidence of three quantitatively and qualitatively distinct family profiles (i.e., High SES, Low Education, Moderate Hardship, and Involved Parents-Low SES) highlight the value of identifying *constellations* of predictors (Bronfenbrenner & Crouter, 1982; Cox & Paley, 2003).

The High SES profile emerged as the most common profile, including half of the families in this sample. The prevalence of a family profile consistently high on protective predictors aligns with research underscoring Latino parents' positive values for their youths' education (Lopez, 2009; Fry, 2002). There were several ways in which this profile stood apart from the other two; most notably, families in this profile had the highest levels of parent education, averaging a high school degree, and the lowest levels of economic hardship. Other strengths of the families in this profile (that were similar to the other two profiles) were mothers' involvement at home and in school, mothers' and

fathers' educational aspirations, and youth's strong endorsement of familism values. This profile was a *direct-protective* profile, in which the constellation of factors included only protective predictors, which may be positively interrelated.

When the family's financial situation is stable and prosperous, parents are likely to invest time in their youths' education (Altschul, 2012). In addition, familiarity with the U.S. school system may allow parents to be involved in their children's education (Chrispeels & Rivero, 2001; Zarate & Gallimore, 2005). Familiarity with the U.S. school system is often the result of higher parental education levels. Moreover, higher parental education was associated with parents' encouragementof their children's pursuit of postsecondary education (Ceja, 2004). Therefore, the combination of low economic hardship and high parental education along with involvement in school by mothers and high educational aspirations of mothers and fathers may create an overall supportive family environment for youth's education. Youth within supportive families are also likely to endorse greater familism values (i.e., support and obligations), which is a core cultural value within Latino cultural that emphasizes the importance of family (Sabogal et al., 1987). Obligations have been found to make it more difficult for youth to balance financial pressure to support their family and their educational pursuits (Lopez, 2009; Fuligni et al., 1999). However, youth may honor their parents' sacrifices by succeeding in school through familism obligations when economic resources are available. Youth may be further encouraged to succeed academically through greater familial support (Desmond & Turley, 2009; Pribesh & Downey, 1999; Quian & Blair, 1999). In combination, low economic hardship and high familism support may buffer the negative relation of high familism obligations and youth's adjustment.

The second largest profile, the Low Education, Moderate Hardship profile, was characterized by parents with low educational attainment (i.e., an average of an 8th grade education) and moderate levels of economic hardship. Although families in this profile experienced greater risk compared to Profile 1, they also showed similar parental involvement, parent aspirations, and familism values as the other two profiles. This profile was considered to be a counteractive profile, in which the constellation of factors included both risk and protective predictors, which are likely to relate to one another both negatively and positively.

Parents tend to have high aspirations of their youth to finish college, even if this is something that they were unable to accomplish themselves (Bank, Slavings, & Biddle, 1990; Espino, 2016). High parental aspirations may be associated with parents' involvement in their youths' educational pursuits; however, low parental education and moderate economic hardship may provide unique barriers for youth within these families (Chrispeels & Rivero, 2001; Zarate & Gallimore, 2005). For mothers, despite the potential lack of familiarity with the U.S. school system as a result of low educational attainment (Chrispeels & Rivero, 2001; Zarate & Gallimore, 2005), mothers expressed the importance of education to their youth by their involvement in their youths' schools and at home (Hill et al., 2009). For fathers, low parental education in tandem with moderate economic hardship may be associated with unexamined work demands (Carlisle et al., 2005), which may result in less time to be involved in their youths' schools compared to mothers (Parra-Cardona et al., 2008). However, Latino fathers can encourage their youth at home via narratives of the hardships that the family has experienced (Lopez, 2001; Stanton-Salazar, 2001; Zarate, 2007). Parental involvement in

tandem with high parental aspirations may create a positive, caring environment for youth to succeed academically despite potential adverse socioeconomic conditions.

The third profile, Low SES, was characterized by the lowest level of parent education and highest level of economic hardship as compared to the other profiles. These more limited educational and economic resources along with lower English proficiency among youth in this profile represented potential risk factors of profile membership. Even so, important strengths were also of note in this subgroup, including similar familism values, parental involvement at home and in school and parental aspirations as the other two profiles. Therefore, this profile reflected a counteractive profile, in which the constellation of factors included both risk and protective predictors.

A distinct feature of this group was low parent education and high economic hardship. High economic hardship and parents' low educational attainment may suggest limitations in their socioeconomic resources to support postsecondary education (Destin & Oyserman, 2009; Rodriguez el al., 2000). In addition, youth who lack proficiency in English are at a disadvantage in school (Portes & Rumbaut, 2001). It is likely that high parental involvement, parental aspirations, and strong familism values do not offset adverse socioeconomic conditions and limited English proficiency and therefore, youth may be at a greater disadvantage academically.

Contrary to expectations, findings indicated that Mexican-origin youths' probability of membership into specific family profiles was not distinguishable by gender (i.e., female versus male). Although variable-centered approaches have suggested gender differences in predictors on youths' educational outcomes (Colón & Sanchez, 2010; Raty, 2006; Sáenz & Ponjuan, 2009), this study examined gender differences across profiles of

45

predictors and found that profiles were similar in their representation of males and females. However, gender serves, in part, as a proxy for gender socialization and gender role attitude processes (i.e., Raffaelli & Ontai, 2004), which were not examined directly. Latino males may face pressures to work (instead of pursue postsecondary education) due to desire to provide economically for their family (Colón & Sanchez, 2010; Falicov, 1998; Vega, 1990). Whereas, Latino females may face additional home-related pressures due to the responsibility for running the household and raising children that may relate to their academic success (Desmond & Turley, 2009; Lafreniere & Ledgerwood, 1997). It will be important in future work to move beyond gender (a background characteristic) to look at the role of underlying gender socialization and gender role attitude *processes* and their links to youths' educational adjustment

Mexican-origin youths' probability of membership into specific family profiles was distinguishable by nativity (i.e., U.S.-born versus Mexico-born). Youth in the High SES profile were more likely to be U.S.-born compared to the Low Education, Moderate Hardship profile and the Low SES profile. Youths' country of origin may impact their family's perceptions of and access to resources within the U.S. education system. It will be important in future work to move beyond nativity (a background characteristic) to look at the role of underlying cultural adaptation *processes* and their links to youths' educational adjustment (Masten & Coatsworth, 1998; Rutter, 1987; Zimmerman, 2013).

Taken together, finding three distinct profiles of culturally relevant risk and protective factors within Mexican-origin families illustrates the significant variability of family contexts *within* this cultural group. Profiles indicated that Mexican-origin youth did not simply experience culturally relevant family risk and protective factors in terms

of high, moderate, or low levels, but rather in terms of *distinct* patterns or interrelations. These findings point to the importance of examining multiple culturally relevant risk and protective factors of families simultaneously, as well as identifying potential subpopulation differences. Lastly, many studies of family-individual dynamics have relied on between-family comparisons of primarily mothers, but these findings point to the value of incorporating a within-family component to examine the experiences of both mothers and fathers. Our findings suggested one profile was characterized by the incongruence of parents' educational aspirations, highlighting the importance for future research to recognize potential subgroup differences for mother-father patterns on youths' educational outcomes.

Family Profiles as Linked to Mexican-origin Youths' Academic Achievement, Educational Expectations and Postsecondary Enrollment

Profiles of culturally relevant risk and protective predictors within the context of families were associated with two of the three educational outcomes examined in this study, including Mexican-origin youths' educational expectations and their postsecondary enrollment. Mexican-origin youth in the High SES profile reported the higher educational expectations and enrollment in postsecondary education compared to the other two profiles. This is consistent with the direct-protective nature of this profile, which was hypothesized to be beneficial for youth's educational success. Although previous research suggests these factors individually contribute to youth's positive educational outcomes (Ceja, 2004; Desmond & Turley, 2009; Destin & Oyserman, 2009; Hill et al., 2009; Pomerantz et al., 2007; Portes & Rumbaut, 2001), these factors, in combination, serve to benefit youth's educational outcomes through creating an overall

supportive environment. This finding supports the importance of examining the sociocultural context in which Mexican-origin youth reside.

Furthermore, Mexican-origin youth in the Low Education, Moderate Hardship and the Low SES profiles had similarly low levels of educational expectations and postsecondary enrollment. Both profiles were conceptualized as counteractive; however, due to the association with poor educational outcomes, it would seem the present protective factors (i.e., parental involvement, parental aspirations and familism values) did not buffer the present risk factors. In the Low Education, Moderate Hardship profile, parents' involvement at home and in school, parents' aspirations, and youths' familism values did not outweigh low parental education and moderate economic hardship. Whereas, for the Low SES profile, parents' involvement at home and in school, parents' aspirations and youths' familism values did not buffer the negative relations among high economic hardship, low parent education, and low English proficiency. These findings suggest not all counteractive profiles are the same, but in this study they were linked to similar educational outcomes for youth. The similar educational outcomes of youth in these two distinct profiles may be a result of unaccounted for family factors that may be shared among these two profiles (i.e., resources allocated to siblings and parents' legal status).

Our findings may intuitively suggest youth in the Low Education, Moderate Hardship and the Low SES profiles may be a decided disadvantage for educational expectations and postsecondary enrollment due to limited socioeconomic resources compared to youth in the High SES profile; however, this may not necessarily be true for several reasons. First, in terms of low educational expectations, economically

48

disadvantaged youth are aware of the barriers they face in order to succeed at the same level as youth from non-disadvantaged circumstances (Destin & Oyserman, 2009); therefore, when youth reside in families with limited economic resources for postsecondary education, high educational expectations may actually create a false reality, which can result in poor educational and psychological outcomes (Baird, Burge & Reynolds, 2008). Second, in terms of low postsecondary enrollment, some individuals may choose not to immediately enroll in post-secondary education after high school. Since we only followed youth until the age of 20, our findings may reflect youth who immediately enrolled in postsecondary education. Youth may delay enrollment by serving in the military, finding employment, or starting a family (Horn, Cataldi, & Sikora, 2005). For Latinos, previous research has found 38% waited more than a year after high school to start at a two-year college and 19% waited more than a year after high school to start at a four-year college (Fry, 2004). Future research should continue to detangle the influence of the socioeconomic context of families on educational expectations and postsecondary enrollment.

Contrary to our hypothesis, profiles of culturally relevant risk and protective predictors within the context of families were not significantly associated with Mexican-origin youths' academic achievement. Our study focused on the specific developmental time period from early adolescence to young adulthood. In adolescence, the increase in academic demands and the complexity of the school structure make the task of academic success more difficult (Patrikakou, 2004). It is possible then that factors beyond the familial context such as the school context may better predict youth's ability to succeed academically (Cardoso & Thompson, 2010). Furthermore, youths' academic achievement

49

may be viewed as an individual developmental task; whereas, educational aspirations and decision to enroll in postsecondary education may be reflective of a shared developmental task. Families and individuals often negotiate decisions to enroll in postsecondary education (Emerson & Souza, 2002; Kruger, Soares, & Berthelon, 2007; Meng, 2009); therefore, youths' educational expectations and postsecondary enrollment may be more interdependent on their familial relationships.

Overall, these results have potentially important implications for Mexican-origin youths' educational outcomes. Variable-centered approaches have suggested risk and protective factors separately relate to Mexican-origin youths' educational outcomes; these person-oriented analyses complement prior work by highlighting the complex ways in which different protective and risk factors work in combination. When a person has all positive predictors (i.e., High SES), the association to Mexican-origin youths' educational outcomes was associated with better educational outcomes compared to those with only some positive predictors present (i.e., Low Education, Moderate Hardship and Low SES). In our sample, the protective factors could not outweigh the risk factors; however, this may not be the case for other Latino sub-groups in other geographical areas. It is possible that Mexican-origin families have a unique experience in the southwestern United States due to the current political climate and proximity to Mexico that results in greater risk to overcome. For example, due to the political climate promoting English-only laws in Arizona schools, limited English proficiency may be particularly disadvantageous compared to other political climates that promote bilingualism (Delgado-Gaitan, 1993; Goldenberg, 2004). Consequently, our findings support the concept of heterogeneity within the Latino population (Knight et al., 2009)

50

and encourage future work to expand upon current findings by examining the multifaceted nature of the family sociocultural context on youths' educational outcomes from various backgrounds.

Strengths, Limitations, and Future Directions

This study's strengths included the ethnic-homogenous, person-oriented, and multidimensional design. Chief among these strengths is the prospective exploration of the family context on Mexican-origin youths' educational outcomes, a population whose strengths are vastly understudied (Umaña-Taylor, 2009). This sample included multiple family members (i.e., mothers, fathers, and children) and the results provided rich information on the variability within this sample in family protective and risk actors and their associations with youths' educational outcomes. In addition, this study included multiple dimensions of the family context to capture the complex nature of associations between the family context and youths' educational outcomes. Much of the previous research has examined only negative or positive dimensions of the family context and youths' educational outcomes, but few have included both (Cauce et al., 2011; Rosas & Hamrick, 2002). Moreover, the use of a longitudinal person-oriented analytic strategy has the advantage of providing specific information about the potential differences in the family context for population subgroups. LPA is an excellent tool for extracting patterns that exemplify variability within a group and move beyond single-variable conceptualizations of the associations between the family context and youths' educational outcomes.

Despite the contributions, there are important limitations to consider. First, this study does not imply a causal relation between culturally relevant family protective and

risk predictors and Mexican-origin youths' educational outcomes. Second, the current study assessed several predictors using a single-item (e.g., maternal and paternal educational aspirations and parents' educational attainment). Future work should examine additional indicators of the family context, such as parents' familiarity with the U.S. education system, which may tap into multidimensional aspects of family's socioeconomic resources. Third, caution must be exercised when generalizing study findings to youth from other ethnic-racial groups. This study focused on a specific Mexican-origin population: two-parent families from the U.S. Southwest. Replications of the findings should include Mexican-origin families from different geographic locations or with different family structures to foster the generalization of findings to other subgroups of this population. Lastly, the nature of the sample was such that over 75% of parents were born in Mexico and were interviewed in Spanish; thus, it was not possible to disentangle effects of nativity as a potential moderator of these associations. It will be important for future work to pay attention to how nativity may relate to the associations between the family context and youths' educational outcomes by including cultural adaptation processes (i.e., acculturation and enculturation).

