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Growth Trajectories of Mexican-Origin Adolescent Mothers' Educational Expectations

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Abstract

Pregnant and parenting adolescents are at significant risk for educational underachievement. Educational expectations play a critical role for understanding subsequent educational attainment; yet, limited empirical attention has been given to changes in educational expectations across the transition to parenthood among adolescent mothers. This longitudinal study explored stability and change in educational expectations across the transition to parenthood among 191 first-time pregnant Mexican-origin adolescents ($M_{\text{age}} = 16.76$, $SD = .98$). The current study also examined how several contextually relevant risk and protective factors were associated with differential patterns of educational trajectories across this transition and subsequent educational attainment. Latent class growth analyses revealed three educational expectation trajectories: low and stable (< high school degree), moderate and increasing (\approx associate degree), and high and increasing (\approx bachelor's degree). Adolescent mothers in the low and stable group encountered several educational risk factors that partially explained their probability of membership in this trajectory and subsequent lower attainment. Conversely, probability of membership in the high and increasing expectations class was partially explained by adolescents' on-track school status at the time of pregnancy and their mother figures' educational expectations for their pregnant daughters. These findings have implications for understanding the malleable factors that help to explain why some adolescent mothers describe consistently high educational expectations and subsequent higher attainment, while others do not.

Keywords

adolescent mothers; educational attainment; educational expectations; Mexican-origin

Adolescent mothers are at significant risk for educational underachievement: Only 40% of adolescent mothers who become pregnant between the ages of 15 to 17 subsequently graduate from high school, and less than 2% earn a college degree by the age of 30 (Hoffman, 2006). Consequently, adolescent motherhood may contribute to lower lifetime earnings, higher rates of unemployment, and greater dependency on government assistance programs (Beutel, 2000). Mexican-origin females, in particular, have the highest adolescent birthrate of all ethnic groups in the U.S. (National Vital Statistics Report, 2013). Importantly, Mexican-origin youth are the least likely to complete high school of all ethnic groups in the U.S. (76.8%), followed by American Indian/Alaska Native (82.4%) and Black (87.1%) youth (U.S. Department of Education, 2012).

Educational expectations, defined as individuals' realistic self-estimates of their expected level of school completion (Reynolds & Pemberton, 2001), are associated with subsequent educational attainment among adolescents and young adults (Eccles, 2007; Eccles & Wigfield, 2002; Mello, 2008; 2009), including adolescent mothers (Barr & Simons, 2012). Adolescent mothers' educational expectations have been shown to decrease post-partum (Barr & Simmons, 2012), likely resulting from encountering contextual barriers related to adolescent parenthood (i.e., distinct obstacles within one's environment, such as poverty, low teacher support, parenting stress). Because variability exists in the number of barriers and supports that adolescent mothers encounter (SmithBattle, 2007), it is likely that not all adolescent mothers will uniformly experience this decrease in educational expectations. That is, adolescent mothers with greater access to supports and protective factors may not experience a decrease in educational expectations following the birth of their child, whereas adolescents who encounter numerous barriers sans protective factors may experience a steep decline in their educational expectations. However, little is known about *trajectories* of educational expectations across the transition to motherhood among adolescents, and to our knowledge no studies have examined the risk and protective factors associated with such trajectories.

Guided by principles of the life course perspective (Elder, Johnson, & Crosnoe, 2003) and expectancy-value theory (Eccles & Wigfield, 2002), the current study examined trajectories of Mexican-origin adolescent mothers' educational expectations across the transition to parenthood, and how such trajectories were differentially associated with subsequent educational attainment. Further, we examined how several contextually-relevant risk and protective factors, such as prior academic engagement, economic hardship, and mother figures' educational expectations for their daughters (Schneider, Martinez, & Owens, 2006; SmithBattle, 2006, 2007), were associated with differential patterns of educational expectation trajectories across this transition and how trajectories were linked to subsequent educational attainment.

