

Examining Neighborhood, Maternal, and Cultural Influences on
Mexican-origin Adolescent Mothers' Educational Outcomes

by

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ABSTRACT

Mexican-origin adolescent females have the highest birthrate of all other ethnic groups in the U.S. Further, teen mothers are at significant risk for poor outcomes, including low educational attainment. Therefore, examining predictors of Mexican-origin teen mothers' educational attainment was the main goal of the current study. Future-oriented beliefs such as educational aspirations and expectations are suggested to have positive implications for adolescents' educational attainment in general. Therefore, guided by bioecological, social capital, status attainment, social learning, and collective socialization of neighborhood theories, the current study examined neighborhood, maternal, and cultural predictors of 190 Mexican-origin parenting adolescents' educational aspirations, expectations, and attainment. With respect to maternal predictors, the study examined mother figures' (i.e., grandmothers') educational attainment, and aspirations and expectations for the adolescent as predictors of adolescents' educational attainment. Using a multi-informant, longitudinal analytic model, results suggest that adolescents' educational expectations, rather than aspirations, significantly predicted adolescents' attainment one year later. Additionally, grandmothers' educational attainment was indirectly associated with adolescents' educational attainment via the educational expectations of both the grandmother and the adolescent. Further, the neighborhood context indirectly informed adolescents' educational attainment via both grandmothers and adolescents' educational expectations. Finally, adolescents' ethnic identity affirmation was significantly associated with adolescents' educational attainment two years later. Implications regarding the importance of educational expectations and

ethnic identity affirmation for at-risk parenting adolescents' educational attainment will be discussed.

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TABLE OF CONTENTS

	Page
Introduction	1
Proposed Study	15
Methods.....	17
Results.....	21
Discussion.....	27
LIST OF TABLES	v
LIST OF FIGURES	vi
REFERENCES.....	44

LIST OF TABLES

Table		Page
1.	Mediational Paths Tested in Hypothesized Model	59
2.	Means, Standard Deviations, and Correlations among Study Variables	60

LIST OF FIGURES

Figure		Page
1.	Conceptual Model to be Tested	61
2.	Final Path Model with Standardized Coefficients Presented	62
3.	Illustrations of Significant Mediated Paths	63

Introduction

During adolescence, youth begin thinking about plans for their future and about their educational and career goals as they face the transition to adulthood (Morgan, 1998). Educational aspirations and expectations are important concepts to examine among adolescents because previous studies suggest that individuals' educational aspirations and expectations are important predictors of educational and career outcomes, such as academic achievement (Sanders, Field, & Diego, 2001), and occupational attainment (Schoon & Polek, 2011). Scholars suggest that adolescents often adopt initial educational aspirations and expectations that may be unrealistic and ambiguous, but that through time these beliefs tend to become more realistic and specific to educational attainment (Kao & Tienda, 1998). Adolescence is a crucial developmental period to consider with respect to this topic, because it is marked by increases in cognitive maturity that enable individuals to think about multiple possibilities in terms of setting particular educational and occupational goals (Markus and Nurius, 1986).

Previous work suggests that ethnic minority high school students often report educational aspirations and expectations that decrease over time (Kao & Tienda, 1998; Morgan, 1998; Trusty & Colvin Harris, 1999; Trusty, 2000). Because adolescents' educational aspirations and expectations are related to educational attainment (Beal & Crockett, 2010), and minority youth may be at risk for decreasing aspirations and expectations over time (Kao & Tienda, 1998), it is important to study the factors that would predict educational aspirations and expectations among ethnic minority adolescents (Beal and Crockett, 2010; Staff, Harris, Sabates, & Briddell, 2010). Accordingly, the current study is designed to test a model examining predictors of

educational aspirations and expectations among a sample of Mexican-origin adolescent mothers (see Figure 1).

On average, Latino adolescents experience significant barriers to higher educational attainment that can occur at neighborhood, family, and individual cultural levels. Such barriers for Latino adolescents may include: having limited access to resources in their communities (Ryabov & Van Hook, 2007), low social support from school and at home (DeGarmo & Martinez, 2006), and individual cultural experiences that are stressful, such as having negative feelings about their ethnic group (Rivas-Drake, 2011) and facing discrimination (Benner & Graham, 2011). Further, Latinos are at significant risk for high school dropout (Martyn Reifsnider, Barry, Treviño, & Murray, 2006) and teenage pregnancy (Dehlendorf, Marchi, Vittinghoff, & Braveman, 2010), often leading to low educational attainment and limited social mobility (Roche, Ghazarian, & Fernandez-Esquer, 2012). Indeed, only 55% of Latino students actually obtain a high school diploma (Mather & Foxen, 2010) and Latinos experience the highest high school dropout rate compared to all other ethnic groups in the U.S. (Aud, Fox, and KewalRamani, 2010). Thus, Latino adolescents present a high-risk population with regard to educational attainment.

More specifically, Latina adolescents are at significant risk for dropping out of high school and are less likely to obtain a 4-year degree compared to their female ethnic minority counterparts (Ginorio & Huston, 2001). Further, Latinas are at particular risk for teenage pregnancy, with Mexican-origin adolescent females having the highest birth rate compared to all other ethnic groups (93.4 per 1,000 aged 15-19 years) in the U.S. (National Vital Statistics Report, 2007). Being at higher risk for teenage pregnancy than

any other ethnic group, Mexican-origin adolescents' educational outcomes become even more dismal when they become mothers at an early age.

In fact, being an adolescent mother is often associated with poor outcomes (Ginorio & Huston, 2001; National Vital Statistics Report, 2007), such as having lower educational expectations over time (Benner & Mistry, 2007; Kalil, 2002). During adolescence, the responsibilities and stress associated with early motherhood place substantial barriers that may undermine high educational aspirations and/or expectations that adolescent mothers might have (SmithBattle, 2006). Indeed, research has demonstrated that Latina adolescent mothers experience poor academic outcomes, making them subject to significant economic and social disadvantage (SmithBattle, 2007). Given their high-risk status, the current study will focus on Mexican-origin adolescent mothers.

Although previous studies have examined educational outcomes among panethnic Latino adolescent populations, it is important that research focus on specific Latino ethnic populations, as there is considerable variability within the Latino population with respect to educational outcomes. For example, Bohon, Kirkpatrick Johnson, and Gorman (2006) examined the college aspirations and expectations of Cuban, Puerto Rican, and Mexican-origin non-pregnant adolescents and found that Mexican-origin adolescents had the weakest aspirations compared to all other Latino groups. Due to such variability, it is imperative that research should examine factors that inform educational outcomes among specific Latino subgroups. Accordingly, the current study will focus specifically on the various predictors of educational aspirations and expectations, and subsequent attainment of Mexican-origin adolescent mothers.

Educational research suggests that educational aspirations and expectations are conceptually different, in that aspirations are characterized as goals that do not take into account the various costs and benefits associated with achieving the goal (Hellenga, Aber, & Rhodes, 2002). Compared with expectations, educational aspirations are suggested to be less specific goals and more of a reflection of an individuals' recognition of the overall value of educational attainment (Bohon, Johnson, & Gorman, 2006). Thus, the conceptual distinctions between aspirations and expectations are suggested to differentially inform adolescents' educational attainment, although there are mixed findings (Beal & Crockett, 2010). Educational expectations, in contrast to aspirations, are defined as how much education an individual believes he or she will actually complete. Researchers suggest that, unlike aspirations, expectations reflect a goal that an individual has developed as a result of an assessment of the costs and benefits related to achieving that goal (Morgan, 1998). Recent work has noted that ethnic minority adolescent mothers experience a significant gap between aspirations and expectations, perhaps due to various barriers associated with ethnic minority status and teenage parenting, such as low access to role models and educational resources in their neighborhoods and families, in that their educational aspirations are often higher than their expectations (Barr & Simons, 2012; Hellenga, Aber, & Rhodes, 2002). Further, the current literature presents mixed findings as to whether educational aspirations or expectations predict actual attainment, raising the question as to what types of future oriented cognitions lead to educational outcomes (Beal & Crockett, 2010). Given that adolescent mothers are more likely to assess their educational attainment goals in the context of assessing the various challenges associated with first-time parenthood

(SmithBattle 2006), it is important to describe their expectations and aspirations, and to examine potential predictors of these.

Mexican-origin adolescent mothers are an important population on which to focus for many reasons. First, individuals of Mexican-origin currently comprise 63% (approximately 31 million) of the Latino population in the United States, and 69% of Latino students enrolled in public schools are of Mexican-origin (Ennis, Vargas, & Albert, 2011; Fry & Gonzalez, 2008). Second, Mexican-origin adolescent females have the highest birthrate (93.4 per 1,000 aged 15-19 years) of all ethnic groups in the U.S. (National Vital Statistics Report, 2007). Third, findings suggest that Mexican-origin youth experience higher high school dropout rates and lower rates of college enrollment than all other ethnic groups, making this specific population at particular risk for poor educational outcomes (Aud, Fox, & KewalRamani, 2010). Despite their significant representation in both the general population and public school enrollment, we know very little about what predicts educational outcomes among Mexican-origin adolescents, in general, and even less about the educational experiences of those who are adolescent mothers. In sum, these demographic trends, coupled with prior findings that have identified numerous risk factors among adolescent mothers (Fletcher & Wolfe, 2009) make this a particularly important focus of research. As such, the current study is designed to (a) describe Mexican-origin adolescent mothers' educational aspirations and expectations, and (b) examine maternal, cultural, and neighborhood predictors of adolescents mothers' educational aspirations, expectations, and in turn, attainment (see Figure 1).