Conclusion

The current study provided compelling evidence that culturally relevant family risk and protective factors occur in different combinations in the lived experiences of Mexican-origin youth growing up in the southwest U.S. and these combinations have implications for Mexican-origin youths' educational outcomes. The fact that each profile revealed a distinct pattern of risk and protective factors illustrates the heterogeneity and variability within this sample of Mexican-origin families. As such, these findings

highlight the need for increasingly sophisticated scholarship for Latino youth that emphasizes the importance of identifying culturally relevant factors that promote academic success and culturally relevant factors that place these youth at increased risk for poor educational outcomes by using innovative analytic approaches. Such findings will help illustrate the association between the family context and Mexican-origin youths' educational outcomes. Striving to better understand youths' educational outcomes is crucial due to their high composition within society and overrepresentation in disadvantaged settings, in combination with low rates of baccalaureate degree attainment.

Study #2: School Profiles on Mexican-Origin Youths' Academic Achievement, Educational Expectations and Postsecondary Enrollment

Latinos are the largest ethnic group in U.S. public schools, with predictions suggesting an upward trajectory of continued growth (Child Trends, 2014). Currently, one quarter of children under the age of 18 in the U.S. are Latino, and demographers predict that by 2050, one third of all U.S. children will be Latino (Child Trends, 2014). Although previous research has emphasized the unique challenges many Latino youth face in regard to their educational success in U.S. public schools (e.g., ethnic discrimination from peers and teachers; Benner & Graham, 2011; Schhneider, Martinez, & Ownes, 2006), Latino youth also possess unique assets and resources that may buffer these experiences and promote educational success (Cardoso & Thompson, 2010). The school context is thus a source of both risk and protection for Latino youths' educational outcomes, but rarely have studies considered the *interrelations* among risk and protective factors. The interrelations among risk and protective factors are likely to be important in understanding Mexican-origin youths' educational outcomes. The focus of the current study is on the interrelations among risk and protective factors and their relations to three key indicators of youth's educational success: academic achievement, educational expectations and postsecondary enrollment (Perreira, Fuligni, & Potochnick, 2010; Xu, 2006).

One approach to understanding Mexican-origin youths' educational outcomes is to identify risk and protective factors in the students' ecological systems (Hess, 2000). Because involvement in school dominates much of youths' time outside of the family (Office of Adolescent Health, 2013), the school context is a powerful socializing context

that shapes youths' academic achievement (Swail, Cabrera, Lee, & Williams, 2005), educational expectations (Borrero, Yeh, Cruz, & Suda, 2012), and decision to enroll in postsecondary education (Kobrin, Patterson, Shaw, Mattern, & Barbuti, 2008). Previous research has suggested there is a normative decline among minority youths' academic achievement and educational expectations during middle school and high school, which may lead to reduced postsecondary enrollment rates in young adulthood (Eccles, Lord, & Buchanan, 1996; Hughes, Im, Kwok, Cham, & West, 2015). This decline has been attributed to minority youths' differential experiences within the school context (Gordon-Rouse & Austin, 2002).

From a resilience perspective (Masten & Coatsworth, 1998; Rutter, 1987; Zimmerman, 2013), school environments as well as experiences with teachers and peers at school are critical for promoting or hindering minority youths' educational outcomes. Previous research has shown that Mexican-origin ninth grade students in the U.S. are more vulnerable to dropping out as compared to the overall population of ninth grade students (Pursley, 2002). For example, Mexican-origin students often encounter many additional challenges, such as educational systems developed for other ethnic groups, negative stereotypes, discrimination, and/or poverty (Crosnoe & Lopez-Gonzalez, 2005; Gillock & Reyes, 1999; Roberts, Roberts, & Chen, 1997; Samaniego & Gonzalez, 1999). Therefore, Mexican-origin students often perceive middle school and high school as more difficult than White students (Akos & Galassi, 2004). However, some Mexican-origin ninth grade students also show educational resilience or the ability to overcome the heightened educational risk and successfully adapt and excel in the educational context (Hess, 2000; Plunkett, Henry, Houltberg, Sands, & Abarca-Mortensen, 2008; Wayman,

55

2002). Youth are active agents in the process of resilience by forging connections to competent and caring adults within the school context and creating opportunities for success (Lopez & Lechuga, 2007). Supportive and positive experiences within the school setting with critical people, such as teachers and peers, are associated with better school behavior, more favorable attitudes about school, and greater academic achievement for Latino youth (Alfaro, Umaña-Taylor, Gonzales-Backen, Bámaca, & Zeiders, 2009; Cheng & Starks, 2002; Woolley, 2006).

The present study focuses on culturally relevant school risk and protective factors using a resilience framework (Masten & Coatsworth, 1998; Rutter, 1987; Zimmerman, 2013). A resilience framework is a strengths-based approach to understanding Mexican-origin youths' academic achievement, educational expectations and postsecondary enrollment by focusing attention on positive factors, called protective factors (Fergus & Zimmerman, 2005), which either operate directly or in opposition to risk factors, which help youth thrive in the face of adversity (Loeber & Farrington, 2012; Masten, Cutuli, Herbers, Reed, 2007; Rutter, 1987). However, the majority of this work has primarily used variable-centered approaches to explore the impact of single predictors in isolation from one another or controlling for other predictors (i.e., multiple regression models; Gonzalez & Padilla, 1997; Kumpfer et al., 2002; Martin & Marsh, 2006; Zimmerman, 2013).

School Characteristics as Predictors of Educational Outcomes

Research suggests that the school context plays an important role in the psychosocial, intellectual, and vocational development of youth; specifically, better quality schools have a positive relation on youth learning (Schaps, 2005). Yet, many

Latino students attend under-funded, under-staffed, and under-performing schools (GAO, 2016; Fry, 2002). For example, the Government Accountability Office's analysis of data from the Department of Education found schools that serve mostly poor and Black or Latino student populations offered disproportionately fewer math, science, and college preparatory courses and had disproportionately higher rates of students who were held back in ninth grade, suspended, or expelled (GAO, 2016). Furthermore, the percentage of K-12 public schools in the U.S. with students who are mostly poor and mostly Black or Latino has grown from 9% in 2001 to 16% in 2014 (GAO, 2016). The relation between the school context and youths' educational outcomes may depend on characteristics of the school such as its socioeconomic and ethnic composition.

Latino youth experience the highest rate of segregation of all major racial and ethnic groups. In 2014, a total of 40% percent of all Latino children were enrolled in schools with 75% to 100% Latino children (GAO, 2016). *Latino concentration* is associated with both structure and process factors that suggest it could be either risky or protective, including exposure to same-ethnic or diverse peer groups and to discrimination. First, concerning exposure to same-ethnic or diverse peer groups, as Latino students entered schools with lower percentages of their own ethnic group, their school belonging and liking for school declined, which was further associated with a decline in engagement and grades, and in turn, may be associated with lower postsecondary enrollment (Benner & Graham, 2009). Second, concerning exposure to discrimination, Latino youth attending schools with less Latino students perceived less peer and teacher discrimination, compared to Latino youth attending schools with moderate-to-high Latino concentration (Brown & Chu, 2012). As the ethnic minority

57

population approaches 50% and ethnic groups are evenly mixed, perceptions of discrimination have been shown to peak (Seaton & Yip, 2009; Welch, Sigelman, & Bledsoe, 2001). Specifically, Latino youth perceived the most discrimination when attending a school consisting of 59% Latino students (Brown & Chu, 2012). However, scholars have found that when teachers avoid or reject negative attitudes and stereotypes, they are able to offer minority students the respect and high expectations that facilitate greater academic success (Schhneider et al., 2006). Also important to consider, Latino concentration is correlated with SES resources; studies consistently show that schools with high concentrations of minority students receive fewer resources (Adamson & Darling-Hammond, 2011). Niu and colleagues (2008) found that Latino students attending highly segregated schools are less likely than similarly situated White peers to enroll in postsecondary education. Contradictory findings in regards to *Latino Concentration* and youths' educational outcomes may be due to its association with other structure and process factors; therefore, the benefit of this study is to examine Latino concentration within the context of culturally relevant school factors such as neighborhood socioeconomic composition and discrimination with teachers and peers.

School segregation in the public school system mostly reflects neighborhood segregation (Jargowsky, 2013; Rothstein, 2014). The segregation of schools has been intensifying because the segregation of neighborhoods has been intensifying (Rothstein, 2014). For example, in 2011, 7% of poor Whites lived in high poverty neighborhoods, where more than 40 percent of the residents are poor; whereas, 15% of poor Latinos lived in such high poverty neighborhoods (Jargowsky, 2013). *Neighborhood socioeconomic composition* has been hypothesized to affect educational outcomes through at least two

58

pathways: normative processes that operate among students and organizational or structural constraints that develop within school systems (Hallinan, 1988). Related to the first, concentrated poverty and large income disparities reduce the extent to which lower- and higher-income youth interact in schools and classrooms as peers, largely to the educational disadvantage of lower-income students (Rothstein, 2014). Exposure to peers who are poor has been increasing for Latino students as compared to White students. The average Latino student attends a school where nearly two-thirds of their peers are low-income, whereas the average White student attends a school where poor students account for less than 25% of enrollment (Orfield, Kucsera, & Siegel-Hawley, 2012). Poor students are less likely to establish friendships with individuals with greater academic achievement and educational expectations (Israel & Beaulieu, 2004; Stockard & Mayberry, 1992), and interact less with positive adult role models (Israel & Beaulieu, 2004; Kupersmidt, Burchinaal, & Patterson, 1995) and thus, experience worse educational outcomes.

With regard to organizational and structural constraints within schools, the concentration of poverty dramatically increases the costs of improving student outcomes by increasing the necessity for targeted educational interventions and supplemental services, most of which require additional professional staff and additional time (Baker, 2012; Duncombe & Yinger, 2005). In areas with concentrated poverty, additional resources are often scarce (Baker, Sciarra, & Farrie, 2011; Barnett, 2011). The combination of funding and resource allocations leave poor neighborhoods with schools that have fewer and lower-quality books, curriculum materials, laboratories, and computers; significantly larger class sizes; less qualified and experienced teachers; and

less access to high-quality curriculum (Adamson & Darling-Hammond, 2011). On average, Latinos attend schools in which three-quarters of the students are poor (Orfield & Ee, 2014). In 2014, 48% of Latino students were attending a low socioeconomic school compared to 30% Blacks, 15% Whites and 4% Asians (GAO, 2016). Given this strong association between academic success and economic disadvantage, some studies have focused on the effects of poverty on youths' educational outcomes (Rothstein, 2014). Neighborhood socioeconomic composition may be a risk factor that decreases Mexican-origin youths' educational outcomes. Neighborhood socioeconomic status may be best understood within the interrelations of culturally relevant school factors such as school ethnic composition and discrimination with teachers and peers.

Latino youth are raised in a cultural context with values that may be different from those promoted by mainstream American schools and when these differences clash, it can be disadvantageous for Latino youths' educational outcomes (La Roche & Shriberg, 2004). Broadly, cultural mismatch theory asserts that inequality is produced when the cultural norms in mainstream institutions do not match the norms prevalent among social groups who are underrepresented in those institutions (Stephens, Townsend, Markus, & Phillips, 2012). Fruchter (2007) suggested that the school context may contribute to ethnic differences in educational outcomes due largely to a mismatch of cultures between individuals and teachers/peers. The mismatch between teachers/peers and individuals have important implications for the degree to which underrepresented groups are likely to experience discrimination from teachers and peers (Stephens et al., 2012). Ethnic discrimination has been defined as the perceived unfair treatment of an individual due to his or her ethnic group membership (Johnston & Delgado, 2004). While

some individuals might argue that perceptions of ethnic discrimination are not always based on the reality of a situation, youths' perceptions of maltreatment have important implications for well-being (Institute of Medicine and National Research Council, 2015; Mesch, Turjeman, & Fishman, 2008). While some students experience explicit discrimination in the form of verbal and physical taunting and harassment, others describe implicit discrimination in the form of negative stereotypes and lowered expectations. Regardless of its source and form, ethnic discrimination is central to the everyday lives of many ethnic minority youth (Umaña-Taylor, 2016). Latinos' perceived likelihood of ethnic discrimination was negatively associated with school importance, school value, and current and future feelings about school usefulness (Perreira, Fuligni, & Potochnick, 2010).

Research has documented that ethnic discrimination during adolescence can be perpetrated by both peers and adults (Greene, Way, & Pahl, 2006). For example, discrimination can occur both in the classroom and in school hallways by teachers and peers (Liang, Grossman, & Deguchi, 2007). Latino students who perceive discrimination by teachers and peers are particularly likely to have negative attitudes about school and have lower academic achievement (Stone & Han, 2005). In addition, Faircloth and Hamm (2005) found that perceiving peer and teacher discrimination contributed to Latino students' reduced sense of belonging at school, and this was in turn associated with reduced academic achievement. Latino youth attending schools in which they are the most isolated and devalued may show stronger links between perceived discrimination and negative academic outcomes (Brown & Chu, 2012). Furthermore, ethnic discrimination is associated with a lower likelihood of enrolling in postsecondary

61

education (Hurtado & Ponjuan, 2005; Smedley, Myers, & Harrell, 1993; Smith & Wolf-Wendel, 2005). Therefore, previous research would suggest discrimination from teachers and peers may be a risk factor that decreases Mexican-origin youths' educational outcomes.