Normative Change in Educational Expectations

Elder and colleagues' (2003) life course perspective emphasizes the significance of unique turning points (e.g., teen pregnancy) that impact individuals' perceived and actual life opportunities. Accordingly, these turning points should also contribute to individuals' educational expectations, such that they may remain stable, increase, or decrease across these transitions, depending on the supports and constraints encountered by adolescent mothers. Further, expectancy-value theory (Eccles & Wigfield, 2002; Eccles, Wigfield, & Schiefele, 1998) proposes that educational expectations and subsequent attainment are influenced by contextual milieu (e.g., family demographics); youths' perceptions of others' attitudes, behaviors, and expectations; youths' previous achievement experiences; and youths' goals and self-schemata. The combination of these two perspectives allows for a comprehensive understanding of how transitions and contexts inform adolescents' educational expectations and later educational achievement.

Studies using variable-centered approaches have identified that non-parenting youths' expectations about their future schooling are largely established in adolescence and remain stable through adulthood (e.g., Mello, 2009; Trusty, 2000); importantly, these findings are generally consistent across ethnicity/race. Yet, research using a person-centered approach with a sample of non-parenting African American and Hispanic female adolescents identified four distinct patterns of change in educational expectations across late adolescence: a stable trajectory of graduate school completion, two slightly fluctuating trajectories that hovered around some college completion (one U-shaped curve, and one inverted U-shaped curve), and a stable trajectory that reflected completion of trade school (Mello, Anton-Stang, Monaghan, Roberts, & Worrell, 2012). Additional person-centered longitudinal research with Finnish youth (Tynkkynen, Tolvanen, & Salmela-Aro, 2012) documented five patterns of change in educational expectations across the transition to young adulthood (i.e., consistently high, increasing high, decreasing, consistently low, consistently very low), providing further evidence that *heterogeneity in trajectories* exists in patterns of change in expectations across this developmental period. Thus, a person-centered examination investigating the heterogeneity in group trajectories on how adolescents' educational expectations change from adolescence to young adulthood, particularly among Mexican-origin adolescent mothers who experience a non-normative transition to parenthood, is warranted.

Educational Expectations among Adolescent Mothers

Research focused specifically on *adolescent mothers'* educational expectations is largely based on cross-sectional data and variable-centered analyses. This research documents that adolescent mothers report low educational expectations (Beutel, 2000) and are at risk for academic underachievement (Hoffman, 2006). One longitudinal study of 307 African American adolescents found that motherhood was associated with a decrease in subsequent educational expectations (Barr & Simons, 2012). Further, Barr and Simons found that this post-partum decrease in educational expectations partially explained adolescent mothers' lower educational attainment compared to non-parenting adolescents.

In contrast to these quantitative findings, some qualitative research suggests that Black and White adolescent mothers' educational expectations may increase during pregnancy, as education may be viewed by pregnant adolescents as a mechanism to access greater opportunities for themselves and their children (SmithBattle, 2007). Nevertheless, this research also suggests that adolescent mothers' beliefs about the utility of education may vary due to their experiences with prolonged barriers (e.g., necessity to work), which may undermine some adolescent mothers' educational expectations (SmithBattle, 2007). The current study builds on this literature by using a person-centered approach (Magnusson, 2000) to examine heterogeneity in educational expectation trajectories, and how perceived barriers and protective factors contribute to differential patterns of Mexican-origin adolescent mothers' educational expectations across the transition to parenthood.

Barriers and Supports Associated with Educational Expectations and Attainment

Consistent with prior calls in the literature (Barr & Simons, 2012; SmithBattle, 2007), we examined several contextually relevant risk and protective factors of Mexican-origin adolescent mothers' patterns of educational expectations across the transition to parenthood, including economic hardship, educational experiences (e.g., academic engagement, years of completed schooling, on-track status), and family characteristics (e.g., mother figures' educational expectations, nativity status).