Bioecological Theory

Adolescents set goals for their educational and occupational futures that are often influenced by the environments with which they most often interact. These influences can include more proximal components of their environment such as family contexts, more distal influences such as the neighborhood context, as well as the indirect impacts that neighborhoods may have on educational outcomes through adolescents' family contexts. The bioecological framework (Bronfenbrenner & Morris, 2006) is a useful theoretical framework to help us understand how adolescents' development is embedded in various contexts that inform their eventual educational outcomes.

With bioecological theory in mind, adolescents' development is informed by microsystems, or contexts with which adolescents are more likely to have proximal contact, such as families and neighborhoods. Furthermore, the multiple contexts within individuals' mesosystems inform one another and, in turn, are linked to adolescents' educational outcomes. For instance, characteristics of the neighborhood can influence the family context with respect to the expectations that mothers have for their adolescent daughters regarding educational achievement. It is therefore hypothesized that neighborhood characteristics will be associated with mothers' educational aspirations and expectations for the adolescent, which in turn will be related to adolescents' own aspirations and expectations. Furthermore, an individual's cultural context can also inform adolescents' educational outcomes. More specifically, adolescents' cultural experiences, such as acculturative stress and ethnic identity affirmation that represent individual characteristics are also expected to be associated with adolescents' educational attainment. Thus, guided by Bronfenbrenner's bioecological framework (Bronfenbrenner

& Morris, 2006), the proposed study will examine how neighborhood, maternal, and cultural factors inform Mexican-origin adolescent mothers' educational aspirations and expectations over time.

The Family Context: Maternal-Based Influences

Mothers play an important role in pregnant adolescents' lives, such that adolescents are dependent upon mothers for support during and after the transition to parenthood (Nadeem & Romo, 2008). In fact, adolescent mothers often live with their mothers and are likely to experience daily interactions and influences from them in terms of the educational level that they should complete (Brosh, Weigel, & Evans, 2007). Further, the influence of mothers is likely to be especially salient among Mexican-origin females due to the generally greater emphasis on the cultural value of familism (i.e., making important decisions based on one's family circumstances, having a high obligation to the family) among Mexican-origin individuals (Knight et al., 2011). Due to the importance placed on family in Mexican culture, Mexican-origin adolescents may highly regard their mothers' attitudes about completing higher education (Behnke, Piercy, & Diversi, 2004). Thus, the encouragement and beliefs that Mexican-origin adolescents receive from their mothers as a function of mothers' educational aspirations and expectations for their daughters are expected to be related to adolescents' own beliefs and expectations regarding her ability to complete higher education.

In fact, social capital theory (Coleman, 1988) suggests that adolescents' educational outcomes are likely to be influenced by the social networks to which they are exposed on a frequent basis. As previously mentioned, because adolescents are more likely to have frequent interactions with their mothers and because of the salience of the

mother-daughter relationship in the lives of adolescent mothers, higher maternal educational aspirations and expectations for adolescents may predict adolescent mothers having higher educational aspirations and expectations for themselves, which would be positively associated with educational attainment. This may be due to mothers with high educational expectations investing more resources, such as time and effort, as well as gaining access to social networks that may facilitate adolescents' educational expectations, aspirations, and eventual attainment (Lin, 1999).

Indeed, in prior work, mothers' educational expectations positively predicted adolescent girls' educational expectations over time (Trusty, 2000). Further, mothers' educational expectations and academic support were positively associated with adolescents' educational expectations among ethnically diverse samples including or focused exclusively on Latino youth (Alfaro, Umaña-Taylor, & Bámaca, 2006; Benner & Mistry, 2007; Geckova, Tavel, van Dijk, Abel, & Reijneveld, 2010; Trusty, Plata, & Salazar, 2003). Given both conceptual and empirical findings noting the importance of maternal influences on educational outcomes, it is expected that greater maternal educational aspirations and expectations for adolescent daughters will be significantly and positively associated with adolescents' own educational aspirations and expectations over time.

In addition, status attainment theory suggests that parents influence their child's educational outcomes via socioeconomic status characteristics such as parents' educational attainment (Sewell, Haller, & Portes, 1969). Thus, parents' educational attainment as an indicator of socioeconomic status is likely to influence the educational aspirations and expectations that they have for the adolescent, which in turn will be

associated with the educational aspirations and expectations the adolescent has for herself. Hence, it is hypothesized that mothers' own educational attainment will be positively associated with the educational aspirations and expectations they have for their adolescent daughters, which will be positively associated with adolescents' expectations and aspirations and, in turn, adolescents' eventual educational attainment.

Culturally Informed Individual Characteristics

Acculturative Stress. Guided by bioecological theory (Bronfenbrenner & Morris, 2006), an individuals' cultural context is significant to consider when predicting individuals' outcomes. More specifically, adolescents' experiences with the broader cultural context are important to consider with respect to adolescents' educational attainment. A culturally informed experience that is particularly salient to Mexican-origin youth and hypothesized to inform their educational attainment is acculturative stress. Acculturative stress is characterized as stress that results from navigating between one's heritage culture and the mainstream U.S. culture (Umaña-Taylor & Alfaro, 2009). Acculturative stress arises from the experience of culturally specific stressors, such as feeling pressure to speak English in school and Spanish at home, or feeling pressure to follow the family's cultural customs while also experiencing pressure to follow mainstream U.S. customs (Umaña-Taylor & Alfaro, 2009). Given that the number of Latino adolescents in the U.S. who are immigrants themselves or have immigrant parents continues to increase (Fry & Passel, 2009), acculturative stress is a salient issue to consider for Mexican-origin adolescents' outcomes. Furthermore, because findings suggest that acculturative stress is linked to a host of negative health outcomes for Latino youth (Crockett et al., 2007), it is important to examine whether acculturative stress plays

a role in the educational outcomes of Mexican-origin adolescent mothers' educational outcomes. Indeed, findings from some early work indicated that acculturative stress was associated with poorer academic outcomes among Mexican-origin non-parenting adolescents (e.g., Alva, 1991; Alva & de los Reyes, 1999). Specifically, scholars suggest that acculturative stressors that adolescents experience could result in greater anxiety and lower sense of competency, which may result in poorer academic achievement (Alva & de los Reyes, 1999). Accordingly, the current study will consider acculturative stress as a potential risk factor for Mexican-origin adolescent mothers' educational outcomes, with the expectation that higher levels of acculturative stress will be associated with lower educational attainment. Importantly, the current study will extend prior research by examining this association among Mexican-origin adolescent mothers, who are at high risk for poor academic outcomes.

Ethnic Identity Affirmation. Acculturative stress may be a potential barrier for higher educational outcomes, but findings suggest that individuals' positive perceptions of their ethnic group may promote favorable educational outcomes (Rivas-Drake, 2011). During adolescence, one aspect of identity formation that is especially important for ethnic minority youth is ethnic identity (Umaña-Taylor, 2011). Ethnic identity includes one's positive or negative feelings about one's ethnic group (i.e., affirmation; Umaña-Taylor, Yazedjian, & Bámaca-Gomez, 2004). Findings suggest that ethnic identity affirmation is an important cultural resource for adolescents' academic outcomes that acts as a promotive factor for Latinos' academic outcomes (Fuligni, Witkow, & Garcia, 2005; Supple, Ghazarian, Frabutt, Plunkett, & Sands, 2006). Thus, in line with Bronfenbrenner's bioecological theory, adolescent's ethnic identity affirmation is an

important culturally informed, individual characteristic that may directly predict adolescents' outcomes (Umaña-Taylor, Gonzales-Backen, & Guimond, 2009).

Consistent with this prior work, the current study will examine ethnic identity affirmation as a promotive factor for Mexican-origin adolescent mothers' educational outcomes.

Specifically, it is hypothesized that adolescent mothers' ethnic identity affirmation will be positively and significantly associated with adolescents' educational attainment over time.

Neighborhood Level Influences on Educational Outcomes

A final context that is important to consider when studying Mexican-origin adolescent mothers' educational attainment is the neighborhood context. Specifically, the educational resources that are present in the neighborhoods where adolescents and their mothers reside may play an important role in informing adolescents' education-related experiences. Access to educational resources in an adolescents' environment can come in many forms. One of those forms is the social networks to which the adolescents' mother has access for educational support. Neighborhood influences are suggested to influence adolescents' educational attainment through much more proximal processes, such as allowing families within that neighborhood to provide educational resources to the adolescent (Eamon, 2005). The indirect effect of neighborhoods on adolescents' educational outcomes may result from their mothers having greater access to networks of people in their community that enable them to assist their daughters with school-related activities, such as seeking help on completing a school project, or obtaining resources on how to pursue higher education (Ainsworth, 2002; Leventhal & Brooks-Gunn, 2000). Further, social learning theory posits that individuals are drawn to and imitate role

models that may share similar background characteristics, such as gender (Bandura, 1969). In this same manner, adolescents often draw inspiration from others who share similar background characteristics, such as gender (Stanton-Salazar & Spina, 2003). Thus, the presence of college educated females within the adolescents' and mothers' neighborhood may be especially significant for Mexican-origin female adolescents' educational aspirations and expectations.