Furthermore, based on cultural mismatch theory (Stephens et al., 2012), the cultural mismatch between U.S. school curriculums and minority youth may explain the disadvantage set forth for those less proficient in English (Fruchter, 2007; Padilla, Lindholm, Chen, Durán, Hakuta, Lambert, & Tucker, 1991). The majority of U.S. school curriculums infer students' ability to understand "academic English" (Resnick, 2004, p. 2). Academic English is defined as "the ability to read, write, and engage in substantive conversations about math, science, history, and other school subjects" (Resnick, 2004, p. 2). Although many first-generation students can acquire the basic communication skills in English necessary to carry on everyday conversations with others, they often have difficulty mastering the academic language required for schooling tasks (Collier & Morgan, 2008; Gándara, Rumberger, Maxwell-Jolly, & Callahan, 2003; Wong-Fillmore, & Snow, 2000). On average, it takes 4 to 7 years for English Language Learners (ELL) to become proficient in academic English (Francis, Rivera, Lesaux, Keiffer, & Rivera, 2006; Genesee, Lindholm-Leary, Saunders, & Christian, 2006). Therefore, students who lack proficiency in English are at a decided disadvantage in school. ELL students tend to have lower academic achievement, lower educational expectations, and higher dropout rates than non-ELL students (Bohon et al., 2005; Kerper Mora, 2002; Portes & Rumbaut, 2001). Limited English proficiency may be a risk factor that decreases Mexican-origin youths' educational outcomes.

Although variable-centered approaches are useful, such models ignore theoretical tenets of the resilience perspective (Masten & Coatsworth, 1998; Rutter, 1987; Zimmerman, 2013) positing that risk and protective factors operate together to create interactive processes or patterns (Fergus & Zimmerman, 2005) that contribute to youths' educational outcomes. Separating the influence of different sociocultural domains can obscure the ecological realities of everyday lives and compromise efforts to build a foundation of knowledge to inform intervention efforts within school contexts to improve Latinos' educational outcomes. As such, the first goal of this study is to identify patterns of culturally relevant school risk and protective factors as suggested by theoretical and empirical research.

Goal 1: School Profiles of Culturally Relevant Risk and Protective Factors

Our understanding of risk and protective processes has emerged primarily from the use of models that investigate one or, more rarely, a few risk and protective factors at a time (i.e., variable-centered approaches; Lanza, Rhoades, Nix & Greenberg, 2010). Cumulative risk models have been one strategy employed by researchers interested in understanding the interrelations of multiple risk factors (Sameroff & Seifer, 1990). However, the cumulative risk approach ignores the interrelations of protective factors as counterbalancing to risk factors as well as masks the occurrence of unique or unusual constellations of both risk and protective patterns (Lanza et al., 2010).

Person-centered strategies aim to uncover a structure or pattern underlying and influencing the processes of educational resilience (Bergman & Magnusson, 1997). Patterns will allow risk and protective factors to interact uniquely with one another and thus, challenge the assumption that all individuals will react to risk and protective factors

in a similar fashion (Raufelder, Jagenow, Hoferichter, & Drury, 2013). Thus, person-centered approaches provide information about the pervasiveness of particular patterns of risk and protective factors (Zeiders et al., 2013). Because little is known about the *patterns* that may exist within the school context for Mexican-origin youth, the first goal of the study is to identify potentially different patterns of culturally relevant family risk and protective factors using the following: neighborhood socioeconomic composition as represented by the percentage of families living below $50,000 income level, Latino concentration as represented by the percentage of Latino students in the school, discrimination from teachers and peers, and English proficiency.

In addition, a feature of this study is the examination of the relations between both structure and process variables in the same statistical analysis. From a resilience perspective (Masten & Coatsworth, 1998; Rutter, 1987; Zimmerman, 2013), youth must first be at risk before resilience can occur; therefore, youths' structural environment must be accounted. Neighborhood socioeconomic composition and Latino concentration were considered to be structural variables that encapsulate youths' school environment. However, resilience in and of itself is a process of adaption to risk. Resilience involves behaviors, thoughts and actions (Masten & Coatsworth, 1998; Rutter, 1987; Zimmerman, 2013), which may provide youth the skills and resources necessary to successfully adapt to risk. The following were considered to be process variables: discrimination from teachers and peers, and English proficiency.

Given that research on this topic is in its beginning stages, hypotheses will be made cautiously. Hypothesized patterns will be discussed as relating to one another using a compensatory model (Garmezy et al., 1984). First, one pattern that may exist is a *risk*

pattern, in which the constellation of factors includes only risk factors in absence of protective factors. For example, ELL students tend to go to poor public schools (Fry, 2008). Moreover, ELL students may be more likely to experience discrimination from teachers and peers (Wiley & Wright, 2004). It may be the relation among neighborhood socioeconomic disadvantage, high discrimination from teachers and low English proficiency that may be a risk pattern that is associated with lower academic achievement, educational expectations and enrollment in postsecondary education of Mexican-origin youth.

Furthermore, a *counteracting pattern* also may exist, in which the constellation of risk and protective factors includes protective factors that counteract risk factors and creates an environment in which Mexican-origin youth can thrive. For example, Latinos are more likely to be enrolled in schools residing in neighborhoods that are underfunded and deficient of resources (GAO, 2016; Fry, 2002).Latinos also are more likely to experience discrimination from teachers in predominately poor schools (Benner & Graham, 2011; Jost, Rudman, Blair, Carney, Dasgupta, Glaser, & Hardin, 2009: Rosenbloom &Way, 2004). However, scholars have found that when teachers avoid or reject negative attitudes and stereotypes, they are able to offer minority students the respect and high expectations that facilitate greater academic success (Schhneider et al., 2006). Therefore, low teacher discrimination may counteract the risk of neighborhood socioeconomic disadvantage, which may create an environment in which Mexican-origin youth can thrive.

Lastly, a pattern that may exist is a *direct-protective pattern*, in which the constellation of factors does not include any risk factors. Latino youth attending schools

with less Latino students perceived less peer and teacher discrimination, compared to Latino youth attending schools with moderate-to-high Latino concentration (Brown & Chu, 2012). Moreover, Latino students who attend schools with higher socioeconomic composition may gain access to additional resources that promote greater academic success (Benner & Graham, 2009). Therefore, the constellation of low peer and teacher discrimination, low Latino concentration, and high socioeconomic composition may suggest the existence of a direct-protective pattern for Mexican-origin youth.

Most importantly, risk and protective factors are not limited to one direction; for example, neighborhood socioeconomic composition, Latino concentration, discrimination with teachers and peers, and English proficiency may configure a pattern based on risk and protective factors either directly or counteractively. It is anticipated that the constellations of risk and protective factors are not limited to simply a high-risk combination and low-risk combination, suggesting the possibility of more than two distinct profiles. Therefore, a person-centered approach allows the identification of numerous constellations of risk and protective factors (Bergman & Magnusson, 1997).

In addressing the first goal, gender and nativity will be included as covariates. Previous research has highlighted that risk and protective factors may differ based on gender and nativity. For example, previous research suggests teachers are more likely to discriminate against male as compared to female students (Frawley, 2005). In addition, U.S.-born Latino youth are more likely to be proficient in English compared to foreign-born Latino youth (Lopez & Gonzalez-Barrera, 2014). Latino immigrant males, who possess poor language skills, are most likely to experience discrimination from teachers in ELL classrooms (McCaughan, 2009). Moreover, foreign-born youth are more likely to

be concentrated in poor schools (GAO, 2016). Therefore, while identifying school patterns of risk and protective factors, gender and nativity differences will be considered.

Goal 2: School Profiles on Mexican-origin Youths' Academic Achievement, Educational Expectations and Postsecondary Enrollment

The second goal of this study is to explore the associations between identified school profiles on Mexican-origin youths' academic achievement, educational expectations and postsecondary enrollment. This approach will provide insight into how these factors in different constellations serve to promote or inhibit Mexican-origin youths' academic achievement, educational expectations and postsecondary enrollment. Risk patterns are likely to be associated with lower levels of academic achievement, educational expectations, and postsecondary enrollment; whereas, direct-protective patterns are likely to be associated with higher levels of academic achievement, educational expectations, and postsecondary enrollment. Interestingly, counteractive patterns are likely to vary in their association to academic achievement, educational expectations, and postsecondary enrollment. Unlike variable-centered approaches that suggest risk and protective factors predict educational outcomes in one specific way (i.e., either positively or negatively), it may be he counteractive profiles that provide particularly unique insights that inform future research and practice to promote greater educational success for Mexican-origin youth.

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Method

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Participants

Data were drawn from a larger longitudinal study of youth development and family socialization including 246 Mexican-origin youth and their families (Updegraff,

<div align="center">67</div>

McHale, Whiteman, Thayer, & Delgado, 2005). Participants were recruited through schools in and around a southwest metropolitan area. Based on the larger study goals, criteria for participation were as follows: (1) 7th graders and an older sibling were living at home and not learning disabled, (2) biological mothers and biological or long-term adoptive fathers (i.e., 10 or more years) were living at home, (3) mothers were of Mexican-origin and (4) fathers worked at least 20 h per week. Although not required for participation, 93% of fathers also were of Mexican descent. We focused on two-parent families, who represent the predominant arrangement in Mexican-origin families in the U.S. (66%; U.S. Census Bureau, 2016) and in the county from which the sample was drawn (U.S. Census Bureau, 2000).

At Time 1 (T1), mothers and fathers averaged 39 years ($SD = 4.63$) and 42 years of age ($SD = 5.80$), respectively. Most parents were born in Mexico (70%) and preferred to complete the interview in Spanish (67%). Parents reported an average of 10 years of education ($M = 10.34$; $SD = 3.74$ for mothers, and $M = 9.88$, $SD = 4.37$ for fathers). The majority of Mexico-born parents completed their education outside the U.S. (88% of mothers and 93% of fathers, respectively). Parents came from a range of socioeconomic levels, with the percentage of families meeting federal poverty guidelines (18.3%) being similar to two-parent Mexican-origin families in poverty in the county where the sample was drawn (i.e., 18.6%; U.S. Census Bureau, 2000). Median family income was $40,000 (range from $3,000 to over $250,000). Seventh graders were 12.51 ($SD = 0.58$) years of age and 51% ($n = 125$) were female. Seventh graders were most likely to be born in the US (62%; $n = 153$) and the majority preferred to complete the interview in English (83%).

At Time 2 (T2), five years after the initial wave of data collection, over 75% of the families participated (n = 185). Participants were now 17.72 (SD = .57) years of age at T2.Those who did not participate could not be located (n = 43), had moved to Mexico (n = 2), could not presently participate or were difficult to contact (n = 8), or refused to participate (n = 8). When compared to the participant families (n = 185), non-participant families at T2 (n = 61) reported significantly lower income at Time 1 (M = \$37,632; SD =\$28,606 for non-participant families and M = \$59,517; SD = \$48,395 for participant families) and lower maternal education (M = 9.48; SD = 3.45 for non-participant families and M = 10.62; SD = 3.79 for participant families) and paternal education (M = 9.06; SD = 4.13 for non-participant families and M = 10.16; SD = 4.43).

At Time 3 (T3), seven years after the initial wave of data collection and two years after T2, over 70% of the families participated (n = 173). Participants were now 19.60 (SD = .66) years of age. Those who did not participate could not be located (n = 45), had moved to Mexico (n = 4), could not presently participate or were difficult to contact (n = 4), or refused to participate (n = 8). The 12 remaining non-participant families were classified as mixed-status as family members within these families did not participate for different reasons (e.g., in one family the father refused to participate and we were unable to locate the mother, younger sibling, and older sibling). When compared to the participant families (n = 173), non-participant families at T3 (n = 73) reported significantly lower income at T1 (M = \$41,636; SD =\$39,095 for non-participant families and M = \$59,137; SD = \$46,674 for participant families), lower maternal education (M = 9.35; SD = 3.53 for non-participant families and M = 10.75; SD = 3.75 for participant

families), and lower paternal education ($M = 8.49$; $SD = 4.08$ for non-participant families and $M = 10.46$; $SD = 4.37$ for participant families).

Procedures

The same procedures were used at each wave of data collection. Trained bilingual interviewers collected data in separate home interviews in family members' preferred language (either English or Spanish). At the beginning of the interview, interviewers obtained informed consent at T1 and at T2 (for T2 and T3). Due to variability in reading abilities, interviewers read questions aloud and entered responses into a laptop computer. Home interviews averaged between 2 to 3 hours in duration. Families were given a $100 honorarium for the interviews at T1, $125 at T2, and each family member was paid separately $75 at T3. The Institutional review board approved all procedures.

Measures

All measures were forward and back-translated into Spanish for local Mexican dialect (Foster & Martinez, 1995). All final translations were reviewed by a third native Mexican-origin translator and discrepancies were resolved by the research team. Cronbach's alphas for all measures were acceptable for English- and Spanish-speaking participants; thus for efficiency, all alphas are reported for the overall sample rather than separately by language.

Neighborhood Socioeconomic Composition (Profile Predictor; T1). Families provided residential addresses that were geo-coded to assign youth to census blocks. Because field work began in 2002, data on the percent of families in each census block were obtained from the 2000 decennial census, representing the socioeconomic composition level of target youths' neighborhood environments. Then, a series of

indicators of each family's neighborhood were calculated. In this study, the percentage of families in the neighborhood who made less than a combined income of $50,000 was calculated. The average percent of families in the neighborhood living below $50,000 was 45.2% ($SD = 21.2\%$) with a range from 10.5% to 100%. Consequently, high scores on this variable correspond to having high poverty in the neighborhood.

School Latino Concentration (Profile Predictor; T1). To represent the ethnic composition of 7th graders' school experiences, records were obtained from the Arizona Department of Education. Data included the ethnic composition of every student enrolled by grade and school for all students in middle school. The total percentage of Latino students in each school was calculated. The average percent of Latino students was 37.77 ($SD = 22.02$), with a range of 7.79% to 81.03%.

Discrimination in School (Profile Predictor; T1). Experiences with discrimination were assessed in terms of youths' perceptions of discrimination by peers and teachers against their ethnic group in general (i.e., general discrimination) using a measure developed by Johnston and Delgado (2004). Specifically, 7th graders reported the extent to which they agreed that their peers and teachers held discriminatory beliefs about Mexican Americans as a group on a scale from 1 (*strongly disagree*) to 4 (*strongly agree*). This scale was composed of 4 items assessing general discrimination by peers (e.g., "You have heard kids at school making jokes or saying bad things about Mexican Americans") and 3 items assessing general discrimination by teachers (e.g., "Your teachers are prejudiced against Mexican Americans"). Cronbach's alpha for this sample was .76 for peers and .74 for teachers.