Economic Hardship

Factors associated with socioeconomic disadvantage may restrict the formation and stability of high expectations for future educational attainment (Trusty & Harris, 1999), as such barriers limit opportunities for educational growth and access to educational resources (Johnson & Reynolds, 2013), especially for adolescent mothers (Barr & Simons, 2012; SmithBattle, 2007). Research suggests that adolescent mothers' perceptions of economic hardship may indeed impede their expectations for educational attainment (SmithBattle, 2007). Using diverse samples of adolescents, both Barr and Simmons (2012) and Mello (2009) found strong positive associations between educational expectations and socioeconomic status. Thus, the current study examined adolescents' reports of economic hardship as a predictor of Mexican-origin adolescent mothers' educational expectation trajectory probabilities. We expected that greater economic hardship would be associated with a higher probability of membership in a low expectations pattern.

Educational Experiences

One salient indicator of academic performance is academic engagement, or efforts toward the completion of educational goals (Eccles et al., 1998). Expectancy-value theorists posit that prior academic engagement, in part, contributes to the formation of expectations for future educational attainment, such that those who are more academically engaged are more likely to visualize themselves successfully continuing their education (Wigfield & Eccles, 1992). Indeed, Barr and Simons (2012) found that African American adolescents' academic orientation positively predicted youths' educational expectations. Similarly, Mexican-origin adolescent mothers' academic engagement may contribute to patterns of change or stability

in their educational expectations across the transition to parenthood. Thus, academic engagement was examined as a predictor of trajectories of educational expectations in this study, such that greater academic engagement would be associated with a higher probability of membership in a high expectations pattern.

In addition to educational engagement, individuals' expectancies for success and educational attainment differ as a function of the number of years of schooling completed (Mello, 2008). Among adolescent mothers, educational expectations are likely to vary as a function of their grade level at the time of pregnancy. Therefore, the current study examined pregnant adolescents' years of completed schooling as a predictor of their trajectories of educational expectations, and we expected that greater educational attainment at the time of pregnancy would be associated with a higher probability of membership in a high expectations pattern.

Further, whether adolescents are in the expected grade level relative to their age (i.e., academically on-track) may inform adolescents' self-perceptions regarding their capabilities to succeed in completing their educational pursuits. Adolescents who are behind in school due to grade retention or transfer from another school or foreign country are more likely to develop low academic competence beliefs and low educational expectations (Alivernini & Lucidi, 2011). Previous work has found that students who have been retained in school are more likely to have poorer educational outcomes in late adolescence, compared to low achieving students who were promoted in school (Jimerson & Ferguson, 2007). Although qualitative work with adolescent mothers has found that adolescents' school status prior to pregnancy did not negatively influence their decision to remain in or return to school (SmithBattle, 2007), limited empirical work has examined the association between adolescent mothers' on-track status at the time of pregnancy and their educational outcomes over time. Thus, the current study examined the role of adolescents' on-track school status at the time of pregnancy in relation to educational expectation trajectories, and we expected that an on-track school status would be associated with a higher probability of membership in a high expectations pattern.

Family context

One tenet of expectancy-value theory is that expectancies are shaped by perceptions of others' attitudes and expectations (Eccles, 2007), underscoring the salient role of parents' educational expectations for their children (Trusty, 1998). Qualitative work with Latina adolescent mothers has indicated that mothers' educational expectations for their daughters may also serve as a protective resource for adolescent mothers' educational pursuits (Contreras, Narang, Ikhlas, & Teichman, 2002). Thus, the current study examined mother figures' educational expectations for their adolescent daughters as a predictor of educational expectations trajectory probability, with the expectation that mother figures' higher educational expectations would be associated with a higher probability of membership in a high expectations pattern.