Although work that specifically focuses on how the *presence of college educated females* informs adolescents' educational attainment is non-existent, current work suggests that the presence of female role models in ethnic minority adolescents' lives do influence academic outcomes (Bryant & Zimmerman, 2003). Further, a higher presence of college-educated females in the neighborhood may also signify exposure to females who have careers that require college degrees (Wickrama, Simons, & Baltimore, 2012), potentially enhancing the educational aspirations and expectations of adolescent mothers. Indeed, some qualitative work indicated that female adolescents' career and education seeking behaviors were modeled after same-sex community members (Clampet-Lundquist, 2013). Furthermore, the collective socialization of neighborhoods model (Jencks & Mayer, 1990) posits that neighborhood characteristics suggest the presence of informal adult mentors present in the mothers' neighborhood, which can in turn influence mothers' beliefs about how much education the adolescent can attain. Under this framework, the presence of female college graduates in the mothers' neighborhood would influence mothers' educational expectations for the adolescent, due to the presence of potential college-educated female mentors. Thus, it is hypothesized adolescents and mothers' educational expectations and aspirations will be positively informed by the

percentage of college-educated females present in their neighborhoods. Further, this access to resources may result in mothers having a greater understanding of school practices and the higher education process, which can assist in making adolescents' higher educational goals a reality (Kim & Schneider, 2005; Sullivan, 2001).

Additionally, this greater understanding may result in mothers having higher aspirations and expectations for their daughters. Because average educational attainment of the neighborhood is one indicator of resources that inform adolescents' own educational attainment (Garner & Raudenbush, 1991), considering the female educational attainment of families' neighborhoods and how this informs mothers' educational aspirations and expectations will be another aim of the current study. The current study will focus specifically on examining whether the percentage of females who have at least a Bachelor's degree in the mothers' neighborhood will be positively associated with mothers' educational aspirations and expectations for the adolescent.

In addition, according to Krumboltz, Mitchell, and Jones' (1976) application of social learning theory to career selection, adolescents learn about their career aspirations through vicarious learning, such as exposure to relatable significant others that are found in adolescents' environments. Thus, in line with social capital theory (Coleman, 1988) and Krumboltz, Mitchell, and Jones' (1976) work, social resources and models such as college graduate females that are present within the adolescents' environment are likely to directly inform female adolescents' educational outcomes. Although studies focusing on neighborhood influences on parenting adolescents' educational outcomes are limited, current work examining non-parenting adolescents suggests that community influences are significant in allowing adolescents to gain access to educational knowledge in

neighborhoods within greater versus lower resourced neighborhoods (Ainsworth, 2002). Further, it is also suggested that communities with greater resources have greater access to social networks compared to lower resourced communities (Dupere, Leventhal, Crosnoe, & Dion, 2010). For instance, resourced neighborhoods provide greater opportunities for adolescents to interact with adult mentors who can help them achieve their educational goals.

Existing work has noted that exposure to informal adult mentors within Mexican-origin non-parenting adolescents' communities is related to positive outcomes, and is a resource for having higher academic goals (Stanton-Salazar & Spina, 2003). With positive role models in one's community, youth are more likely to build relationships with successful adults that can serve as role models, which can lead to higher educational aspirations and expectations over time (Packard, Babineau, & Machado, 2012). However, one question remains as to whether specific neighborhood characteristics include college educated residents who share the same sex or gender as adolescents. Because Latinos, on average, experience greater hardship and limited social mobility (Valadez, 2002; U.S. Census Bureau, 2011), disproportionately reside in disadvantaged communities with respect to career and educational opportunities compared to their ethnic majority counterparts (Martinez, 1996), and adolescents are more likely to become mothers in communities with low opportunities compared to those from communities with high opportunities (Driscoll, Sugland, Manlove, & Papillo, 2005), it is important for research to consider the neighborhood context in predicting educational outcomes among adolescents, specifically those who are in the transition to parenthood. Thus, it is hypothesized that the percentage of females residing in the mother's neighborhood with

at least a Bachelor's degree will also be directly and positively related to adolescent's educational aspirations, expectations, and attainment.

Although research suggests that neighborhood level variables are important to consider in predicting individuals' educational outcomes, we currently have limited knowledge regarding how specific neighborhood characteristics, such as the percentage of same-sex college educated neighborhood residents, inform Mexican-origin adolescent mothers' educational aspirations, expectations, and attainment over time. The current study will contribute to filling this gap in the literature.

Proposed Study

The primary goals of the current study are twofold. First, to describe Mexican-origin adolescents' and grandmothers'¹ educational aspirations (i.e., how much education they would *like* to complete) and educational expectations (i.e., how much education they *think* that they will actually complete); and second, to examine various predictors of adolescent mothers' educational aspirations and expectations, and how these, in turn, predict adolescent mothers' educational attainment. For the second goal, the current study will examine: (a) how grandmothers' educational aspirations and expectations for their adolescent daughter predict adolescents' own educational aspirations and expectations for themselves; (b) acculturative stress and ethnic identity affirmation as predictors of adolescent mothers' educational attainment; and (c) whether educational resources at both the neighborhood (i.e., number of college graduate females who reside in the grandmothers' community), and family levels (i.e., grandmothers' educational attainment) predict grandmothers' and adolescents' educational aspirations and expectations, and in turn, adolescent mothers' educational attainment. Given prior work

¹ For ease of discussion, adolescents' mothers will be referred to as grandmothers throughout.

suggesting that adolescents' educational outcomes differ based on generational status (Kao, 2004), that educational attainment coincides with chronological age, and younger at-risk adolescents are more likely to drop out of school compared to older adolescents (Stearns & Glennie, 2006), adolescent mothers' nativity and age will be included in the model as control variables. Finally, because previous research found mean level differences in aspirations and other school outcomes based on parents' nativity among Latino adolescents (Kao & Tienda, 1995; Lopez, Sanchez, & Hamilton, 2000), grandmothers' nativity will be included as a control variable on grandmothers' educational aspirations and expectations. Based on prior theory and empirical work, the following hypotheses will be tested (see Figure 1):

1. The percentage of college graduate females in the grandmothers' neighborhood (i.e., neighborhood context) and grandmothers' educational attainment will each be positively related to grandmothers' and adolescents' educational aspirations and expectations, and adolescents' educational attainment.
2. Grandmothers' educational aspirations and expectations will be positively associated with adolescents' aspirations and expectations over time.
3. Adolescents' educational aspirations and expectations will be positively associated with adolescents' educational attainment over time.
4. Adolescents' acculturative stress will be negatively associated with their educational attainment over time.
5. Adolescents' ethnic identity affirmation will be positively associated with their educational attainment over time.

Methods

Procedure

At Wave 1 (W1), participants were recruited through community agencies and schools to participate in a longitudinal study of the family and cultural contexts of adolescent motherhood. Participant eligibility requirements included that adolescents had to be between 15 to 18 years of age, of Mexican-origin, in their third trimester of pregnancy, not legally married, and have a mother or mother figure willing to participate in the study. Parental consent and youth assent were obtained for participants who were younger than 18 years old, and informed consent was obtained for participants who were 18 years and older. W1 data were collected when the adolescents were in their third trimester of pregnancy. Subsequent waves were then collected approximately one year after each prior wave. At Wave 2 (W2), at least one dyad member participated in 186 dyads (97.89% family-level retention rate) and, at Wave 3 (W3), the family retention rate was 88.95% (169 dyads). Examination of differences in participating versus non-participating dyads for W2 revealed no significant differences in adolescent nativity, adolescents' age at W1, adolescents' educational attainment at W1, household income at W1, grandmothers' nativity, grandmothers' age at W1, and grandmothers' educational attainment at W1. Similarly, for W3 comparisons, no significant differences emerged between participants and non-participants in adolescents' nativity, age, educational attainment, household income, grandmothers' age, or grandmothers' educational attainment.

In-home semi-structured interviews were conducted at all three waves by a female interviewer and lasted approximately 2.5 hours for each participant. Interviews were

conducted in the participant's language of preference (i.e., English or Spanish), with approximately 27.37% of adolescents and 55.79% of grandmothers completing the interviews in Spanish across the three waves. Each participant received \$25 for participation in W1, \$30 for W2, and \$35 for W3.

Sample

The sample for the current study included 191 Mexican-origin adolescents who were expecting their first child and their mothers (i.e., grandmothers). However, one grandmother-adolescent dyad was excluded from the analytic sample, due to the inability to obtain neighborhood census data at the block group level for this participants' residence. Thus, a final sample of 190 was included in the analysis. A majority of adolescents at W1 ($M_{age} = 16.77$ years; $SD = .98$) were enrolled in school (61.10%) and U.S. born (63.20%). Among those who were Mexico-born, adolescents lived in the U.S. an average of 12.75 years ($SD = 5.15$, Range = 0 - 18 years). For adolescents, the average level of highest education attained at W3 was approximately 11th grade ($M = 10.93$, $SD = 1.44$ years). A majority of grandmothers ($M_{age} = 41.22$ years; $SD = 6.83$) had less than a high school education (70%) and were foreign-born (68.40%). Of those born outside the U.S., mother figures lived in the U.S. an average of 23.28 years ($SD = 14.77$, Range = 0 - 64 years). The average household annual income for the sample was \$27,908.35 ($SD = \$20,232.86$; Range = \$94.00 - \$114,000). The majority of grandmothers were adolescents' biological mothers ($N = 170$, 89.50%).

Measures

Educational Attainment (W1). Grandmothers reported on the highest level of education that they had attained at the time of interview. Responses were coded based on

the number of years completed (e.g., high school degree = 12 years; Bachelor's degree = 16 years).