English Proficiency (Profile Predictor; T1). Items to measure English proficiency were used from the greater measure of Acculturation Rating Scale for Mexican Americans-II by Cuéllar, Arnold, & Maldonado, 1995. The items used to create an English proficiency scale were "I speak English" "I write in English", "I think in English", "I enjoy listening to music in English", "I enjoy watching TV/movies in English", and "I enjoy reading (e.g., books) in English". All items were answered on a 5-point Likert scale ranging from (1) *not at all* to (5) *extremely often or almost always*. Higher scores indicate greater English proficiency. The average English proficiency was 4.00 (*SD* = .49). Cronbach's alpha was .82.

Academic Achievement (Distal Outcome; T2). School grades were obtained from youths' report cards during the home interview. Grade point average (GPA) was calculated from grades in math, science, social studies, and language arts. Letter grades were assigned numerical scores (A = 4 and so forth), such that high scores signified higher grades. The average GPA was 2.81 (*SD* = .68).

Educational Expectations (Distal Outcome; T2). Youths' reported on their *educational expectations* by responding to the following item: "How far do you really think you will go in school?" Response choices were on a continuous scale representing the total number of years of education (e.g., 01-11 = *1 through 11 years of school completed but didn't finish High School*, 11.5 = *GED*, 12 = *High School Graduate*, 13 = *1 Year College, Vocational or Technical School*, 14 = *2 Years College, Vocational or Technical School*, 15 = *3 Years College, Vocational or Technical School*, 16 = *College Degree (BS/BA)*, 17 = *Some advanced work, but no Graduate Degree*, 18 = *Master's Degree (MS/MA)*, 19 = *Some work toward Doctorate or Advanced Degree*, and 21 = *MD,*

JD, DO, DDS, OR PH.D.). The average was 15.40 (*SD* = 2.22), which is equivalent to approximately 3 years of college.

Enrollment in Postsecondary Education (Distal Outcome; T3). Youth reported their highest level of education completed on a continuous scale (e.g., 01-11 = *1 through 11 years of school completed but didn't finish High School*, 11.5 = *GED*, 12 = *High School Graduate*, 13 = *1 Year College, Vocational or Technical School*, 14 = *2 Years College, Vocational or Technical School*, 15 = *3 Years College, Vocational or Technical School*, 16 = *College Degree (BS/BA)*). Educational attainment at age 20 that is greater than 12 indicated enrollment in postsecondary education. The average was 12.91 (*SD* = 2.06).

Covariates (T1). Youth reported on their own gender (0 = *female*; 1 = *male*). Mothers reported on the country of birth for their child (0 = *U.S.-born*; 1= *Mexico-born*).

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Plan of Analysis

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Latent profile analysis (LPA) was used to identify profiles of culturally relevant risk and protective factors within the sociocultural context of schools (see Figure 2). An advantage of LPA as a person-centered approach is that enables researchers to detect population heterogeneity, whereas traditional variable-oriented analytic strategies assume that the population under study is homogeneous (Lubke & Muthén, 2005; Muthén & Muthén, 2000). LPA uses model-based procedures to identify the best number of profiles, the structure of such profiles, and the probability of belonging to each profile (Nylund, Asparouhov, & Muthén, 2007).

Latent profiles were then examined in relation to Mexican-origin youths' educational outcomes: academic achievement, educational expectations and

postsecondary enrollment (Asparouhov & Muthén, 2013). Several approaches are available for estimating the relations between latent class memberships and distal outcomes. A three-step approach is commonly used, but has problems with estimation bias and confidence interval coverage. Proposed improvements include the correction method of Bolck, Croon, and Hagenaars (modified BCH; 2004), Vermunt's (2010) maximum likelihood (ML) approach, and the inclusive three-step approach of Lanza, Tan, and Bray (2013). Dziak and colleagues (2016) found the modified BCH method empirically outperformed all other methods.

LPA analyses were conducted using Mplus 7.4 (Muthén & Muthén, 2015) and a modified BCH approach to identify profiles and their relations to distal outcomes (Asparouhov & Muthén, 2013; Bakk & Vermunt, 2014). The first step in the modified BCH approach is to estimate the LPA with covariates (Asparouhov & Muthén, 2013; Bakk & Vermunt, 2014). LPA analyses begin with a one profile solution followed by models increasing in the number of profiles until Mplus can no longer find a reliable solution (Pastor, Barron, Miller, & Davis, 2007). The following factors were included in the LPA analyses: neighborhood socioeconomic composition as represented by the percentage of families living below $50,000 income level, Latino concentration as represented by the percentage of Latino students, youth-reported discrimination from teachers and peers, and English proficiency. All analyses included gender and nativity as covariates. The second step is to determine the measurement error for the most likely class variable (Asparouhov & Muthén, 2013). The main drawback of the modified BCH approach is that it is based on weighting the observations with weights that can take negative values when the entropy is low (Asparouhov & Muthén, 2013). It is suggested to

only use this method when entropy is greater than .80 (Asparouhov & Muthén, 2013; Bakk & Vermunt, 2014). The third step is to estimate the desired LPA model where the latent class variable is measured by the most likely class variable and the measurement error is fixed to the values computed in the second step (Asparouhov & Muthén, 2013). In doing so, the means across latent profiles are evaluated for each continuous distal outcome, including Mexican-origin youths' academic achievement, educational expectations, and postsecondary enrollment in this study.

In all models, to avoid convergence on a local maximum, 500 random sets of starting values, 50 final stage optimizations, and 50 iterations in the initial stage was used (Collins & Lanza, 2010). The intra-class correlations (ICC) were calculated as an index of dependence of the observations within schools. The ICC for neighborhood socioeconomic composition was .16 indicating that about 16% of the variance in neighborhood socioeconomic composition is between schools. The ICC for ethnic composition was -.19. The ICC was -.01 for discrimination from both teachers and peers, suggesting little dependence within schools. Our analytic approach accounted for the nestedness of the data (i.e., youth within schools) as well as account for missing data by using full maximum likelihood estimation (FIML) with Huber-White covariance adjustment (MLR), which provided robustness in presence of non-normality and non-independence of observations (Huber, 1967; Yuan & Bentler, 2000). Additionally, the indicators were not allowed to intercorrelate, consistent with the assumption of local independence in LPA (Marsh et al., 2009). The following fit criteria was used to assess model fit: Akaike Information Criterion (AIC: Bozdogan, 1987); Bayesian Information Criterion (BIC; Schwartz, 1978); Adjusted BIC (Sclove, 1987); Bootstrap Likelihood

Ratio Test (McLachlan & Peel, 2000); and the Lo-Mendell-Rubin Likelihood Ratio Test (Lo, Mendell, & Rubin, 2001). When evaluating information criteria one should pick the model with the lowest model fit indices (i.e., AIC, BIC and ABIC) because the lowest value suggests the best fitting model (Nylund et al., 2007). To examine relative fit comparison, the Lo-Mendell-Rubin Likelihood Ratio Test (LMRT), the adjusted Lo-Mendell-Rubin-Likelihood Ratio Test (ALRT) and the parameter Bootstrap Likelihood Ratio Test (BLRT) were used to test the significant difference between the model of interest and the more parsimonious model (i.e., the model with one less class). Statistically significant *p*-values suggest the model fits the data significantly better than the more parsimonious model (Nylund et al., 2007). For example, if a 3-profile model is statistically significant according to a *p*-value less than .05 then the 3-profile model has better relative fit in comparison to the 2-profile model (Nylund et al., 2007). The final model was selected based on optimal fit indices as well as interpretability.

Results

The results are organized around two goals: (1) to identify patterns of culturally relevant risk and protective factors within the school context for Mexican-origin youth; and (2) to examine the links between school context profiles and Mexican-origin youths' academic achievement, educational expectations, and postsecondary enrollment.

Goal 1: School Profiles of Culturally Relevant Risk and Protective Factors

Multiple fit indices were used to indicate the best fitting model. When evaluating absolute fit one should pick the model with the lowest model fit indices (i.e., AIC, BIC and ABIC) because the lowest value suggests the best fitting model (Nylund et al., 2007). The model with the lowest ABIC is preferred (Muthèn & Muthèn, 2000). This set of fit

indices suggested a five- or six-profile solution since not all the fit indices pointed to one particular model (see Table 9). In comparison to the four-profile solution, the five-profile solution had lower AIC, BIC and ABIC estimates. When compared to the six-profile solution, the five-profile solution had lower ABIC estimate, but higher AIC and BIC estimates. Relevant to this, Yang and Yang (2007) found the ABIC performed better than the AIC and BIC when the true number of profiles was large and sample size was small. Wu (2009) found the ABIC performed better than the BIC when there are more unequal profile sizes. Based on absolute fit, the five-profile solution was the best fitting model.

To examine relative fit, one should pick the model with statistically significant LMRT, ALRT and BLRT because significant *p*-values suggest the model fits the data significantly better than the more parsimonious model (Nylund et al., 2007). For the five-profile solution, the BLRT was significant suggesting the five-profile solution significantly improved fit from the four-profile solution; however, the LMRT and ALRT were trending toward significance suggesting the five-profile solution may or may not be better fitting than the four-profile solution. For the six-profile solution, the LMRT, ALRT and BLRT were significant suggesting the six-profile solution significantly improved fit from the five-profile solution. Nylund et al. (2007) found that the BLRT often outperformed the LMRT and ALRT. However, with small sample sizes (N<250), Tein, Coxe, and Cham (2013) found that the BLRT may be untrustworthy. Nonetheless, based on relative fit indices, the six-profile solution was the best fitting model.

Although entropy is not a reliable method for selecting the number of profiles (Tein et al., 2013), the high entropy for both the five- and six-profile solution indicated that profile membership was well differentiated (see Table 10); however, the latent

77

profiles must be interpretable. Previous research has suggested profiles consisting of less than 5% of the sample may be considered spurious, which is often due to extracting too many profiles (Hipp & Bauer, 2006). The five-profile solution had no one profile with less than 5% of the sample; whereas, the six-profile solution had one profile with less than 5% of the sample, which is suggestive that the six-profile solution was less interpretable compared to the five-profile solution. Interpretability was further derived from examining if any profiles in the six-profile solution were duplicative or if all profiles were unique. Upon examination, the profile with less than 5% of the sample was considered to be duplicative and thus, the five-profile solution was selected as the overall best fitting model.

As LPA does not assign participants to groups, but predicts the probability of membership in a group, the estimated means for each predictor for each profile are weighted by estimated profile probabilities. The profile estimated means for each predictor are shown in Table 11 and the standardized profile estimated means for each predictor are shown in Table 12. To better describe each profile, both the estimated means and the standardized estimated means were discussed relative to one another. Lastly, to validate and describe profiles, gender and nativity (covariates in these models) are also described. In an effort to label profiles with concise language, we identified profiles as *low SES* when more than one-third of the families in the neighborhood reported incomes below $50,000 versus *moderate SES* (i.e., less than one-third reported incomes below $50,000); profiles with schools where the percentage of Latino students was greater than one-third (33%) of the school population were labeled *high Latino* versus *low Latino* concentration (i.e., less than 33% Latinos).

There were some notable similarities across the profiles. First, English proficiency ranged from 3.95 to 4.08 (on a 5-point scale) across the five profiles, suggesting that adolescents in the five groups were fairly similar and moderately proficient in English. Thus, English proficiency could be considered a protective factor in all profiles. The range for measures of discrimination from teachers and peers were also fairly similar across groups, ranging from 1.48 to 1.62 (teachers) and 1.92 to 2.38 (peers). Rates of teacher discrimination were fairly low on the 4-point scale and rates of peer discrimination were right at the midpoint on the rating scale. As describe below, the face of these similarities, there were differences across the profile in neighborhood SES and school ethnic composition.

Profile 1 (36% of the total sample; 55% female; 49% U.S.-born) was labeled *Neighborhood Advantage, Mixed Ethnic Composition*. Specifically, youth in this profile attended schools where almost half of youth in the school contexts (43%) were Latino. Of note, this was the only profile in which school ethnic composition was more evenly mixed. In addition, youth in this profile were more likely to live in neighborhoods where a majority of families (67%) earned more than $50,000 (see Tables 11 and 12). This profile was considered to be a counteractive profile such that youth scored high on a protective factor (i.e., neighborhoods high in family socioeconomic resources), but youth also possessed a factor (i.e., mixed ethnic composition) that was not outright risky or protective suggesting that the factor could be counteractive dependent on the combination. There were no gender differences between Profile 1 and all other profiles; however, Mexico-born youth were more likely to be in Profile 1 relative to Profiles 2 and 4 (see Table 13).

Profile 2 (22% of the total sample; 49% female; 77% U.S.-born) was labeled

Mixed Neighborhood, Low Latino Concentration. Youth in this profile lived in

neighborhoods with approximately 60% of families whose income was less than $50,000,

which is suggestive of more mixed economic resources. In addition, youth in this profile

attended schools with a low percentage of Latino students suggesting youth were exposed

to peers from different ethnic backgrounds than themselves (see Table 11 and 12). This

profile was considered to be a counteractive profile such that youth possessed some

factors (i.e., mixed neighborhood socioeconomic composition and low Latino

concentration) that were not outright risky or protective suggesting that these factors

could be counteractive dependent on the combination. There were no gender differences

between Profile 2 and all other profiles; however, U.S.-born youth were more likely to be

in Profile 2 compared to Profile 1 and Profile 3 (see Table 13).