Along with mother figures' expectations for their daughters, it is important to consider how adolescents' nativity status (i.e., U.S-born vs. Mexico-born) may inform patterns of stability or change in adolescent mothers' educational expectations. Foreign-born youth face unique educational challenges related to their immigration status, such as less experience with the

U.S. educational system (Fry, 2005), which may reduce their educational expectations and consequently lower their educational achievement. Some research has found that foreign-born youth decrease their educational expectations over time (Updegraff, Umaña-Taylor, McHale, Wheeler, & Perez-Brena, 2012), as well as hold lower expectations for educational attainment compared to their U.S.-born counterparts (Perreira, Harris, & Lee, 2006). Given prior research, we expected that adolescent mothers who were born in Mexico would have a higher probability of being classified in lower expectations patterns and would report lower educational attainment, compared to U.S.-born adolescent mothers.

Adolescents' Educational Expectation Trajectories and Educational Attainment

Beyond examining contextually relevant predictors of educational expectation trajectories, it is also important to understand how different trajectories are related to *actual* educational attainment. Few studies have linked patterns of stability and change in adolescents' expectations for educational attainment to actual attainment in young adulthood. In one study, Johnson and Reynolds (2013) examined changes in adolescents' educational expectations and identified four distinct expectations classes (i.e., stable high, stable low, unstable, dropped plans) that were associated with high school seniors' educational attainment in young adulthood (i.e., eleven to twelve years later). Youth who held high and stable expectations were more likely than their counterparts in other trajectory classes to report successful completion of their educational expectations. These findings imply that both high and stable educational expectations play a pivotal role by motivating students to continue their education. Although patterns of educational expectation trajectories across the transition to parenthood have not been identified among Mexican-origin adolescent mothers, similar patterns may emerge with respect to educational attainment.

Current Study

In sum, the current study had three main goals. First, using a prospective, multiple-reporter longitudinal design, we examined growth trajectories of Mexican-origin adolescent mothers' educational expectations during the transition from pregnancy to parenting across adolescence. Second, we examined the association between several contextually relevant factors (e.g., nativity status, years of completed schooling, academic engagement, mother figures' educational expectations for their daughters, economic hardship, on-track school status) and adolescent mothers' probability of membership in the educational trajectory groups. Finally, we examined the association between probability of educational expectation trajectory membership and adolescent mothers' actual educational attainment, three years post-partum.

Method

Participants

Data were from an ongoing longitudinal study of 204 Mexican-origin adolescent mothers and their mother figures, who were recruited from a large metropolitan area in a southwestern state in the United States (Umaña-Taylor, Guimond, Updegraff, & Jahromi, 2013). Drawn from the larger sample, first-time adolescent mothers (N = 191) were the focus of the current study. Adolescents' average age at Wave 1 (W1) was 16.76 years (SD

= .98). Mother figures ($M_{age} = 41.22$; $SD = 6.81$) included adolescents' biological mothers (89%) or other female kin (e.g., aunt, grandmother, step-mother). At W1 a majority of adolescents were enrolled in school (60.7%) or had graduated or earned a GED (5%). At Wave 2 (W2) fewer adolescents were enrolled in school (41.4 %) and an increasing percentage graduated or earned a GED (17%). At Wave 3 (W3), fewer adolescents were enrolled in school (25.7%), but more reported graduating or earning a GED (24.5%). At Wave 4 (W4), fewer adolescents were attending school (18.3 %) compared to those who had graduated or earned a GED (28%). At W1, adolescents reported an average of 9.67 years of education ($SD = 1.40$; range = 6 to 12 years). The average level of education increased at W2 ($M_{years} = 10.33$, $SD = 1.45$), W3 ($M_{years} = 10.85$, $SD = 1.48$), and W4 ($M_{years} = 11.23$, $SD = 1.48$).

Most adolescents in the study (63.4 %) were born in the U.S., whereas a majority of mother figures (68.6 %) were born in Mexico. The mean household income, as reported by the adolescents' mother figures, was approximately \$27,951 ($SD = \$20,186$; range = \$94–\$114,000). The average household income in the metropolitan area from where the sample was drawn, and where Latinos comprise 40% of the population, was \$47,139, with 23% of persons living below poverty level (U.S. Census Bureau, 2009–2013), suggesting that this sample predominately included low-income families.