Grandmothers' Educational Aspirations for the Adolescent (W1).

Grandmothers were asked to respond to an open-ended question at W1 in reference to the adolescent: "How far would you *like* (adolescent's name) to go in school?" Responses were coded as described above for educational attainment.

Adolescents' Educational Aspirations (W1, W2). To assess adolescents' educational aspirations, adolescents were asked a similar question as above, but in reference to themselves: "How far would you *like* to go in school?" Responses were coded based on years of schooling as described above.

Grandmothers' Educational Expectations for the Adolescent (W1). To assess grandmothers' educational expectations for adolescents, grandmothers were asked, "How far do you really *think* (adolescent's name) will go in school?" Responses were coded as described above.

Adolescents' Educational Expectations (W1, W2). To assess educational expectations, adolescents were asked a similar question as grandmothers, but in reference to themselves: "How far do you really *think* you will go in school?" Responses were coded based on years of schooling as described above.

Adolescents' Educational Attainment (W3). Educational attainment was determined based on the highest level of schooling completed for those who were no longer in school, and the highest grade level completed for those who were currently enrolled in school at the time of the interview.

Adolescents' Acculturative Stress (W1). The Multidimensional Acculturative Stress Inventory (Rodriguez, Myers, Mira, Flores, & Garcia-Hernandez, 2002) was utilized to assess adolescent mothers' acculturative stress. Developed for use with Mexican-origin individuals living in the United States, this measure consists of 25 items that examine four different domains of acculturative stress: (a) Spanish Competency Pressures (e.g., "I have a hard time understanding others when they speak Spanish"), (b) English Competency Pressures (e.g., "It bothers me that I speak English with an accent"), (c) Pressure to Acculturate (e.g., "It bothers me when people pressure me to assimilate to the American ways of doing things"), and (d) Pressure Against Acculturation (e.g., "People look down on me if I practice American customs"). Participants were asked to indicate whether or not the event occurred within the last 3 months. If the event occurred, participants indicated how stressful the events were utilizing a 5-point Likert scale, with end points of *not at all stressful* (1) and *extremely stressful* (5). Thus, for the current study, scores ranged from (0) *did not occur* to (5) *extremely stressful*. Responses were coded such that higher mean scores summed across all four subscales indicated higher levels of acculturative stress. For the current study, the scale obtained an alpha of .91 in English, and .89 in Spanish.

Adolescents' Ethnic Identity Affirmation (W1). Adolescents' ethnic identity affirmation was assessed using the affirmation subscale from the Ethnic Identity Scale (Umaña-Taylor et al., 2004). This subscale consists of 6 items and refers to the positive and/or negative affect that individuals associate with their ethnicity (e.g., "My feelings about my ethnicity are mostly negative"). Adolescents responded to items on a 4-point Likert scale ranging from (1) *does not describe me at all* to (4) *describes me very well*.

Responses were coded so that higher scores indicated more positive feelings about one's ethnicity. In the current study, the subscale obtained an alpha of .82 in English, and .89 in Spanish.

Neighborhood Context (W1). Grandmothers' residential addresses were linked to GIS-Census neighborhood data at the block level. From these data, we assessed the percentage of females who obtained at least a bachelor's degree in the grandmothers' address block, as documented in the 2000 U.S. census. A higher percentage indicated that in the mothers' surrounding neighborhood block, a higher number of females residing in the neighborhood were college graduates. In the current sample, the percentage ranged from 0.0% to 64.70%. A majority of adolescents reported that they resided in the same household as grandmothers (87.90%). Among the 23 grandmother-adolescent dyads (12.10%) who did not reside together in the same household, there were 9 dyads (39.13%) who shared the same block group (i.e., had the same neighborhood).

Adolescent and Grandmothers' Background Characteristics (W1). The current study will control for grandmothers' and adolescents' nativity, adolescents' age, and adolescents' educational aspirations and expectations at W1. Adolescent age was calculated based on the adolescents' date of birth and the date of the interview at W1. For nativity, both grandmothers and adolescents reported on their place of birth at W1. Nativity was coded as 0 = Mexico-born, 1 = U.S.-born.

Results

Analytic Approach

To examine Goal 1 of the current study, descriptive statistics of adolescents' and grandmothers' aspirations and expectations were examined. Specifically, means,

standard deviations, and ranges were reported for grandmothers' educational aspirations and expectations at W1, and for adolescents' educational aspirations and expectations at W2.

To achieve Goal 2, the hypothesized model was tested with path analysis via structural equation modeling (SEM) using Mplus Version 6.1 (Muthén & Muthén, 2010). To examine whether neighborhood clustering needed to be taken into account in the analysis, intraclass correlations (ICCs) were computed for all study variables. ICCs ranged in value from .00 to .30 among the variables of interest; thus, standard errors were adjusted to account for clustering effects using the CLUSTER command in all analyses. Missing data for the analytic sample of 190 adolescent-grandmother dyads were handled using full-information-maximum likelihood (FIML). Various fit indices were examined to determine goodness of fit to the data for the hypothesized model, according to recommendations by Byrne (2012). Criteria for goodness-of-fit to the data included a non-significant chi-square statistic (McDonald & Ho, 2002). Further, goodness of fit criteria included a Comparative Fit Index (CFI) of greater than .90 (Hu & Bentler, 1999), a root mean square error of approximation (RMSEA) less than .08 (Kline, 2010), and a standardized root mean square residual (SRMR) of less than .08 (Kline, 2010) as indicators consistent with a close fitting model to the data.

Paths were specified in Mplus to examine all hypothesized direct effects within the specified model. First, neighborhood context at W1 (i.e., percentage of female college graduates in the family's neighborhood) and grandmothers' educational attainment at W1 were included as direct predictors of grandmothers' educational aspirations and expectations at W1. Neighborhood context was also specified as a direct

predictor of both adolescents' educational aspirations and adolescents' educational expectations at W2 and of adolescents' educational attainment at W3. Further, adolescents' educational aspirations and expectations at W2 were specified direct predictors of adolescents' educational attainment at W3. Finally, adolescents' ethnic identity affirmation and acculturative stress were identified as direct predictors of adolescents' educational attainment at W3. Due to having 14 adolescents in the current dataset who did not share the same neighborhood as the grandmother, the hypothesized model was also tested using a dataset that excluded these 14 dyads. This was done in order to compare any differences of model fit.

Indirect effects were also specified in the hypothesized model. There were a total of 12 mediational paths that were examined. See Table 1 to view all specified indirect paths. To formally test for mediation, the application Rmediation (Tofighi & Mackinnon, 2011) was used to calculate 95% confidence intervals for two mediated paths. The use of this method is based on a recommendation from Tofighi and Mackinnon (2011), when sample size to detect an adequate amount of power is limited. Calculated confidence intervals that do not contain zero at the .05 level indicate significant mediation.

Control variables of adolescents' age, nativity, and grandmothers' nativity at W1 were included in the hypothesized model. First, grandmothers' educational aspirations and expectations at W1 were regressed on grandmothers' nativity at W1. Second, adolescents' educational attainment at W3 was regressed on adolescents' age and nativity at W1. Finally, prior reports of adolescents' educational aspirations and expectations at W1 were taken into account, such that adolescents' educational aspirations and

expectations at W2 were regressed on their respective W1 variables. Table 2 presents correlations, means, and standard deviations for all study variables.

Goal 1: Describing Educational Aspirations and Expectations

In terms of educational aspirations, grandmothers, on average, reported that they would like adolescents to complete approximately three years of college, technical, or vocational school ($M = 15.43$, $SD = 2.08$, Range = 10.00 – 20.00). With respect to educational expectations, grandmothers reported, on average, that they expected adolescents to complete approximately one year of college, technical, or vocational school ($M = 13.34$, $SD = 2.48$, Range = 8.00 – 20.00). A one-way repeated measures ANOVA was conducted to compare the means between grandmothers' educational aspirations and expectations at W1. There was a significant mean difference between grandmothers' educational aspirations and expectations $F(1, 181) = 125.27$, $p < .001$. This finding indicated that grandmothers, on average, reported significantly lower educational expectations than educational aspirations for adolescents. With respect to adolescents' average reports of their own educational aspirations, adolescents reported that they would like to complete three years of college, technical, or vocational school ($M = 15.02$, $SD = 2.11$, Range = 9.00 – 20.00). In terms of educational expectations, adolescents, on average, reported that they expected to complete approximately two years of college, technical or vocational school ($M = 14.12$, $SD = 2.35$, Range = 7.00 – 20.00). A one-way repeated measures ANOVA was conducted to compare the means between adolescents' educational aspirations and expectations at W2. A significant mean difference emerged between adolescents' aspirations and expectations at W2, $F(1, 183) = 63.89$, $p < .001$, such that adolescents' aspirations were significantly higher than their

expectations at W2. Thus at the descriptive level, findings indicated that grandmothers reported lower educational expectations than educational aspirations for the adolescent, and adolescents reported their educational aspirations and expectations in a similar pattern to that of grandmothers.

Goal 2: Testing the hypothesized model

The hypothesized model examined whether neighborhood, maternal, and cultural factors directly or indirectly predicted adolescents' educational attainment at W3 (see Figure 1). The fit indices for the model indicated an excellent fit to the data [$\chi^2(27) = 36.05, p > .05; CFI = .98; TLI = .95; RMSEA = .04; SRMR = .06$]. After conducting an analysis on the hypothesized model that excluded the 14 adolescent-grandmother dyads that did not share the same neighborhood, model fit indices did not appear to significantly change [$\chi^2(27) = 36.47, p > .05; CFI = .98; TLI = .95; RMSEA = .04; SRMR = .06$].