Profile 3 (16% of the sample; 55% female; 50% U.S.-born), was labeled

Neighborhood Advantage, Majority Latino Concentration. Youth in this profile lived in

neighborhoods with a greater percentage of families (68%) whose income was greater

than $50,000, relatively. In addition, youth in this profile attended schools wherein the

majority of the student body (77%) was Latino suggesting youth had many peers of their

same ethnic background (see Tables 11 and 12). This profile was considered to be a

counteractive profile such that youth scored high on a protective factor (i.e.,

neighborhoods high in family socioeconomic resources), but youth also possessed a

factor (i.e., majority Latino concentration) that was not outright risky or protective

suggesting that the factor could be counteractive dependent on the combination. There

were no gender differences between Profile 3 and all other profiles; however, Mexico-

born youth were more likely to be in Profile 3 compared to Profile 2 and Profile 4 (see Table 13).

Profile 4 (16% of the sample; 61% female; 87% U.S.-born), was labeled *Neighborhood Disadvantage, Low Latino Concentration*. Youth in this profile lived in neighborhoods wherein the majority of families were from lower socioeconomic backgrounds (80%) and attended schools with less Latino students (i.e., 16% of the students, on average, were Latino; see Tables 11 and 12). This profile was considered to be a counteractive profile such that youth scored high on a risk factor (i.e., neighborhoods low in family socioeconomic resources), but youth also possessed a factor (i.e., low Latino concentration) that was not outright risky or protective suggesting that the factor could be counteractive dependent on the combination. There were no gender differences between Profile 4 and all other profiles; however, U.S.-born youth were more likely to be in Profile 4 compared to Profile 1, Profile 3 and Profile 5 (see Table 13).

Profile 5 (16% of the sample; 46% female; 58% U.S.-born), was labeled *Neighborhood Advantage, Low Latino Concentration*. Youth in this profile lived in neighborhoods with the highest percentage of families whose income was greater than $50,000 (73%). In addition, youth in this profile attended schools wherein the majority of the student body was not Latino (80%), suggesting youth had high exposure to peers from other ethnic backgrounds (see Table 11 and 12). This profile was considered to be a counteractive profile such that youth scored high on a protective factor (i.e., neighborhoods high in family socioeconomic resources), but youth also possessed a factor (i.e., low Latino concentration) that was not outright risky or protective suggesting that the factor could be counteractive dependent on the combination. There were no

gender differences between Profile 5 and all other profiles; however, U.S.-born youth were more likely to be in Profile 5 compared to Profile 1 and Profile 3 (see Table 13).

Although each profile had distinguishable differences in the constellation of factors, some profiles were more similar to one another than others. First, Profiles 1, 3, and 5 had neighborhoods that were high in family socioeconomic resources; whereas, Profiles 2 was more mixed in family socioeconomic resources and Profile 4 had neighborhoods that were low in family socioeconomic resources. Second, profiles 2, 4, and 5 were low on Latino Concentration suggesting a majority of students were exposed to peers from different ethnic backgrounds than themselves. Third, as noted above, all profiles were similar in their reports of experiencing moderate discrimination from teachers and peers and similar (and high) in English proficiency (see Table 11 and Table 12).

Overall, five distinct profiles emerged despite similarities among profiles; however, it may be in the similarities across profiles wherein patterns of structure and process within schools may be best understood. Our findings suggested that the socioeconomic and ethnic compositions of the schools mainly contributed to the heterogeneity within our sample; yet, as the socioeconomic and ethnic compositions of the schools changed across profiles, school processes (i.e., discrimination from teachers and peers) remained similar across profiles.

Goal 2: School Profiles on Mexican-origin Youths' Academic Achievement, Educational Expectations and Postsecondary Enrollment

A Wald test was conducted to examine latent profile differences for each of the three educational outcomes: academic achievement, educational expectations, and

82

postsecondary enrollment, with pairwise *t*-tests in follow-up to a significant Wald test to identify differences among the three profiles (see Table 14).

For academic achievement, the Wald test approached significance, X^2 (4, N =246) = 8.29, *p* = .08. Pairwise *t*-tests revealed several significant differences in mean levels of academic achievement across profiles. Youth in the *Neighborhood Disadvantage, Low Latino Concentration* profile had significantly greater academic achievement relative to youth in the *Neighborhood Advantage, Mixed Ethnic Composition* profile, *t* (242) = 5.64, p < .05; *Neighborhood Advantage, Majority Latino Concentration* profile, *t*(242) = 4.43, p < .05 and *Neighborhood Advantage, Low Latino Concentration* profile, *t*(242) = 3.78, p < .05.

For educational expectations, the Wald test was significant, X^2 (4, N =246) = 19.46, *p* < .01. Pairwise t-tests revealed several significant differences in mean levels of educational expectations across profiles. First, youth in the *Neighborhood Disadvantage, Low Latino Concentration* profile had significantly greater educational expectations relative to youth in the *Neighborhood Advantage, Mixed Ethnic Composition* profile, *t* (242) = 11.84, *p* < .01 and youth in the *Neighborhood Advantage, Majority Latino Concentration* profile, *t*(242) = 13.08, *p* < .01. Moreover, youth in the *Mixed Neighborhood, Low Latino Concentration* profile had significantly greater educational expectations relative to youth in the *Neighborhood Advantage, Mixed Ethnic Composition* profile, *t* (242) = 4.73, *p* < .05 and youth in the *Neighborhood Advantage, Majority Latino Concentration* profile, *t*(242) = 5.59, *p* < .05.

For postsecondary enrollment, the Wald test was significant, X^2 (4, N =246) = 41.19, *p* < .01. Pairwise *t*-tests revealed several significant differences in mean levels of

enrollment in postsecondary education across profiles. First, youth in the *Neighborhood Disadvantage, Low Latino Concentration* profile had significantly higher postsecondary enrollment relative to all other profiles (see Table 13). Moreover, youth in the *Mixed Neighborhood, Low Latino Concentration* profile had significantly higher postsecondary enrollment relative to all other profiles, except youth in the *Neighborhood Disadvantage, Low Latino Concentration* profile (see Table 13).

Discussion

Studying the nature and correlates of Mexican-origin youths' school contexts on their educational outcomes is important, as this population disproportionately earns less baccalaureate degrees compared to all other major ethnic/racial groups (Krogstad, 2016). Low baccalaureate degree attainment has resulted in Mexican-origin adults being overrepresented in low paying, less skilled jobs, which has substantial consequences for the U.S. as they continue to make up a larger and larger percentage of the workforce (Azziz, 2015; Gándara, 2010). As guided by resilience (Masten & Coatsworth, 1998; Rutter, 1987; Zimmerman, 2013) and person-oriented (Magnusson, 1988) frameworks, this study contributed to the growing body of literature on Mexican-origin youths' educational experiences in the U.S. (Gándara, 2010; Umaña-Taylor, 2009).

First, this study investigated patterns of culturally relevant risk and protective factors within the school context as suggested by theoretical and empirical research. As such, this study moved beyond variable-oriented research examining single dimensions of school characteristics to highlight profiles of culturally relevant school risk and protective predictors. Profiles allow individuals to be unique from one another, such that risk and protective factors do not operate in the same way for everyone (Zeiders et al.,

84

2013). For example, one profile was direct-protective suggesting some individuals experienced little to no risk. Another profile was risky suggesting some individuals experience far greater risk than others. Several profiles were counteractive suggesting more varying experiences of risk and protection. Importantly, the five profiles were distinct, suggesting risk and protective factors do not operate linearly.

Second, to my knowledge, this study is the first to consider the interrelations among school contextual risk and protective factors in efforts to predict Mexican-origin youths' academic achievement, educational expectations and postsecondary enrollment. Examining the interrelations among risk and protective factors allows for a better understanding of the risk factors that put youth at a disadvantage in school as well as the protective factors that promote resiliency in school. Finally, this study examined the relation between school contextual risk and protective factors and Mexican-origin youths' educational adjustment over a critical developmental time period of early adolescence to early adulthood. Experiences in early adolescence set a trajectory of subsequent educational opportunities and choices that either enhance or impede youths' educational attainment (Zimmerman, 2013).

Patterns of Culturally Relevant School Risk and Protective Factors

Relative to the variable-centered approach, which centers on examining how any given risk or protective factor is associated with a given outcome, the person-centered approach provides a descriptive context that portrays the experiences of subgroups of Mexican-origin youth. Because the person-centered approach allows for the simultaneous modeling of multiple risk and protective factors, this approach offers complementary information to variable-oriented analyses. By using a person-centered framework with an

85

ethnic-homogenous sample, the current study examined variability among Mexican-origin youths' school characteristics and highlighted the value of identifying *constellations* of predictors (Bronfenbrenner & Crouter, 1982; Cox & Paley, 2003).

The Neighborhood Advantage, Low Latino Concentration profile was characterized by neighborhoods with the lowest percentage of economically disadvantaged families and schools with a small percentage of Latino students (< 20%). Within this socioeconomically advantaged and predominantly non-Latino context, youth reported some experiences of discrimination from teachers and peers, similar to youth in other profiles. This profile was considered to be a counteractive profile as the constellation of factors included both protective and risk predictors. Prior research suggested youth residing in higher socioeconomic neighborhoods may be more likely to establish friendships with individuals with greater academic success (Israel & Beaulieu, 2004; Stockard & Mayberry, 1992) and interact more with positive adult role models (Israel & Beaulieu, 2004; Kupersmidt et al., 1995). However, when Latino students perceived some discrimination from these key individuals (i.e., teachers and peers), they may particularly likely to have negative attitudes about school (Faircloth & Hamm, 2005; Stone & Han, 2005). This may be further exasperated when Latino students enter schools with lower percentages of their own ethnic group. Previous research has found Latino students' school belongingness and liking for school declined as minority status became more prevalent (Benner & Graham, 2009). In combination, the key protective factor of neighborhood socioeconomic advantage may not offer advantages to students in the face of some discrimination paired with also being a minority within the school.

The Neighborhood Disadvantage, Low Latino Concentration profile was

86

characterized by neighborhoods with the highest percentage (80%) of low income families and schools with a low percentage of students who were Latino (17%). Yet, youth reported some experiences of discrimination from teachers and peers, similar to youth in other profiles, as noted. This profile was considered to be a counteractive profile because the constellation of factors included both protective and risk predictors. A risk for this group is that fewer resources are often allocated to schools in poor neighborhoods (Rothstein, 2014), which means fewer and lower-quality books, curriculum materials, laboratories, and computers; significantly larger class sizes; less qualified and experienced teachers; and less access to high-quality curriculum (Adamson & Darling-Hammond, 2011). Latinos are also more likely to experience discrimination from teachers and peers in predominately poor schools (Benner & Graham, 2011; Jost et al., 2009: Rosenbloom &Way, 2004). However, youth reported similar experiences of discrimination as other profiles with greater neighborhood advantage, which may suggest that some teachers and peers have avoided or rejected negative attitudes and stereotypes. Low Latino concentration and neighborhood socioeconomic advantage may allow youth to interact with peers of different ethnic backgrounds, yet, similar socioeconomic backgrounds, which may foster a connected and supportive environment that may offset some discrimination from teachers and peers facilitating greater academic success (Schhneider et al., 2006).

The Mixed Neighborhood, Low Latino Concentration profile was characterized by schools with the lowest Latino concentration in the school context relative to all other profiles. Youth in this profile also lived in neighborhoods with approximately 60% low-income families (i.e., < \$50,000). This profile was considered to be a counteractive

profile, in which low Latino concentration was paired with risk and protective predictors. Fewer resources are often allocated to schools within poor neighborhoods (Adamson & Darling-Hammond, 2011; Rothstein, 2014). In addition, Latino students with lower percentages of their own ethnic group have a decline in their school belongingness and liking for school (Benner & Graham, 2009). This may be further exasperated when students experience some discrimination from teachers and peers. Latino students who perceive some discrimination from teachers and peers may have negative attitudes about school (Faircloth & Hamm, 2005; Stone & Han, 2005). However, it is possible that schools within more mixed neighborhoods do indeed have similar access to resources as those in more socioeconomically advantaged neighborhoods, which may offset the influence of low Latino concentration paired with some discrimination from teachers and peers. Taken together, this combination may positively impact youth.

The Neighborhood Advantage, Majority Latino Concentration profile was characterized by schools with the highest Latino concentration. Youth in this profile also lived in neighborhoods with a greater percentage of families whose income was greater than $50,000, relatively. These factors are paired with moderate levels of teacher and peer discrimination and high levels of English fluency. This profile is a counteractive profile, in which high Latino concentration was paired with risk and protective predictors. The concept of school belongingness, although not directly examined, may provide great insight into the nature of this profile. For instance, Latino students attending schools with higher percentages of their own ethnic group felt a greater sense of belonging at school (Benner & Graham, 2009; Faircloth & Hamm, 2005). English proficient youth also have reported greater school belongingness compared to ELL students (Morrison, Cosden,

88

O'Farrell, & Campos, 2003). School belongingness is positively associated with youths'
overall educational and psychological well-being (Faircloth & Hamm, 2005). Youth with
a greater sense of school belongingness may be more likely to take advantage of the high
quality teachers and resources available at schools in economically advantaged
neighborhoods (Friedkin & Necochea, 1988; Lacour & Tissington, 2011). Therefore, the
interrelations among neighborhood socioeconomic advantage, high Latino concentration
and high English proficiency may offset any experiences of some discrimination from
teachers and peers and in doing so, create an overall supportive environment, which is
likely to be beneficial for youth.

   The final and largest profile, the Neighborhood Advantage, Mixed Ethnic
Composition profile, included over one-third of the sample. In this profile, almost half of
the students in their schools were Latino. The majority of Mexican-origin youth across all
other profiles had either low (i.e., less than 25%) or high (i.e., more than 75%) Latino
Concentration. In addition, youth in this profile lived in neighborhoods with a greater
percentage of families whose income was greater than $50,000, relatively. Moreover,
youth in this profile reported similar experiences of discrimination from teachers and
peers relative to all other profiles. This profile was reflective of a counteractive profile, in
which the constellation of factors included both risk and protective predictors. National
data shows that Latino youth experience the highest rate of segregation of all major racial
and ethnic groups (i.e., 75% to 100% Latino children; GAO, 2016). However, this profile
represents school contexts that were more evenly mixed. Latino youth attending schools
with more evenly mixed ethnic groups may perceive more discrimination from teachers
and peers (Brown & Chu, 2012). Latino students who perceive discrimination by teachers

89

and peers are particularly likely to have negative attitudes about school (Stone & Han, 2005). Although youth often benefit from attending schools within economically advantaged neighborhoods, such as more qualified teachers and greater access to resources (Adamson & Darling-Hammond, 2011), they may be unable to reap the benefits of these interactions when faced with teachers and peers that hold negative attitudes and stereotypes in a school context with mixed ethnic composition.