Procedure

Pregnant adolescents were recruited from schools and community agencies. To participate in the study, participants had to be 15 to 18 years old, currently pregnant, of Mexican descent, not legally married, and have a mother figure who also was willing to participate. Participants were interviewed when the adolescent mother was approximately 30.87 weeks pregnant (W1), 10-months postpartum (W2), 24-months postpartum (W3), and 36-months postpartum (W4). At each wave, participants completed face-to-face semi-structured interviews (averaging approximately 1.5 to 2.5 hours in length), in which all questions were read out loud to them. Each participant received compensation for their participation (\$25 at W1, \$30 at W2, \$35 at W3, and \$40 at W4). Most (62.8%) adolescents completed their interviews in English and 68.6% of mother figures completed their interviews in Spanish at W1. Of the 191 first-time adolescent mothers who participated at W1, 186 participated at W2, 164 participated at W3, and 161 participated at W4, reflecting a retention rate of 84% across the four-year period. Participants who did not complete all study waves reported less education at W1 ($M = 9.83$, $SD = 1.41$) compared to those who did ($M = 10.35$, $SD = 1.26$), $t(184) = 2.46$, $p < .05$. Further, participants who did not complete all waves of the study had mother figures who held lower educational expectations for their adolescents ($M = 12.56$, $SD = 2.70$) compared to those who participated at all waves ($M = 13.65$, $SD = 2.31$), $t(184) = 2.79$, $p < .01$. Attrition groups did not differ on any other study variable.

Measures

Educational expectations—At all four waves, adolescents responded to an open-ended question to assess their educational expectations: “How far do you really think you will go in school?” Adolescents' mother figures responded to a similar open-ended question: “How far do you really think your daughter will go in school?” Responses were coded based on the

number of years of expected schooling, and participants had options up to PhD/ JD/ MD. The range for reported expectations in this sample was from *7th grade* (7) to a *Master's Degree* (18).

Educational attainment—Adolescent mothers' educational attainment was self-reported at W1 (i.e., years of completed schooling) and W4 via one item: "How much schooling have you completed?" The same rating scale that was used to code educational expectations was employed. The range for educational attainment at W1 was from *6th grade* (6) to *high school* (12) and at W4 was from *7th grade* (7) to *2 years of college, vocational technical school, or an Associate's degree* (14).

Academic engagement—Adolescent mothers' academic engagement during the past year was assessed using three items from the five-item academic motivation scale at W1 (Plunkett & Bámaca-Gómez, 2003). Adolescents rated items (i.e., "I try hard in school", "Grades are very important to me," "I usually finish my homework on time") on a 4-point Likert scale ranging from *Strongly Disagree* (1) to *Strongly Agree* (4). Higher values denote greater academic engagement ($\alpha = .72$). In line with expectancy-value perspectives highlighting the role of academic engagement or efforts related to the completion of educational goals (Wigfield & Eccles, 1992), two items (i.e., "In general, I like school," "Education is so important that it's worth it to put up with things about school that I don't like") were omitted because they reflect adolescents' general attitudes about school, rather than their academic efforts.

On-track school status—Adolescents' on-track school status was determined by comparing adolescents' age to their grade level at W1. A dichotomous variable was created for adolescents ($0 =$ off-track, $1 =$ on-track) based on the following criteria to classify adolescents as being on-track: 8th grade level and 12 to 14 years of age; 9th grade level and 13 to 15 years of age; 10th grade level and 14 to 16 years of age; 11th grade level and 15 to 17 years of age; 12 grade level and 16 to 18 years.