Further examination of the associations of interest indicated that the hypotheses were partially supported. First, neighborhood context at W1 was positively associated with grandmothers' educational aspirations at W1, grandmothers' educational expectations at W1, and adolescents' educational expectations at W2. Findings indicated that when families lived in neighborhoods in which higher percentages of females had earned at least a bachelor's degree, grandmothers reported higher educational aspirations and expectations for the adolescent; furthermore, adolescents' educational expectations for themselves were also higher when families lived in neighborhoods in which higher percentages of females had earned bachelor's degrees. Second, grandmothers' educational expectations at W1 were positively associated with adolescents' expectations at W2. Thus, adolescents had higher educational expectations for themselves at W2

when grandmothers had higher educational expectations for the adolescent at W1. Third, adolescents' educational expectations at W2 were positively associated with their educational attainment at W3. This finding indicated that adolescents who had higher educational expectations for themselves tended to complete more schooling over time. Although adolescents' acculturative stress at W1 was not significantly associated with adolescents' educational attainment at W3, adolescents' ethnic identity affirmation at W1 was significantly and positively associated with adolescents' educational attainment at W3, indicating that adolescents who felt more positively about their ethnicity tended to complete more schooling over time. Figure 2 presents all standardized path estimate coefficients for the significant associations.

Testing mediation

To test for the three-path mediated effect following guidelines presented by Taylor, Mackinnon, and Tein (2007), three additional paths were added to the model. First, grandmothers' educational attainment at W1 was added as a direct predictor of adolescents' educational attainment at W3. Second, a direct path between grandmothers' educational attainment at W1 and adolescents' educational expectations at W2 was included. Third and finally, a direct path between grandmothers' educational expectations at W1 and adolescents' educational attainment at W3 was included. Results from Rmediation analyses indicated that three indirect effects emerged as significant partially mediated effects. First, neighborhood context at W1 was indirectly associated with adolescents' educational attainment at W3 via both grandmothers' educational expectations at W1 (95% $CI = .001 - .024$) and adolescents' educational expectations at W2, (see Figure 3a, $B_1B_2B_3 = .003$, 95% $CI = .024 - .11$). Second, neighborhood context

at W1 was indirectly associated with adolescents' educational attainment at W3 via adolescents' educational expectations at W2 (see Figure 3b, $B_1B_2 = .005$, 95% $CI = .001 - .013$). Finally, a significant indirect effect was found between grandmothers' educational attainment at W1 and adolescents' educational attainment at W3 via grandmothers' educational expectations at W1 (95% $CI = .014 - .088$) and adolescents' educational expectations at W2 (see Figure 3c, $B_1B_2B_3 = .012$, 95% $CI = .024 - .11$). The final model accounted for approximately 47.7% of the variance in adolescents' educational attainment at W3.

Discussion

Adolescents' educational aspirations and expectations are important factors that inform adolescents' educational attainment over time (Beal & Crockett, 2010). Unfortunately, adolescents' educational aspirations and expectations may be undermined due to especially challenging circumstances that are prevalent among Latinas who transition into early parenthood, such as having significant work and child care responsibilities (e.g., caring for a newborn infant, coordinating work and childcare) that can interfere with adolescents' pursuit of educational goals (Minnis et al., 2013; Nadeem & Romo, 2008). The current study sought to examine various contextual predictors of educational aspirations, expectations, and attainment among Mexican-origin parenting adolescents and grandmothers using a multi-informant, longitudinal design. Guided by bioecological (Bronfenbrenner & Morris, 2006), status attainment (Sewell, Haller, & Portes, 1969), social capital (Coleman, 1988), social learning (Bandura, 1969), and collective socialization of neighborhood theories (Jencks & Mayer, 1990), the current study examined neighborhood, maternal, and cultural contextual predictors of parenting

adolescents' aspirations and expectations and, in turn, their educational attainment over time.

The current study's findings emphasize the importance of educational expectations in predicting educational attainment for Mexican-origin parenting adolescents, and highlight the ways in which neighborhood, family, and cultural contexts inform adolescents' educational expectations and, in turn, their attainment over time. The current study adds to the body of literature in a number of ways. First, adolescents' educational expectations, rather than aspirations, emerged as the key predictor of educational attainment, emphasizing the importance of educational expectations to inform educational attainment among Mexican-origin parenting adolescents. Second, adolescents' educational expectations were informed by both grandmothers' educational attainment and educational expectations for the adolescent, highlighting the importance of the family context in informing adolescents' educational outcomes. Third, adolescents' educational outcomes were informed by multiple contextual factors in the adolescents' environment, such that the neighborhood context informed the family context, which in turn informed adolescents' educational outcomes. That is, neighborhood context was positively associated with grandmothers' educational expectations for the adolescent and, in turn, predicted adolescents' own educational expectations. These findings are consistent with the notion that adolescents' environmental contexts interact with one another to predict individual outcomes (Bronfenbrenner & Morris, 2006). Finally, adolescents' ethnic identity affirmation positively predicted their educational attainment over time, consistent with the notion that

positive feelings about one's ethnicity act as a cultural resource for educational attainment among this sample at risk for educational underachievement.

The Importance of Adolescents' Educational Expectations on Educational Attainment

Prior work suggests that adolescents' educational expectations inform their educational attainment over time (Beal & Crockett, 2010). Indeed, the current study extends this association to Mexican-origin parenting adolescents, such that educational expectations emerged as a key predictor of their educational attainment over time. According to literature focusing on future-oriented educational beliefs, educational expectations are conceptualized as beliefs that are grounded in a more realistic assessment of individuals' current resources (Morgan, 1998). Moreover, educational expectations are beliefs that take into account the costs and benefits of pursuing specific educational goals (Bohon, Johnson, & Gorman, 2006). Educational aspirations, on the other hand, represent individuals' general assessment of their values about education (Hellenga, Aber, & Rhodes, 2002). For instance, while adolescents may report that they desire to complete higher education, due to the belief that higher education is generally considered valuable and esteemed, adolescents may not think that they can realistically complete this goal, after taking into account the especially challenging circumstances of early parenthood that may limit the access to educational resources. Hence, this difference could explain why educational expectations rather than aspirations emerged as the key predictor of adolescents' educational attainment over time.

Moreover, parenting adolescents' educational expectations may be particularly indicative of their educational attainment because educational expectations are developed

by taking into account the reality of the constraints of low socioeconomic status, which is a common characteristic among parenting adolescents (Kerckoff, 1976; Minnis et al., 2013). Further, adolescents' educational expectations are formed as a result of considering the various costs, benefits, and opportunities to attaining specific educational goals (Gottfredson, 1981). Thus, socioeconomic status may influence adolescents' assessments of their educational potential. Prior work suggests that the lack of socioeconomic resources undermines individuals' beliefs about how much education is realistically possible to attain (Kirk, Lewis-Moss, Nilsen, & Colvin, 2011; Hellenga, Aber, & Rhodes, 2002). Indeed, the results of the current study highlighting the importance of educational expectations on educational attainment were also consistent with other work that included a sample of African-American parenting adolescents, who were largely from low-income families (Barr & Simons, 2012). Given that the added responsibilities of early parenthood often take place in the context of low socioeconomic status (Minnis et al., 2013; Nadeem & Romo, 2008; SmithBattle 2007), it is possible that educational expectations will be particularly informative of low-income parenting adolescents' educational attainment. In addition to expectations being a key predictor of attainment, and that expectations may be informed by various constraining factors such as low socioeconomic status within adolescents' environments, the current study also points to various factors within the adolescents' environment (e.g., family) that positively inform their educational expectations.

Maternal Influences on Adolescents' Educational Expectations

The findings of the current study also indicated that maternal educational characteristics from the family context informed adolescents' educational expectations.

In line with bioecological theory (Bronfenbrenner & Morris, 2006), adolescents' educational expectations are informed by a number of environmental contexts with which the adolescent has direct contact. Due to the notion that educational expectations are more realistically grounded in the resources found within adolescents' proximal environments, characteristics within the adolescents' family context were also identified as important factors that inform adolescents' educational expectations. For adolescent mothers in particular, maternal support for adolescents is a salient form of support during their transition to parenthood (Nadeem & Romo, 2008). In fact, adolescent mothers often live with their own mothers and are likely to experience daily interactions and receive positive influence from their mothers in terms of the educational level that they should complete (Brosh, Weigel, & Evans, 2007). Furthermore, adolescents' educational expectations are likely to be informed by the various resources to which the family has access (Coleman, 1988). Therefore in the current study, grandmothers' educational attainment, and grandmothers' expectations for the adolescent were identified as important family-level predictors that inform Mexican-origin parenting adolescents' own educational expectations.