Contrary to expectations, findings indicated that Mexican-origin youths' probability of membership into specific school profiles was not distinguishable by gender (i.e., female versus male). This did not align with study expectations as variable-centered approaches have suggested gender differences in discriminatory experiences in school (Frawley, 2005); however, there was no evidence to suggest significant gender differences in neighborhood socioeconomic composition or school ethnic composition. It may be through a holistic understanding of the interrelations among discrimination, neighborhood socioeconomic composition, and school ethnic composition using a person-centered approach that led to profiles that were balanced in their composition of males and females. Our findings support this idea because all profiles were relatively equal across gender.

Mexican-origin youths' probability of membership into specific family profiles was distinguishable by nativity (i.e., U.S.-born verses Mexico-born). Youth in the Mixed Neighborhood, Low Latino Concentration profile and the Neighborhood Disadvantage, Low Latino Concentration profile were more likely to be U.S.-born compared to all other profiles. Previous research has suggested that educational resilience among Mexican-origin youth may be related to their acculturation and enculturation (Plunkett & Bámaca-

90

Gómez, 2006). Even though nativity served as a proxy, it is important to consider in future research the role of cultural adaptation *processes* in youths' educational adjustment as our study emphasized the importance of examining both structure and process factors (Masten & Coatsworth, 1998; Rutter, 1987; Zimmerman, 2013). Thus, it is possible that future work may find the representation of U.S.-born and Mexico-born youth to be differentially distributed among latent profiles if there is variability in important indices of acculturation and enculturation, beyond English proficiency.

Taken together, the finding of five distinct profiles of culturally relevant risk and protective factors that vary across sociocultural correlates illustrated the need to examine significant variability of school contexts within this cultural group. Specifically, profiles indicated that Mexican-origin youth did not simply experience culturally relevant school risk and protective factors in terms of high, moderate, or low levels, but rather in terms of distinct patterns or interrelations. Furthermore, the previous work on school-individual relationships have relied on variable-oriented approaches, but these findings point to the importance of examining multiple culturally relevant risk and protective predictors of families simultaneously, as well as identifying potential subpopulation differences by using a person-centered approach.

School Profiles as Linked to Mexican-origin Youths' Academic Achievement, Educational Expectations and Postsecondary Enrollment

Profiles of culturally relevant risk and protective predictors within the context of schools were associated with Mexican-origin youths' academic achievement, educational expectations and postsecondary enrollment. Of the five profiles detected, youth in the Neighborhood Disadvantage, Low Latino Concentration profile reported the highest

academic achievement, educational expectations and enrollment in postsecondary education. Within the context of schools characterized by the majority of families being low-income and few being of Latino origin, strong English proficiency skills may serve to enhance educational outcomes. For instance, as stated previously, fewer resources are often allocated to schools in poor neighborhoods (Adamson & Darling-Hammond, 2011). In addition, Latinos are more likely to experience discrimination from teachers and peers in predominately poor schools (Benner & Graham, 2011; Jost et al., 2009: Rosenbloom &Way, 2004). However, youth reported similar experiences of discrimination as other profiles with greater neighborhood advantage, which may suggest that some teachers and peers have avoided or rejected negative attitudes and stereotypes. Low Latino concentration in tandem with some discrimination from teachers and peers may allow youth to interact with peers of different ethnic backgrounds, but, similar socioeconomic backgrounds, which may foster a connected and supportive environment that facilitates greater academic success (Schhneider et al., 2006). Moreover, Latino students who are more proficient in English are less likely to experience and better able to cope with discrimination from teachers and peers (Zhang et al., 2012). Therefore, within a school context of low Latino concentration, the ability to navigate the experience of some discrimination from teachers and peers may offset the disadvantage of attending schools in poor neighborhoods. Our findings suggest future research should examine potentially unmeasured processes, such as acculturation, which may be correlated with strong English skills and discrimination from teachers and peers that may continue to explain the combination of factors in this profile.

Furthermore, Mexican-origin youth in the Mixed Neighborhood, Low Latino

92

Concentration profile reported the second highest academic achievement, educational expectations and enrollment in postsecondary education compared to all other profiles. This finding may provide clarity to the contradictory findings in previous research about Latino concentration. As described in previous research, Latino students with lower percentages of their own ethnic group have a decline in their school belongingness and liking for school, which was further associated with a decline in engagement and grades (Benner & Graham, 2009). However, in relation to neighborhood socioeconomic disadvantage, low Latino concentration may allow youth to interact with peers of different ethnic backgrounds, yet, similar socioeconomic backgrounds, which may foster a connected and supportive environment. Latino youth attending schools in which they are valued show stronger associations with academic outcomes (Brown & Chu, 2012).

Both profiles were associated with better educational adjustment, relatively. Yet, interestingly the Neighborhood Disadvantage, Low Latino Concentration profile and the Mixed Neighborhood, Low Latino Concentration profile were not statistically different from one another in terms of academic achievement and educational expectations, but youth in the Neighborhood Disadvantage, Low Latino Concentration profile had higher rates of enrollment in postsecondary education. A unique distinction between the two profiles is youths' neighborhood socioeconomic composition. This finding suggests the socioeconomic composition of the school context may be particularly salient to youths' decision to enroll in postsecondary education; however, future research is needed.

Although our findings may be counterintuitive such that youth in schools with fewer socioeconomic resources had greater educational outcomes, this may suggest Latino students from less socioeconomically advantaged environments could utilize

education as a way to change their socioeconomic environment. Particularly in the U.S., education has been viewed as a way out of poverty, especially for minority students. Therefore, there is an incorrect assumption that children growing up in poverty lack the native intelligence to succeed and our findings continue to support this notion (Brundage, 2012).

All other profiles had similarly low levels of academic achievement, educational expectations and postsecondary enrollment; however, there were differences in respect to the two profiles above. First, the Neighborhood Advantage, Mixed Ethnic Composition profile had significantly lower academic achievement compared to the Neighborhood Disadvantage, Low Latino Concentration profile, but not the Mixed Neighborhood, Low Latino Concentration profile. Latino youth in more socioeconomically advantaged schools are more likely to establish friendships with those with greater academic success (Israel & Beaulieu, 2004; Stockard & Mayberry, 1992), and interact more with positive adult role models (Israel & Beaulieu, 2004; Kupersmidt, Burchinaal, & Patterson, 1995). Since the Neighborhood Advantage, Mixed Ethnic Composition profile and the Mixed Neighborhood, Low Latino Concentration profiles had greater socioeconomic resources compared to the Neighborhood Disadvantage, Low Latino Concentration profile, this was surprising. In terms of educational expectations and postsecondary enrollment, the Neighborhood Advantage, Mixed Ethnic Composition profile had significantly lower levels compared to both the Neighborhood Disadvantage, Low Latino Concentration and the Mixed Neighborhood, Low Latino Concentration profiles. This was unexpected such that Latino youth attending schools in which they are more isolated and devalued, often seen in schools with low Latino Concentration, are shown to have more negative

94

academic outcomes (Brown & Chu, 2012). This finding would suggest future research should examine the effect of evenly mixed ethnic compositions on youths' educational outcomes.

The Neighborhood Advantage, Mixed Ethnic Composition profile was reflective of a counteractive profile. Due to the association with poor educational outcomes, it would seem the present protective factors did not buffer the risk factors. Overall, the benefits of attending a school in a neighborhood with greater socioeconomic advantage did not compensate for low Latino concentration and moderate discrimination from teachers.

Second, the Neighborhood Advantage, Low Latino Concentration profile had significantly lower academic achievement as compared to the Neighborhood Disadvantage, Low Latino Concentration profile, but not the Mixed Neighborhood, Low Latino Concentration profile. Youth attending schools in socioeconomically advantaged neighborhoods often report greater academic achievement (Friedkin & Necochea, 1988; Lacour & Tissington, 2011). Since the Neighborhood Advantage, Low Latino Concentration profile and the Mixed Neighborhood, Low Latino Concentration profiles both had greater access to socioeconomic resources, compared to the Neighborhood Disadvantage, Low Latino Concentration profile, this did not align with study expectations. However, youth in the Neighborhood Disadvantage, Low Latino Concentration profile and the Neighborhood Advantage, Low Latino Concentration profile, and the Mixed Neighborhood, Low Latino Concentration profile experienced similarly moderate levels of discrimination from teachers and relatively low levels of discrimination from peers. Latino students who perceive some discrimination by teachers

and peers may be less likely to benefit from attending a school in a socioeconomically advantaged neighborhood in terms of academic achievement.

Furthermore, there were no significant differences for educational expectations among the following three profiles: (a) Neighborhood Advantage, Low Latino Concentration profile, (b) the Neighborhood Disadvantage, Low Latino Concentration profile and (c) the Mixed Neighborhood, Low Latino Concentration profile. Youth residing in neighborhoods with greater socioeconomic resources are more likely to establish friendships with individuals with greater educational expectations, which often translate into greater educational expectations themselves (Israel & Beaulieu, 2004; Stockard & Mayberry, 1992). The Neighborhood Advantage, Low Latino Concentration profile and the Mixed Neighborhood, Low Latino Concentration profile both had neighborhood socioeconomic advantage compared to the Neighborhood Disadvantage, Low Latino Concentration profile; however, no significant differences emerged in educational expectations. Youth in the Neighborhood Advantage, Low Latino Concentration profile and the Mixed Neighborhood, Low Latino Concentration profile may be less likely to form these influential friendships discussed above due to similar experiences of discrimination from their teachers and peers may result in similarly low educational expectations across the three profiles.

In terms of postsecondary enrollment, the Neighborhood Advantage, Low Latino Concentration profile had significantly lower levels compared to both the Neighborhood Disadvantage, Low Latino Concentration and Mixed Neighborhood, Low Latino Concentration profiles. Youth residing in neighborhoods with greater socioeconomic resources are more likely to enroll in postsecondary education (Coley & Baker, 2013).

96

Since the Neighborhood Advantage, Low Latino Concentration profile had neighborhood socioeconomic advantage compared to both the Neighborhood Disadvantage, Low Latino Concentration and Mixed Neighborhood, Low Latino Concentration profiles, this was unexpected. Although youth in the Neighborhood Advantage, Low Latino Concentration profile scored similarly on discrimination from teachers and peers and English proficiency as youth in both the Neighborhood Disadvantage, Low Latino Concentration and Mixed Neighborhood, Low Latino Concentration profiles, it may be the interrelation with neighborhood advantage that explains the difference in postsecondary enrollment. For instance, youth who were proficient in English, which is suggestive to greater adherence to mainstream culture and less likelihood to experience discrimination (Stephens et al., 2012), may feel more negatively about school when unanticipated discrimination from teachers and peers occurs compared to youth less proficient in English. Further compounding, Latinos are more likely to experience discrimination from teachers and peers in predominately poor schools (Benner & Graham, 2011; Jost et al., 2009: Rosenbloom &Way, 2004), so youth attending schools in more socioeconomically advantaged neighborhoods may feel even more negatively about school when unanticipated discrimination from teachers and peers occurs. Ethnic discrimination is associated with a lower likelihood of enrolling in postsecondary education (Hurtado & Ponjuan, 2005; Smedley, Myers, & Harrell, 1993; Smith & Wolf-Wendel, 2005). Experiences of discrimination from teachers and peers could mean that youth in the Neighborhood Advantage, Low Latino Concentration profile were not benefiting from attending schools in economically advantaged neighborhoods. This may partially explain fewer enrollments in postsecondary education by youth in the Neighborhood Advantage,

97

Low Latino Concentration profile compared to the Mixed Neighborhood, Low Latino Concentration profile.

The Neighborhood Advantage, Low Latino Concentration profile was reflective of a counteractive profile. Due to the association with poor educational outcomes, it would seem the present protective factors did not buffer the risk factors. Overall, the benefits of attending schools in economically advantaged neighborhoods and being proficient in English did not compensate for moderate discrimination from teachers and peers.

Finally, the Neighborhood Advantage, Majority Latino Concentration profile had significantly lower academic achievement compared to the Neighborhood Disadvantage, Low Latino Concentration profile, but not the Mixed Neighborhood, Low Latino Concentration profile. In terms of educational expectations and postsecondary enrollment, the Neighborhood Advantage, Majority Latino Concentration profile had significantly lower levels compared to both the Neighborhood Disadvantage, Low Latino Concentration and Mixed Neighborhood, Low Latino Concentration profiles. These findings did not align with study expectations. Interestingly, this was one of the few comparisons among profiles, in which Latino Concentration was the key difference, setting the Neighborhood Advantage, Majority Latino Concentration profile apart from the Neighborhood Disadvantage, Low Latino Concentration and the Mixed Neighborhood, Low Latino Concentration profiles. Due to the association between the Neighborhood Advantage, Majority Latino Concentration profile and poor educational outcomes, it would seem the present protective factors were not associated with more positive outcomes for youth. One possible explanation is that there were unmeasured risk

factors (i.e., school violence, unfair discipline policies, large class sizes and/or poor instruction by teachers). Future research should continue to disentangle the influence of Latino Concentration on youths' educational outcomes by continuing to address other risk and protective factors within the sociocultural environment of schools.