Background characteristics—At W1, data on adolescents' and their mother figures' background characteristics (i.e., nativity, economic hardship) were collected. Adolescents self-reported their country of birth (*Mexico-born* = 0, *U.S.-born* = 1). Adolescents' economic hardship was assessed using the 17-item Economic Hardship Measure (Barrera, Caples, & Tein, 2001), which includes four subscales: financial strain, inability to make ends meet, not having enough money for necessities, and economic adjustments or cutbacks. Consistent with Barrera et al. (2001), a composite score was created using participants' standardized weighted scores on all subscales, with higher values indicating greater perceived economic hardship. Cronbach's alpha, computed using the unweighted standardized economic hardship subscale scores, was .79.

Plan of Analysis

The analyses involved three main steps to examine the different trajectories of growth on educational expectations, their correlates across the transition to parenthood, and associations with young adult educational attainment. All analyses were conducted in *Mplus*

v.7 (Muthén & Muthén, 2010). First, we used latent class growth modeling (LCGM) to estimate the number of unique trajectories of educational expectations across the transition to parenthood. We used three criteria to determine the optimal number of trajectories: (a) the Bayesian Information Criterion (BIC), where lower values represent better fit (Jones, Nagin, & Roeder, 2001); (b) all trajectory groups had to contain at least 5% of the sample (Nagin, 2005); and (c) the Lo-Mendell-Rubin likelihood ratio test, which determines whether an additional class ($n + 1$) solution is a significant improvement over a model with n classes (Lo, Mendell, & Rubin, 2001). After we arrived at an optimal class trajectory solution, we examined correlates (i.e., economic hardship, educational experiences, family context characteristics) of class probabilities (i.e., probability of membership in a particular class ranging on a scale from 0 to 1) via path modeling. Finally, we examined the associations between class probabilities and young adult educational attainment using path modeling, controlling for all relevant contextual correlates used in prior models.

Results

Table 1 displays the means, standard deviations, and correlations among all study variables. Examination of these descriptive statistics indicated that adolescents' nativity status was positively associated with educational expectations at W2 and W3, such that U.S.-born adolescents had higher educational expectations compared to Mexico-born adolescents. Years of completed schooling at W1 was positively associated with educational expectations from W1 to W3. On-track school status, higher academic engagement, and mother figures' higher educational expectations for their daughters at W1 were positively correlated with educational expectations at all waves. Economic hardship at W1 was negatively associated with educational expectations at W4. These correlations are considered to be small-to-moderate in size (Cohen, 1988).

Latent Trajectories of Educational Expectations

Using LCGM, a 3-class solution of growth on educational expectations best fit the data. A 3-class solution had the lowest BIC value (= 2977.606), an allowable percentage of participants in the smallest group (i.e., > 5%), and the Lo-Mendell-Rubin likelihood ratio test indicated that the solution was a significant improvement over a 2-class solution. Adding a fourth class resulted in a higher BIC value (= 2979.465), but also included a class that only contained 0.01% of sample participants ($n = 2$), and was not a significant improvement over a 3-class solution per the Lo-Mendell-Rubin likelihood ratio test.

The three trajectories are plotted in Figure 1. We refer to the first class as the “low and stable” group ($n = 31$; 16.23%), which had an intercept ($b_0 = 11.97$, $p < .001$, 95% CI: 11.03–12.91) below the sample average at W1 ($M_{WAVE 1} = 13.52$, $SD = 2.11$) and did not significantly change across the transition to parenthood ($b = -.22$; $p = .29$, 95% CI: $-.62$ – $.19$). We refer to the second class as the “moderate and increasing” group ($n = 114$; 59.69%); participants in this group had an intercept ($b_0 = 13.32$, $p < .001$, 95% CI: 12.84–13.80) close to the sample mean and increased in their educational expectations across the transition to parenthood ($b = .29$; $p = .004$, 95% CI: $.09$ – $.49$). Finally, we refer to the third class as the “high and increasing” group ($n = 46$; 24.08%), and participants in this group had an intercept

($b_0 = 15.64, p < .001, 95\% \text{ CI: } 14.90\text{--}16.39$) higher than the sample average at W1 and increased across the transition to parenthood ($b = .31; p = .04, 95\% \text{ CI: } .02\text{--}.60$).