The current findings highlight grandmothers' educational expectations as an important predictor of adolescents' own educational expectations. As previously described, the difference between educational aspirations and expectations could explain the reason why grandmothers' educational expectations emerged as an important predictor of adolescents' own educational expectations. In contrast to educational aspirations, grandmothers' educational expectations are closer to realistic outcomes, such that these expectations take into account both the barriers and resources with respect to

supporting their child's education, which would in turn inform their child's own educational expectations (Coleman, 1988; Goldenberg, Gallimore, Reese, & Garnier, 2001). Indeed, the current study's finding is consistent with prior work, suggesting that parental expectations are positively associated with Latino adolescents' own educational expectations (Benner & Mistry, 2007; Trusty, Plata, & Salazar, 2003). This association suggests that the family context may act as a source of support that enhances adolescents' educational beliefs about how much education can be realistically completed. Further, the importance of grandmothers' educational expectations is also consistent with prior work that focuses on parents' educational expectations as a key predictor of adolescents' educational expectations (Kirk et al., 2011). The current study's finding adds to literature by noting that this association is also applicable among Mexican-origin parenting adolescents, and suggests that grandmothers' educational expectations act as a salient form of support that enhances adolescents' own educational expectations. With respect to the significance of grandmothers' educational expectations in informing adolescents' own educational expectations, the resources and forms of support to which the grandmother has access can also help to explain this association for the current study.

Specifically, it is possible that high grandmother educational expectations are an indication of the types of resources and other forms of social capital to which the grandmother has access. Indeed, the current findings indicated that grandmothers' educational expectations were contextually informed by other socioeconomic characteristics of the grandmother, namely, her educational attainment. Status attainment theory posits that parental socioeconomic characteristics, such as educational attainment, inform their child's future educational attainment through more proximal processes, such

as the specific educational goals that parents set for their children, and the parenting behaviors that support such goals (Sewell, Haller, & Portes, 1969). As expected, the current study's findings are consistent with status attainment theory, such that a significant indirect association emerged between grandmothers' educational attainment and adolescents' educational expectations via grandmothers' educational expectations for the adolescent. Perhaps grandmothers with higher educational attainment are likely to have more social capital and socioeconomic resources that enable them to act and behave in ways that are consistent with the educational goals that they have set for the adolescent. Moreover, it is possible that grandmothers who have high expectations for adolescents exhibit more supportive behaviors in relation to adolescents' higher educational goals, such as seeking resources from the community, and making connections with positive adult role models for the adolescent that would impact adolescents' educational expectations for herself (Lin, 1999; Melby, Conger, Fang, Wickrama, & Conger, 2008). In sum, the current study highlights the important role that grandmothers' educational attainment plays as an indirect predictor of adolescents' educational expectations through grandmothers' educational beliefs for the adolescent. Furthermore, the current study supports the notion that grandmothers who have higher educational attainment are also likely to have greater access to social capital within other contexts, namely neighborhoods, which can also inform adolescents' educational expectations, and in turn, adolescents' educational attainment over time.

The Importance of the Neighborhood Context on Adolescents' Educational Outcomes

Another context that is important to consider when focusing on Mexican-origin parenting adolescents' educational expectations and attainment is the neighborhood context. Guided by social capital (Coleman, 1998), bioecological (Bronfenbrenner & Morris, 2006), social learning (Bandura, 1969), and collective socialization of neighborhoods (Jencks & Mayer, 1990) theories, the current study identified neighborhood context as an important contextual factor that would inform grandmothers' educational expectations for the adolescent over time. Specifically, neighborhood context (i.e., female residents of the families' neighborhood who completed a college degree) was identified as a contextual predictor of grandmothers' educational expectations, which would in turn inform adolescents' own educational expectations. Guided by conceptual and empirical work that highlights the importance of the neighborhood context on informing adolescents' educational outcomes, it was hypothesized that the family's neighborhood context would be positively associated with grandmothers' educational expectations over time, and in turn, inform adolescents' educational expectations. Consistent with this hypothesis, findings indicated that the educational characteristics of the families' neighborhood positively informed grandmothers' educational expectations for adolescents. Further, neighborhood context indirectly informed adolescents' own educational expectations over time via grandmothers' educational expectations.

The results of the current study are consistent with bioecological theory (Bronfenbrenner & Morris, 2006), which posits that the multiple contexts with which individuals have frequent and direct contact inform one another, which in turn inform

individuals' outcomes over time. In the current study, adolescents' educational expectations were indirectly informed by the neighborhood context via the family context. Specifically, the neighborhood context positively informed grandmothers' future beliefs about how much education the adolescent would complete, which in turn impacted adolescents' own educational expectations, indicating that both neighborhood and family contexts informed adolescents' educational outcomes over time. As noted below, these findings are consistent with notions from social capital theory.

According to social capital theory (Coleman, 1988; Krumboltz, Mitchell, & Jones, 1976) individuals who reside alongside educated community members are more likely to directly benefit by including such individuals as part of their social networks. With respect to the current study, neighborhoods characterized by a greater percentage of women who have attained higher education may be more likely to expose both grandmothers and adolescents to the knowledge and resources that are pertinent to educational attainment. These social ties with same-sex educated community members may play an important role in informing grandmothers about how much education is feasible for the adolescent to complete, which would then inform adolescents' own future-oriented beliefs with respect to their own educational attainment (Lin, 1999).

Indeed, the social networks to which grandmothers have access with respect to educational support are important types of community-level resources that exist to indirectly inform adolescents' educational expectations and attainment (Leventhal & Brooks-Gunn, 2000). The influence that the neighborhood context has on grandmothers' educational expectations, which in turn is associated with adolescents' educational expectations is consistent with conceptual work positing that parenting and family factors

may act as mechanisms that explain the association between neighborhood effects on adolescents' educational outcomes (Murray et al., 2011). However, to my knowledge, empirical work that tests these indirect associations among Mexican-origin parenting adolescents is non-existent, although some prior work indicates that both neighborhood and family contexts were each associated with non-parenting Latino adolescents' educational outcomes, such as educational values and achievement (Eamon, 2005; Henry, Merten, Plunkett, & Sands, 2008). Moreover, prior studies examining the effect of same-sex college educated community residents on educational outcomes is non-existent. Thus, the access to same-sex community members who have educational resources could enhance grandmothers' educational expectations for the adolescent, perhaps by conveying to grandmothers the message that higher educational attainment for parenting adolescents is indeed feasible.

In addition to the indirect influence that the neighborhood context had on informing adolescents' educational expectations and attainment via grandmothers' educational expectations, the findings of the current study also identified direct pathways in which neighborhood context informed adolescents' educational expectations and attainment over time. Neighborhoods may also serve as an important direct socialization tool with respect to educational expectations and attainment for adolescents because adolescents may directly and vicariously learn from educated others to whom they are exposed at the community level (Ainsworth, 2002). Indeed, social learning theory posits that individuals are drawn to and imitate role models with whom they share similar background characteristics, such as sharing the same sex or gender (Bandura, 1969; Stanton-Salazar & Spina, 2003). Guided by social learning (Bandura, 1969) and

collective socialization of neighborhoods (Jencks & Mayer, 1990) theories, neighborhood context was expected to directly inform both adolescents' educational expectations and educational attainment over time, and this hypothesis was supported. Specifically, the percentage of female college graduates who resided in the families' neighborhood positively predicted the level of education that adolescents believed that they would complete.

According to collective socialization of neighborhoods (Jencks & Mayer, 1990) theory, neighborhoods can directly inform adolescents' educational expectations by adolescents' exposure to positive and successful adult female role models within their neighborhoods. Given the increasing autonomy and independence that is characteristic of normative adolescent development as well as with newfound parenthood (Romo, Mireles-Rios, & Lopez-Tello, 2014; Jacobs & Mollborn, 2012), it is likely that adolescents would have direct interactions with college educated females who reside within their neighborhoods. These college educated community members could then act as positive role models for adolescents, which would lead to adolescents developing the perception that attaining higher education is feasible. Moreover, by having college educated females as part of adolescents' social networks, adolescents may become increasingly aware of the various careers that require a college degree, thereby enhancing their educational expectations (Leventhal & Brooks-Gunn, 2000). Thus, consistent with the collective socialization of neighborhoods theory (Jencks & Mayer, 1990), the findings of the current study highlight the importance of understanding neighborhood characteristics that directly inform parenting adolescents' own educational expectations over time. Indeed, the current findings were consistent with prior empirical work, such

that adolescents' educational expectations emerged as a key mechanism that explained how neighborhoods impacted youths' educational outcomes, and that neighborhood educational characteristics were also directly associated with adolescents' educational values and achievement over time (Ainsworth, 2002; Ainsworth, 2002; Ceballo, McLoyd, & Tokokawa, 2004; Eamon, 2005). Furthermore, these findings are consistent with recent qualitative work that focused on African-American non-parenting adolescents from low-income communities, which found that female adolescents were likely to have a same-sex neighborhood resident role model from which they modeled their job and education-seeking behaviors (Clampet-Lundquist, 2013). In sum, the current study provides further support for the collective socialization of neighborhoods theory with respect to Mexican-origin parenting adolescents' educational expectations.

In addition to the neighborhood context directly informing adolescents' educational expectations, neighborhood context was directly informative of adolescent's educational attainment. According to neighborhood institutional resource models (Jencks & Mayer, 1990), structural characteristics of the neighborhood could explain the direct effect of neighborhoods on adolescents' attainment. Given that female college graduate residents of the family's neighborhood are indeed an indicator of socioeconomic advantage, it is likely that these neighborhoods would have resources to facilitate educational attainment. For example, neighborhoods with higher percentages of female college graduates are likely to have more locations for individuals to study and work, have less amounts of crime, and more feelings of safety. These structural neighborhood characteristics would create advantages and more opportunities for adolescents to attain higher education. In other words, resources beget resources at the neighborhood level.