Overall, our findings suggest not all counteractive profiles are the same and/or result in the same associations with youths' educational outcomes. Some predictors may or may not be able to buffer the effect of another predictor; therefore, it is in the interrelations among predictors that resilience can be best understood. Moreover, these findings require future work to continue to use person-centered approaches to identify profiles *and* statistically predict out to distal outcomes. Often times, previous research will identify profiles than speculate associations with outcomes based on the profile's label (i.e., risk, counteractive, and direct-protective). If this process was utilized, our speculations could have been incorrect. Lastly, our findings suggest the complexity of the school context on youths' educational outcomes. It is possible that to continue to untangle the differences between these profiles and their associations with youths' educational outcomes that additional predictors and outcomes need to be examined. Nonetheless, this work lays the foundation for future researchers to build upon, in order to better account for the entire sociocultural context when examining Mexican-origin youths' educational outcomes by using more person-centered approaches.

Strengths, Limitations, and Future Directions

This study's strengths included the ethnic-homogenous, person-oriented, and multidimensional design. Chief among these strengths is the prospective exploration of the school context on Mexican-origin youths' educational outcomes, a population whose

99

strengths are vastly understudied (Umaña-Taylor, 2009). This study included multiple

dimensions of the school context to capture the complex nature of associations between

the school context and youths' educational outcomes. Much of the previous research has

examined only negative or positive dimensions of the school context and youths'

educational outcomes, but few have included both (Cardoso & Thompson, 2010).

Moreover, the use of a longitudinal person-oriented analytic strategy has the advantage of

providing specific information about the potential differences in the school context for

population subgroups. LPA is an excellent tool for extracting patterns that exemplify

variability within a group and move beyond single-variable conceptualizations of the

associations between the school context and youths' educational outcomes.

Despite the contributions, there are important limitations to consider. First, this

study does not imply causal relations between culturally relevant school protective and

risk predictors and Mexican-origin youths' educational outcomes. Second, data were

collected using three methods: self-reported data using survey methods, data from state-

level agencies, and census data. Future studies should consider incorporating data from

other important sources, such as teachers and peers, who can offer a more complete

understanding of the school context that Mexican-origin experience. Third, caution must

be exercised when generalizing study findings to youth from other ethnic-racial groups.

This study focused on a specific Mexican-origin population in the U.S. Southwest.

Replications of the findings should include Mexican-origin populations from different

geographic locations or with different developmental time periods to foster the

generalization of findings to other subgroups of this population. Lastly, the nature of the

sample was such that 48% of youth were born in Mexico. Due to the significant

differences between U.S.-born and Mexico-born youth, it was not possible to disentangle effects of nativity. It will be important for future work to pay attention to how nativity may relate to the associations between the school context and youths' educational outcomes.

Conclusion

The current study provided compelling evidence that culturally relevant school risk and protective factors have important implications for Mexican-origin youths' academic achievement, educational expectations, and postsecondary enrollment. The fact that each profile showed differences in culturally relevant risk and protective factors illustrates the substantial variability within the school context for Mexican-origin youth. As such, these findings highlight the need for increasingly sophisticated scholarship for Latino youth that emphasizes the importance of identifying culturally relevant factors that promote academic success and culturally relevant factors that place these youth at increased risk for poor educational outcomes by using innovative analytic approaches. Such findings will help illustrate the association between the school context and Mexican-origin youths' educational outcomes. Striving to better understand youths' educational experiences in the U.S. is crucial due to their high composition within society and overrepresentation in disadvantaged settings, in combination with low rates of baccalaureate degree attainment.

Overall Conclusion

Understanding how culturally relevant risk and protective factors relate to youths' educational outcomes is necessary for developing successful intervention programs and policies to improve the educational adjustment of at-risk populations, such as Mexican-origin youth. Drawing from two theoretical frameworks (i.e., resilience and person-centered), my dissertation focused on salient ecological contexts (i.e., families and schools) as related to Mexican-origin youths' academic achievement, educational expectations and postsecondary enrollment. These studies add to the current literature by providing examples of innovative methodological tools and ethnic-homogenous designs to increase our understanding of how identified profiles may be associated with greater academic achievement, higher educational expectations and more enrollments in postsecondary education for Mexican-origin youth (Gándara, 2010; Umaña-Taylor, 2009).

For example, both studies used a person-centered analytic strategy (i.e., LPA) to identify profiles of Mexican-origin youth using culturally relevant risk and protective predictors and determined how these profiles were associated with educational outcomes. In addition, given the growth of the Latino population in the U.S. and that Mexicans make up the largest subgroup of this population (Motel & Patten, 2012), it is crucial to investigate the variability within this population by using an ethnic-homogeneous design. By focusing only on Mexican-origin youth, I was able to accentuate the variability that exists within this growing U.S. population. In Study 1, my findings revealed three different profiles within the context of families and in Study 2, my findings revealed five different profiles within the context of schools. It was possible to see the variability that

exists within the population of Mexican-origin youth. This variability may provide the necessary insight into developing intervention programs and policies to improve the educational adjustment of Mexican-origin youth.

Results suggest that different experiences within different sociocultural contexts —individual, family and school — have different relations to Mexican-origin youths' educational outcomes. It is within these lived experiences that administrators, teachers, researchers, and parents may better understand what interrelations put youth at a disadvantage in their educational outcomes as well as what interrelations promote resiliency in educational outcomes. A more holistic understanding of youths' experiences may lead to greater intervention and prevention efforts, such that this information can be used to develop early education programs to assist all youth, but particularly at-risk youth. Moreover, the continued utilization of culturally-informed, strengths-based approaches in future work will continue to alter the definition of "at-risk" to be more inclusive of youths' lived experiences rather than one score on one risk factor that has been deemed influential for youths' educational outcomes through variable-oriented approaches. Yet, it will be in the continuing efforts of both person-oriented and variable-oriented approaches that promote educational adjustment among all.

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Table 1

Descriptive Statistics for Culturally Relevant Family Risk and Protective Factors (N = 246)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Mothers' Involvement at Home[a]	-													
2. Fathers' Involvement at Home[a]	0.42**	-												
3. Mothers' Involvement in School[a]	0.07	-0.04	-											
4. Fathers' Involvement in School[a]	0.15*	0.25**††	0.13*	-										
5. Mothers' Educational Aspirations[a]	0.06	-0.06	-0.01	0.07	-									
6. Fathers' Educational Aspirations[a]	0.07	0.01	0.10	0.07	0.42**	-								
7. Family Economic Hardship[a]	0.01	-0.01	-0.03	0.04	-0.07	-0.16*	-							
8. Parents' Education[a]	-0.02	0.03	0.07	0.03	0.25**	0.31**	-0.43	-						
9. English Proficiency[a]	-0.02	-0.03	0.10	0.04	0.01	0.02	-0.06	-0.11†	-					
10. Familism Support[a]	0.09	0.11††	-0.03	0.14*	0.18**	0.09	0.17**	0.14*	0.06	-				
11. Familism Obligations[a]	0.12†	0.14*	0.01	0.07	0.12†	0.10	-0.12†	0.08	0.12†	0.71**	-			
12. GPA[b]	-0.04	0.08	0.06	0.05	0.17**	0.27**	-0.26**	0.08	0.15	0.10	-0.01	-		
13. Educational Expectations[b]	0.11	-0.01	0.14†	0.17**	0.14**	0.20**	-0.25**	0.21**	0.01	0.04	-0.04	0.34**	-	
14. PSE Enrollment[c]	-0.03	0.07	0.06	0.09**	0.20**	0.30**	-0.40**	0.39**	-0.04	0.06	-0.01	0.26**	0.52**	-
Means	2.73	2.54	2.53	2.25	16.73	16.65	0.00	10.10	4.00	4.39	2.25	2.92	15.45	12.91
(SD)	(0.59)	(0.65)	(0.58)	(0.60)	(1.87)	(1.89)	(2.27)	(3.68)	(0.49)	(0.58)	(0.59)	(0.68)	(2.22)	(1.44)

Note: PSE = Postsecondary Education. [a] = Time 1; [b] = Time 2; [c] = Time 3. All correlation coefficients are Pearson Correlation Coefficients.
† p < .10. * p < .05. ** p < .01.

130

Table 2

Model Fit Statistics for Identifying the Best Profile Solution

	2-Profile Solution	3-Profile Solution	4-Profile Solution
Log-likelihood	-3968.73	**-3796.44**	-3742.01
AIC	7987.46	**7666.87**	7582.03
BIC	8075.09	**7796.57**	7753.79
ABIC	7995.84	**7679.28**	7598.46
LMRT	1015.01 **	**344.58** **	108.85
ALRT	999.88 **	**339.45** **	107.22
BLRT	1015.01 **	**344.58** **	108.85 **
Entropy	0.91	**0.93**	0.86

Note. AIC = Akaike Information Criterion, BIC = Bayesian Information Criterion, ABIC = Sample-Size-Adjusted Bayesian Information Criterion, LMRT = Lo-Mendell-Rubin Likelihood Ratio Test for K versus K - 1 classes, ALRT = Adjusted Lo-Mendell-Rubin Likelihood Ratio Test for K versus K - 1 classes, BLRT = Bootstrap Likelihood Ratio Test for K versus K - 1 classes. The profile solution with the bolded estimates indicates it was the best fitting profile solution. †p < .10. *p < .05. **p < .01.

Table 3

Average Latent Class Probabilities for the Three Profile Solution Indicating Probability

of Belonging to a Profile (Row) By Profile Membership (Column)

	Profile 1	Profile 2	Profile 3
Profile 1	0.97	0.03	0.00
Profile 2	0.02	0.97	0.01
Profile 3	0.02	0.00	0.98

Note. Estimates in the diagonal indicate the likelihood of being correctly classified within each profile and the off diagonal estimates indicate the probability of being misclassified into each profile (rows) by profile membership (columns).

Table 4

Unstandardized Estimated Means and Standard Deviations for the Three Profile Solution

of Culturally Relevant Risk and Protective Factors

	Profile 1 High SES (*n*=124 / 50%)	Profile 2 Low Education, Moderate Hardship (*n*=91 / 37%)	Profile 3 Low SES (*n*=31 / 13%)
	M (SD)	*M (SD)*	*M (SD)*
Mothers' Involvement at Home	2.71 (0.02)	2.72 (0.02)	2.80 (0.02)
Fathers' Involvement at Home	2.52 (0.02)	2.58 (0.02)	2.52 (0.02)
Mothers' Involvement in School	2.55 (0.02)	2.52 (0.02)	2.48 (0.02)
Fathers' Involvement in School	2.23 (0.02)	2.24 (0.02)	2.30 (0.02)
Mothers' Educational Aspirations	16.96 (0.40)	16.36 (0.40)	16.88 (0.40)
Fathers' Educational Aspirations	16.96 (0.40)	16.39 (0.40)	16.23 (0.40)
Parents' Economic Hardship	-1.82 (0.02)	1.00 (0.02)	4.22 (0.02)
Parents' Education	11.92 (0.40)	8.36 (0.40)	8.06 (0.40)
Familism: Support	4.51 (0.02)	4.25 (0.02)	4.35 (0.02)
Familism: Obligation	4.32 (0.02)	4.17 (0.02)	4.23 (0.02)
English Proficiency	4.03 (0.02)	4.02 (0.02)	3.87 (0.02)

Note. Profile 1 was a direct-protective profile. Profile 2 and Profile 3 were counteractive profiles. Parents' Educational Aspirations and Parents' Education were constrained to be equal. All other variables were constrained to be equal with one another.

Table 5

Standardized Estimated Means and Standard Errors for the Three Profile Solution of

Culturally Relevant Risk and Protective Factors

	Profile 1 High SES (*n*=124 / 50%)	Profile 2 Low Education, Moderate Hardship (*n*=91 / 37%)	Profile 3 Low SES (*n*=31 / 13%)
	M (SE)	*M (SE)*	*M (SE)*
Mothers' Involvement at Home	4.28 (0.12)	4.28 (0.15)	4.41 (0.20)
Fathers' Involvement at Home	3.98 (0.13)	4.06 (0.14)	3.96 (0.22)
Mothers' Involvement in School	4.02 (0.12)	3.98 (0.15)	3.91 (0.20)
Fathers' Involvement in School	3.52 (0.10)	3.53 (0.14)	3.62 (0.22)
Mothers' Educational Aspirations	7.13 (0.26)	6.88 (0.24)	7.10 (0.29)
Fathers' Educational Aspirations	7.13 (0.26)	6.89 (0.24)	6.82 (0.26)
Parents' Economic Hardship	-2.86 (0.20)	1.56 (0.26)	6.63 (0.43)
Parents' Education	5.02 (0.23)	3.50 (0.21)	3.40 (0.36)
Familism: Support	7.10 (0.18)	6.69 (0.23)	6.85 (0.24)
Familism: Obligation	6.81 (0.18)	6.57 (0.23)	6.67 (0.21)
English Proficiency	6.34 (0.15)	6.33 (0.17)	6.10 (0.25)

Table 6

Estimated Descriptives for School Profiles Based on Gender and Nativity

	Profile 1 High SES (*n*=124 / 50%)		Profile 2 Low Education, Moderate Hardship (*n*=91 / 37%)		Profile 3 Low SES (*n*=31 / 13%)	
	n	*%*	*n*	*%*	*n*	*%*
Female	64	52%	49	53%	13	42%
Male	59	48%	43	47%	18	58%
U.S.	90	73%	48	52%	16	52%
Mexico	33	27%	44	48%	15	48%

Note. Gender (0 = female, 1 = male); Nativity (0 = U.S.-born, 1 = Mexico-born)

Table 7

Unstandardized Estimated Means and Standard Errors for the Three Profile Solution on Mexican-origin

Youths' Academic Achievement, Educational Expectations and Enrollment in Postsecondary Education

	Profile 1 High SES (n=124 / 50%)		Profile 2 Low Education, Moderate Hardship (n=91 / 37%)		Profile 3 Low SES (n=31 / 13%)	
	M	SE	M	SE	M	SE
Academic Achievement (T2)	3.01	0.26	2.80	0.15	2.55	0.07
Educational Expectations (T2)	15.96[ab]	0.55	14.95[a]	0.28	14.01[b]	0.22
Educational Attainment at Age 20 (T3)	13.43[ab]	0.23	12.35[a]	0.14	11.94[b]	0.15

Note. T2 = Time 2; T3 = Time 3. Means within the same row that share a subscript differ at the $p < .05$ level.