In sum, the current study points to neighborhood context as an important factor to consider with respect to informing Mexican-origin parenting adolescents' educational future-oriented beliefs and the level of education that adolescents completed over time.

Adolescents' Cultural Characteristics on Educational Attainment

A final context to consider with respect to Mexican-origin parenting adolescents' educational attainment is the cultural context. Guided by bioecological theory (Bronfenbrenner & Morris, 2006), adolescents' culturally informed characteristics such as adolescents' experiences of ethnic identity affirmation (i.e., feeling positively about one's ethnic group) and acculturative stress (i.e., cultural adaptation stressors) may inform their educational attainment over time. Specifically, it was hypothesized that ethnic identity affirmation would positively inform adolescents' educational attainment, and that acculturative stress would negatively inform adolescents' educational attainment. The results partially supported the hypotheses, such that a positive association emerged between ethnic identity affirmation and adolescents' educational attainment. The current findings suggest that while acculturative stress did not negatively impact adolescents' educational attainment, having positive feelings about one's ethnic group is an important cultural asset that positively informed Mexican-origin parenting adolescents' educational attainment over time.

Prior work indicates that ethnic identity is a salient component of ethnic minority adolescents' sense of identity, particularly in contexts such as the U.S. in which many different ethnic groups reside (Umaña-Taylor, 2011). Further, previous findings indicate that ethnic identity affirmation is a cultural resource for ethnic minority youth and has positive implications for adolescents' adjustment (Fuligni, Witkow, & Garcia, 2005).

Therefore, positive feelings about one's ethnic group were expected to positively inform educational outcomes for Mexican-origin adolescents. Consistent with the hypothesis, the current findings indicated that having positive feelings about one's ethnic group was indeed positively associated with adolescents' educational attainment two years later. This is consistent with prior work, which found that adolescents' ethnic identity affirmation positively predicted academic achievement among a sample of non-parenting Latino adolescents (Supple et al., 2006). The current study adds to the literature by noting that having positive feelings about one's ethnic group is one important culturally informed characteristic that positively informs Mexican-origin *parenting* adolescents' educational attainment.

Although ethnic identity affirmation emerged as an important predictor of adolescents' educational attainment, adolescents' acculturative stress did not. One possibility for why acculturative stress did not emerge as a significant predictor of adolescents' educational attainment may be due to the context of adolescent parenthood. Taking the current sample of interest into account, it is possible that acculturative stress was not a salient type of stressor that would negatively impact parenting adolescents' educational attainment. Rather, other types of stressors that are associated with the transition to parenthood may be more salient (e.g., garnering financial resources for child needs, coordinating work and school schedules, etc.) for parenting adolescents that could negatively impact adolescents' educational attainment over time. Although acculturative stress is indeed an important type of stressor that has negative implications for Latino adolescents' adjustment (Crockett et al., 2007), it was not a key predictor of adolescents' educational attainment with the current sample of parenting adolescents. Therefore,

future work should consider other mechanisms through which acculturative stress may inform parenting adolescents' educational adjustment, and consider that acculturative stress might be linked to other indicators of adjustment that are relatively more salient for parenting adolescents.

Strengths, Limitations, and Future Directions

There are several contributions that the current study made to the growing body of literature that should be noted, along with limitations that warrant the need for future work. First, the current study provided descriptions of Mexican-origin grandmothers and parenting adolescents' educational aspirations and expectations, which are non-existent in current work. Further, the current study adds to the existing body of literature by including both grandmothers' and adolescents' educational aspirations and expectations together in the analytic model and differentiating these two constructs, given that prior studies often use the terms aspirations and expectations interchangeably, or that only one construct (i.e., either aspirations or expectations) is included. However, given that the current sample is comprised of predominantly Mexican-origin individuals residing in a greater Southwestern metropolitan area, the results of the current study may have some limitations in terms of its generalizability. Therefore, it is important that future work provide descriptions of the educational aspirations and expectations reported by parenting adolescents of other Latino subgroups in other geographical regions of the U.S., who are also experiencing the transition to parenthood. It is possible that the educational aspirations and expectations differ across different Latino subgroups of parenting adolescents. Indeed, prior work has noted that among non-parenting adolescents, Mexican-origin youth were reported to have the lowest educational expectations

compared to their Puerto Rican-origin and Cuban-origin counterparts (Bohon, Kirkpatrick Johnson, & Gorman, 2006). Thus, taking into account potential cultural group differences might be important to examine for future work.

Second, the current study empirically tested the mesosystem of adolescents' environments, such that the neighborhood context informed the family context, and in turn informed adolescents' educational attainment over time. Accordingly, findings identified neighborhood context as one important contextual factor that positively informed grandmothers' and parenting adolescents' educational expectations, which has not been examined in prior work. However, grandmothers with high educational expectations for adolescents may opt to reside in neighborhoods with many social networking opportunities, including having opportunities to interact with positive educated female role models. By selecting higher resourced neighborhoods to which adolescents are exposed, grandmothers ensure that adolescents meet high educational goals that are expected of them. Indeed, prior work suggests that parents take an active role in selecting neighborhoods that are in close proximity to quality schools with greater amounts of educational resources in order to facilitate youth's academic success (Bast & Walberg, 2004). Therefore, future work may want to consider other indices of neighborhood influences that might inform parenting adolescents' and grandmothers' educational expectations, such as assessing how frequently grandmothers and adolescents actually use educational resources that are available within their communities (e.g., college workshops, tutoring, career fairs).

Third, the current study identified several important family and cultural factors that both directly and indirectly predicted parenting adolescents' educational outcomes

over time. However, one limitation to note is that school-related factors were not included. Prior work suggests that teachers are also an important source of support for parenting adolescents who desire to complete their high school diploma and obtain resources on attaining higher education (Brosh, Weigel, & Evans, 2007). Therefore, future work should also examine how the support from important adult figures within the school context such as teachers informs parenting adolescents' educational outcomes over time.

Despite these limitations, the current study provides several important contributions to the growing body of work that examines parenting adolescents' educational outcomes. First, the current study provides empirical support for the importance of educational expectations as one key predictor of adolescents' educational attainment. Second, grandmothers' educational expectations emerged as a family-level factor that positively predicted parenting adolescents' own educational expectations. Third, both grandmothers' and adolescents' educational expectations were informed by broader contexts, namely, by the neighborhoods in which these families resided. Fourth, consistent with notions of bioecological theory (Bronfenbrenner & Morris, 2006), parenting adolescents' educational expectations and attainment were indirectly predicted by the neighborhood context via the relatively more proximal context of families. Fifth and finally, the current study provides additional support for the positive impact of ethnic identity affirmation on parenting adolescents' educational attainment two years later. Consistent with the theoretical frameworks that guided this research, the current study identified neighborhood, maternal, and cultural factors that either directly or indirectly impacted parenting adolescents' educational expectations and attainment. These results

provide implications for practitioners and interventionists to provide services and programs that enhance the educational expectations and attainment of Mexican-origin parenting adolescents, as well as considering the various contextual factors that predict these important outcomes among this at-risk sample.

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Table 1. Mediational paths tested in hypothesized model.

Path Number	Variables in Path
1	W1 Neighborhood → W1 Grandmother Educational Aspirations → W2 Adolescent Educational Aspirations → W3 Adolescent Educational Attainment
2	W1 Neighborhood → W1 Grandmother Educational Aspirations → W2 Adolescent Educational Expectations → W3 Adolescent Educational Attainment
3	W1 Neighborhood → W1 Grandmother Educational Expectations → W2 Adolescent Educational Aspirations → W3 Adolescent Educational Attainment
4	W1 Neighborhood → W1 Grandmother Educational Expectations → W2 Adolescent Educational Expectations → W3 Adolescent Educational Attainment
5	W1 Neighborhood → W2 Adolescent Educational Aspirations → W3 Adolescent Educational Attainment
6	W1 Neighborhood → W2 Adolescent Educational Expectations → W3 Adolescent Educational Attainment
7	W1 Grandmother Educational Attainment → W1 Grandmother Educational Aspirations → W2 Adolescent Educational Aspirations → W3 Adolescent Educational Attainment
8	W1 Grandmother Educational Attainment → W1 Grandmother Educational Aspirations → W2 Adolescent Educational Expectations → W3 Adolescent Educational Attainment
9	W1 Grandmother Educational Attainment → W1 Grandmother Educational Expectations → W2 Adolescent Educational Aspirations → W3 Adolescent Educational Attainment
10	W1 Grandmother Educational Attainment → W1 Grandmother Educational Expectations → W2 Adolescent Educational Expectations → W3 Adolescent Educational Attainment
11	W1 Grandmother Educational Attainment → W2 Adolescent Educational Aspirations → W3 Adolescent Educational Attainment
12	W1 Grandmother Educational Attainment → W2 Adolescent Educational Expectations → W3 Adolescent Educational Attainment

Table 2
Means, Standard Deviations, and Correlations among Study Variables ($N = 190$)

	1	2	3	4	5	6	7	8	9	10	11	12
Adolescent Variables												
1. W1 Ethnic Identity Affirmation	–											
2. W1 Acculturative Stress	-.26**	–										
3. W2 Educational Aspirations	.13	-.08	–									
4. W2 Educational Expectations	.13	-.04	.77**	–								
5. W3 Educational Attainment	.32**	-.17*	.34**	.52**	–							
6. W1 Age	.15*	.07	.08	.15*	.46**	–						
7. W1 Nativity ^a	.15*	.01	.09	.16*	.24**	.07	–					
Grandmother Variables												
8. W1 Educational Attainment	.24**	.05	.08	.13	.19*	.17*	.25**	–				
9. W1 Neighborhood Context	.09	-.08	.12	.20**	.20*	-.06	-.01	.20**	–			
10. W1 Educational Aspirations	.15*	-.12	.07	.11	.22*	.05	.12	.10	.17*	–		
11. W1 Educational Expectations	.20**	-.13	.23**	.36**	.33*	.12	.08	.20**	.21**	.42**	–	
12. W1 Nativity ^a	.09	.15*	.05	.08	.24**	.06	.50**	.53**	.10	-.02	-.03	–
Mean	3.79	.63	15.05	14.12	11.04	16.77	.63	9.03	8.92	15.43	13.34	.32
SD	.51	.57	2.12	2.35	1.37	.98	.48	3.35	9.48	2.08	2.48	.47
Range	2.50 – 1.50	00 – 4.84	9.00 – 20.00	7.00 – 20.00	6.00 – 14.00	15.02 – 18.99	0 – 1	1.00 – 18.00	.00 – 64.66	10.00 – 20.00	8.00 – 20.00	0 – 1

Note. W1 = Wave 1, W2 = Wave 2, W3 = Wave 3. ^a Nativity was coded so that 0 = Mexico-born and 1 = U.S.-born.