136

Table 8

Descriptive Statistics for Individual, School and Cultural Risk and Protective Factors (N =246)

Variable	1	2	3	4	5	6	7	8
1. Socioeconomic Composition[a]	-							
2. Latino Concentration[a]	-0.52**	-						
3. Discrimination from Teachers[a]	-0.18**	0.10†	-					
4. Discrimination from Peers[a]	-0.10†	-0.09	0.37**	-				
5. English Proficiency[a]	-0.01	0.04	0.05	0.04	-			
6. GPA[b]	0.32**	-0.13*	-0.15*	0.05	0.18**	-		
7. Educational Expectations[b]	0.27**	-0.24**	-0.15*	-0.01	0.04	0.34**	-	
8. PSE Enrollment[c]	0.39**	-0.18**	-0.07	-0.08	-0.01	0.29**	0.51**	-
Means	45.18	37.77	1.50	2.21	4.00	2.92	15.45	12.91
(SD)	(21.21)	(22.02)	(0.58)	(0.74)	(0.49)	(0.68)	(2.22)	(1.44)

Note: PSE = Postsecondary Education. [a] = Time 1; [b] = Time 2; [c] = Time 3. All correlation coefficients are Pearson Correlation Coefficient.
†p < .10. *p < .05. **p < .01.

137

Table 9

Model Fit Statistics for Identifying the Best Profile Solution

	2-Profile Solution	3-Profile Solution	4-Profile Solution	5-Profile Solution	6-Profile Solution
Log-likelihood	-4561.36	-4283.16	-4194.00	**-4114.34**	-4034.45
AIC	9146.73	8602.33	8435.99	**8288.68**	8140.89
BIC	9188.79	8665.42	8520.12	**8393.84**	8267.08
ABIC	9150.75	8608.36	8444.04	**6106.56**	8152.97
LMRT	682.05**	556.40**	178.33*	**159.31†**	159.79*
ALRT	662.01**	540.05**	173.09*	**154.63†**	155.10*
BLRT	682.05**	556.40**	178.33**	**159.31****	159.79**
Entropy	0.95	0.96	0.96	**0.94**	0.95

Note. AIC = Akaike Information Criterion, BIC = Bayesian Information Criterion, ABIC = Sample-Size-Adjusted Bayesian Information Criterion, LMRT = Lo-Mendell-Rubin Likelihood Ratio Test for K versus K - 1 classes, ALRT = Adjusted Lo-Mendell-Rubin Likelihood Ratio Test for K versus K - 1 classes, BLRT = Bootstrap Likelihood Ratio Test for K versus K - 1 classes. The profile solution with the bolded estimates indicates it was the best fitting profile solution. †p < .10. *p < .05. **p < .01.

Table 10

Average Latent Class Probabilities for the Five Profile Solution Indicating Probability of

Belonging to a Profile (Row) By Profile Membership (Column)

	Profile 1	Profile 2	Profile 3	Profile 4	Profile 5
Profile 1	0.91	0.01	0.05	0.00	0.03
Profile 2	0.00	1.00	0.00	0.00	0.00
Profile 3	0.02	0.00	0.98	0.00	0.00
Profile 4	0.00	0.00	0.00	0.96	0.04
Profile 5	0.00	0.00	0.00	0.05	0.95

Note. Estimates in the diagonal indicate the likelihood of being correctly classified within each profile and the off diagonal estimates indicate the probability of being misclassified into each profile (rows) by profile membership (columns).

Table 11

Unstandardized Estimated Means and Standard Deviations for the Five Profile Solution of Culturally Relevant School Risk and

Protective Factors

	Profile 1 Neighborhood Advantage, Mixed Ethnic Composition (n=88 / 36%)	Profile 2 Mixed Neighborhood, Low Latino Concentration (n=53 / 22%)	Profile 3 Neighborhood Advantage, Majority Latino Concentration (n=40 / 16%)	Profile 4 Neighborhood Disadvantage, Low Latino Concentration (n=39 / 16%)	Profile 5 Neighborhood Advantage, Low Latino Concentration (n=26 / 11%)
	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*
Socioeconomic Composition	31.72 (1.95)	59.95 (1.95)	32.22 (1.95)	79.63 (1.95)	27.32 (1.95)
Latino Concentration	42.87 (1.95)	21.13 (1.95)	76.57 (1.95)	16.85 (1.95)	19.31 (1.95)
Discrimination-Teachers	1.62 (1.95)	1.48 (1.95)	1.51 (1.95)	1.27 (1.95)	1.50 (1.95)
Discrimination-Peers	2.38 (1.95)	2.30 (1.95)	1.92 (1.95)	2.00 (1.95)	2.26 (1.95)
English Proficiency	4.00 (1.95)	4.00 (1.95)	4.08 (1.95)	3.98 (1.95)	3.95 (1.95)

Note. All profiles were counteractive. Socioeconomic Composition and Latino Concentration were constrained to be equal. Discrimination from teachers and peers and English proficiency were constrained to be equal.

140

Table 12

Standardized Estimated Means and Standard Errors for the Five Profile Solution of Culturally Relevant School Risk and

Protective Factors

	Profile 1 Neighborhood Advantage, Mixed Ethnic Composition (n=88 / 36%)	Profile 2 Mixed Neighborhood, Low Latino Concentration (n=53 / 22%)	Profile 3 Neighborhood Advantage, Majority Latino Concentration (n=40 / 16%)	Profile 4 Neighborhood Disadvantage, Low Latino Concentration (n=39 / 16%)	Profile 5 Neighborhood Advantage, Low Latino Concentration (n=26 / 11%)
	M (SE)	*M (SE)*	*M (SE)*	*M (SE)*	*M (SE)*
Socioeconomic Composition	5.98 (0.33)	11.30 (0.55)	6.07 (2.18)	15.01 (0.64)	5.15 (0.56)
Latino Concentration	8.08 (0.32)	3.98 (0.38)	14.43 (0.50)	3.18 (0.43)	3.64 (0.43)
Discrimination-Teachers	0.31 (0.02)	0.28 (0.02)	0.29 (0.02)	0.24 (0.01)	0.28 (0.02)
Discrimination-Peers	0.45 (0.02)	0.43 (0.03)	0.36 (0.02)	0.38 (0.03)	0.43 (0.03)
English Proficiency	0.75 (0.03)	0.75 (0.03)	0.77 (0.03)	0.75 (0.03)	0.74 (0.03)

141

Table 13

Estimated Descriptives for School Profiles Based on Gender and Nativity

	Profile 1 Neighborhood Advantage, Mixed Ethnic Composition (n=88 / 36%)		Profile 2 Mixed Neighborhood, Low Latino Concentration (n=53 / 22%)		Profile 3 Neighborhood Advantage, Majority Latino Concentration (n=40 / 16%)		Profile 4 Neighborhood Disadvantage, Low Latino Concentration (n=39 / 16%)		Profile 5 Neighborhood Advantage, Low Latino Concentration (n=26 / 11%)	
	n	%	n	%	n	%	n	%	n	%
Female	41	55%	26	49%	22	55%	24	61%	12	46%
Male	47	45%	27	51%	18	45%	15	39%	14	54%
U.S.	43	49%	41	77%	20	50%	34	87%	15	58%
Mexico	45	51%	12	23%	20	50%	5	13%	11	42%

Note. Gender (0 = female, 1 = male); Nativity (0 = U.S.-born, 1 = Mexico-born).

Table 14

Unstandardized Estimated Means and Standard Errors for the Five Profile Solution on Mexican-origin Youths' Academic

Achievement, Educational Expectations and Enrollment in Postsecondary Education

	Profile 1 Neighborhood Advantage, Mixed Ethnic Composition (n=88 / 36%)	Profile 2 Mixed Neighborhood, Low Latino Concentration (n=53 / 22%)	Profile 3 Neighborhood Advantage, Majority Latino Concentration (n=40 / 16%)	Profile 4 Neighborhood Disadvantage, Low Latino Concentration (n=39 / 16%)	Profile 5 Neighborhood Advantage, Low Latino Concentration (n=26 / 11%)
	M (SE)	M (SE)	M (SE)	M (SE)	M (SE)
GPA[a]	2.80 (0.10)[a]	2.99 (0.15)	2.75 (0.17)[b]	3.21 (0.14)[abc]	2.70 (0.22)[c]
Expectations[a]	14.87 (0.32)[ac]	15.93 (0.37)[ab]	14.76 (0.33)[bd]	16.46 (0.33)[cd]	15.82 (0.54)
Attainment at Age 20[b]	12.46 (0.17)[ab]	13.25 (0.24)[acde]	12.50 (0.18)[cf]	14.00 (0.24)[bdfg]	12.26 (0.31)[eg]

Note. [a] = Time 2; [b] = Time 3. Means within the same row that share a subscript differ at the *p* <.05 level.

143
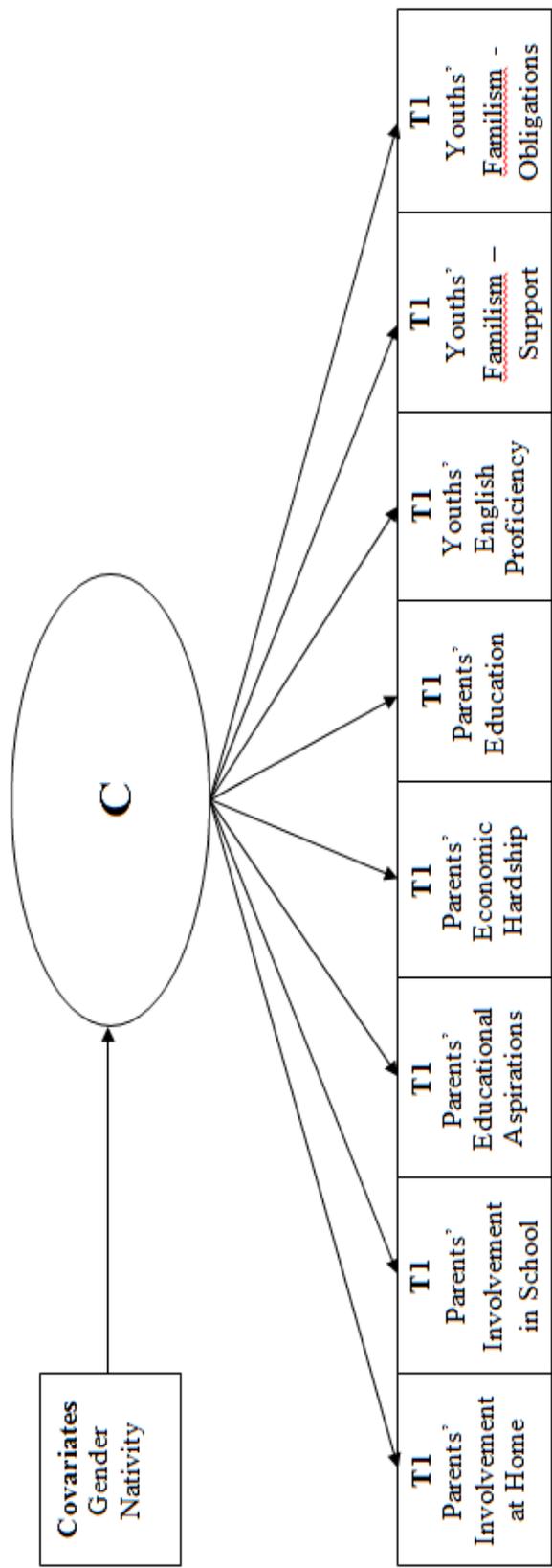
Figure 1. Proposed model of family profiles based on culturally relevant risk and protective factors. Covariates were gender and nativity. Note. T1 = Time 1; C = Class Membership
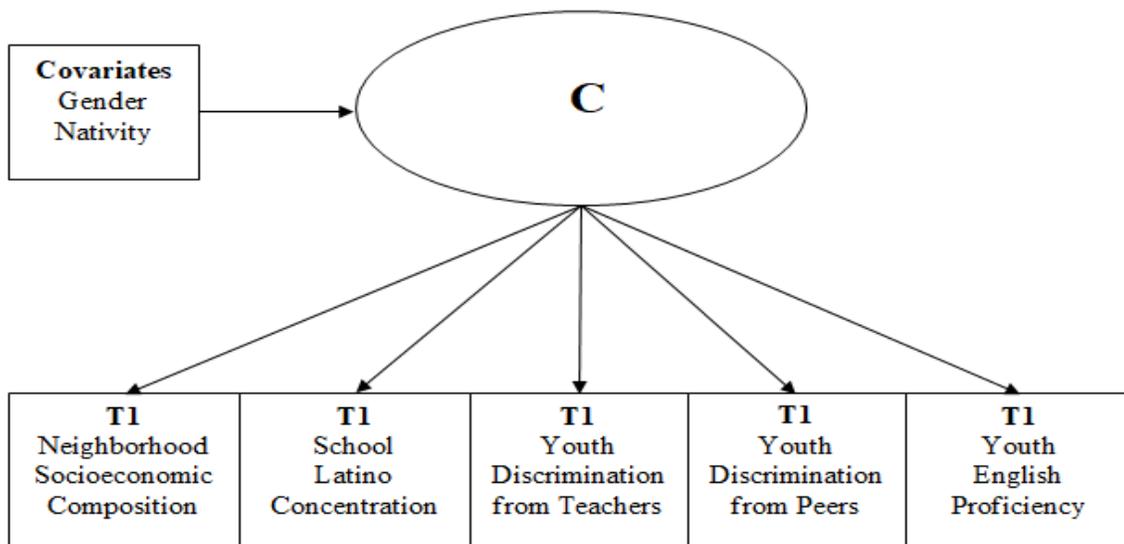
Figure 2. Proposed model of family profiles based on culturally relevant risk and protective factors. Covariates were gender and nativity. Note. T1 = Time 1; C = Class Membership.