^b W1 Neighborhood College Attainment was measured as a percentage. * $p < .05$. ** $p < .01$. *** $p < .001$.

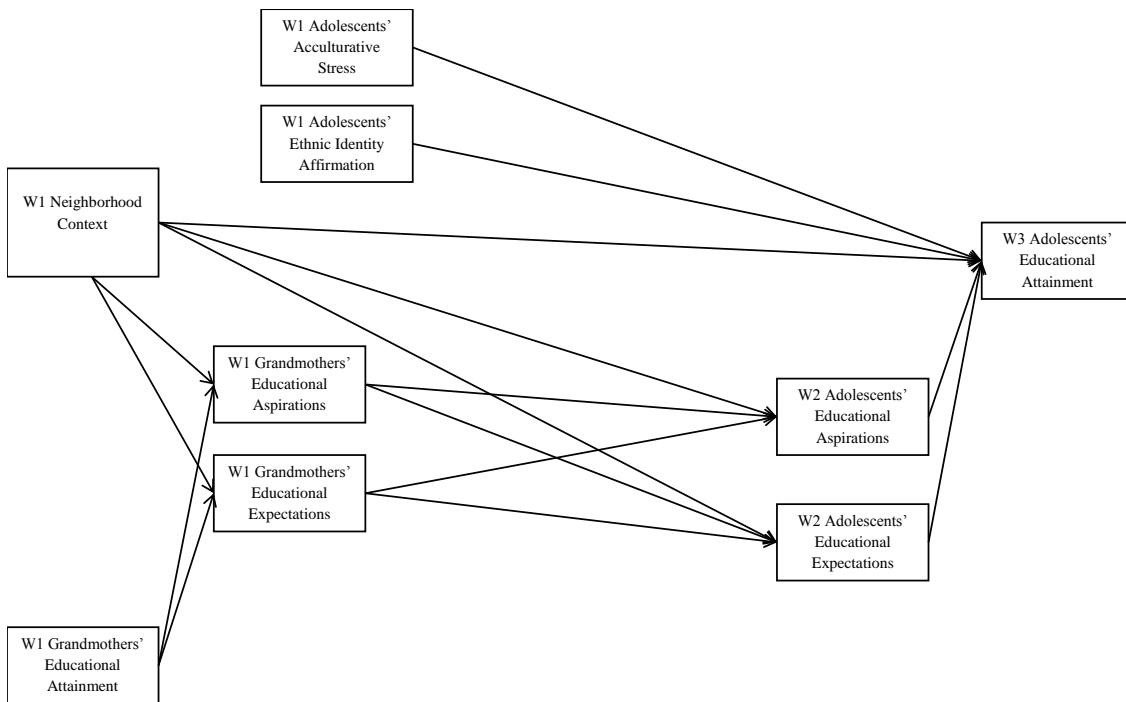


Figure 1. Conceptual model to be tested: hypothesized factors that predict adolescents' educational attainment at Wave 3 (N = 190).

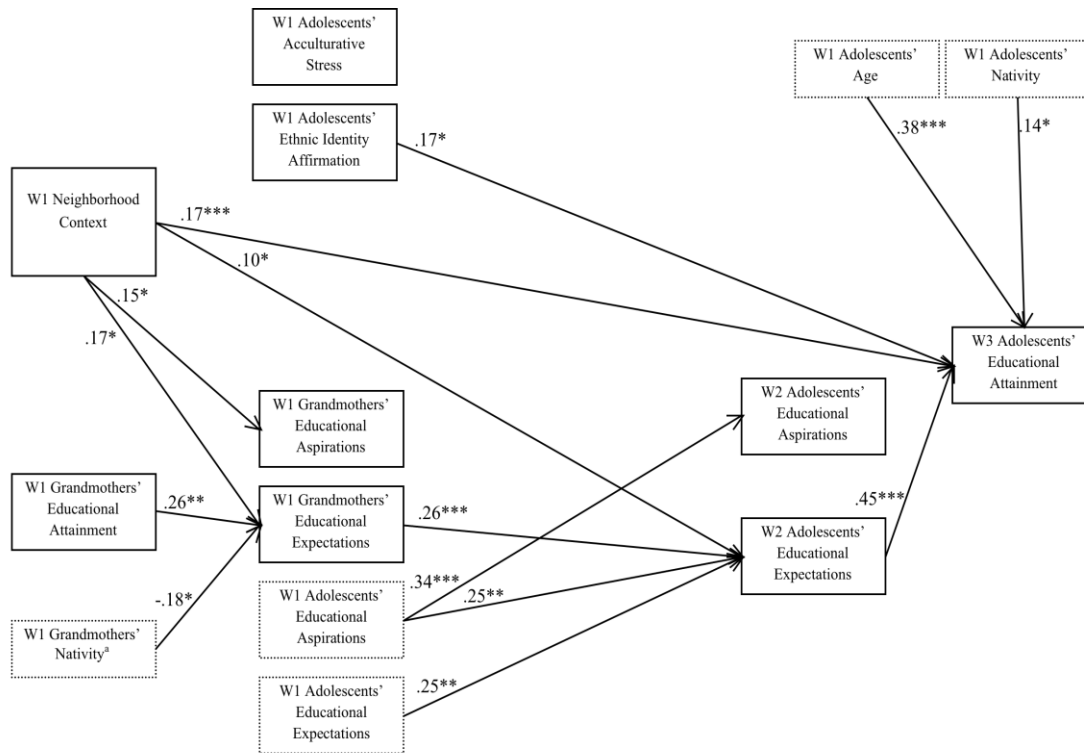


Figure 2. Final path model with standardized coefficients presented. Solid lines indicate significant paths ($N = 190$). *** $p < .001$, ** $p < .01$, * $p < .05$. W1 = Wave 1 W2 = Wave 2, W3 = Wave 3. ^a Nativity was coded as 0 = Mexico-born, 1 = U.S.-born. Constructs in dashed boxes denote control variables.

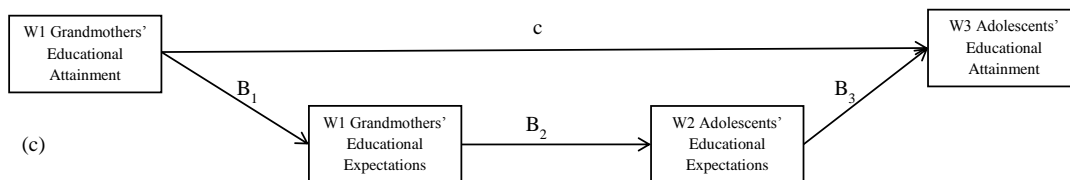
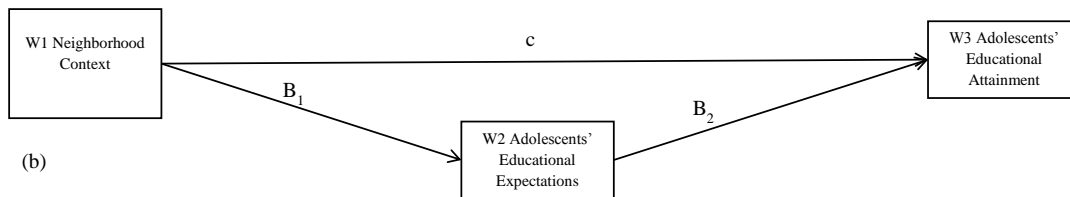
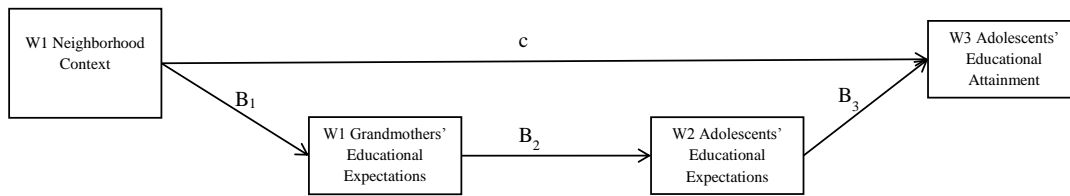


Figure 3. Illustrations of significant mediated paths.