Correlates Associated with Latent Class Probabilities of Educational Expectation Trajectory Membership

We next examined the predictors of latent class probability (a continuous measure ranging from 0 to 1) using path modeling. Figure 2 displays the standardized coefficients for each of the significant predictors. Given that the latent class probabilities sum to 1 across all the groups, one class was chosen as the reference group for analyses (i.e., we chose the moderate and increasing group so that we could examine correlates and outcomes associated with probability of membership in low and high trajectories). Of note, data were re-analyzed using the probability of membership in high and increasing group and the low and stable as the reference groups, separately, and the findings were consistent with the results presented below (detailed results are available upon request from the first author). We found that adolescents who had mother figures with lower educational expectations for their daughters ($\beta = -.22, p = .001, 95\% \text{ CI: } -.36\text{--}-.09$), had lower levels of academic engagement ($\beta = -.21, p = .001, 95\% \text{ CI: } -.35\text{--}-.08$), and who reported an off-track school status at the time of pregnancy ($\beta = -.21, p = .01, 95\% \text{ CI: } -.37\text{--}-.05$) had a higher probability of being in the low and stable educational expectations group, relative to the moderate and increasing group. Notably, these effects are considered small (i.e., $.10 < \beta < .30$, Cohen, 1988); however, it is important to note that the relative strength of contextual variables in predicting membership in the low and stable group was similar across variables. Alternatively, compared to the moderate and increasing group, adolescents who had mother figures with higher educational expectations for their daughters ($\beta = .18, p = .01, 95\% \text{ CI: } .04\text{--}.32$), and who reported an on-track school status at the time of pregnancy ($\beta = .21, p = .02, 95\% \text{ CI: } .04\text{--}.38$), had a higher probability of being in the high and increasing expectations group, relative to the moderate and increasing group. Albeit small effect sizes, the strength of predictor variables was relatively similar.

Latent Class Probabilities of Trajectory Membership and Educational Attainment

Finally, we examined the association between young adult educational attainment (W4) and educational expectations class probabilities (i.e., continuous measures ranging from 0 to 1) using path modeling. Consistent with the previous model, the probability of membership in the moderate and increasing class was used as the reference group. Figure 3 displays the standardized coefficients for each significant path. Compared to the moderate and increasing group, the probability of membership in the low and stable trajectory class was associated with lower educational attainment at W4 ($\beta = -.15, p = .02, 95\% \text{ CI: } -.28\text{--}-.02$). The probability of membership in the high and increasing trajectory class was related to higher levels of educational attainment ($\beta = .12, p = .04, 95\% \text{ CI: } .01\text{--}.24$) at W4. Importantly, when the high and increasing trajectory class was used as the reference group, the probabilities of membership in both the low and stable class ($\beta = -.25, p < .001, 95\% \text{ CI: } -.39\text{--}-.11$) and the moderate and increasing class ($\beta = -.13, p = .04, 95\% \text{ CI: } -.24\text{--}-.01$) were associated with lower levels of educational attainment at W4. Further, when the low and stable trajectory class was used as the reference group, the probability of membership in both the moderate and increasing class ($\beta = .19, p = .02, 95\% \text{ CI: } .03\text{--}.35$) and the high and

increasing class ($\beta = .31, p < .001, 95\% \text{ CI: } .14-.48$) were associated with higher levels of educational attainment at W4. Notably, all effect sizes are considered small, with the exception of the comparison between the probability of membership in the low and high classes on educational attainment, which is considered to be a moderate-sized effect (i.e., $.30 < \beta < .50$; Cohen, 1988). With respect to W1 control variables, on-track school status ($\beta = .21, p = .003, 95\% \text{ CI: } .08-.35$), greater years of completed schooling ($\beta = .41, p < .001, 95\% \text{ CI: } .27-.54$), and high levels of mother figures' educational expectations for their daughters ($\beta = .12, p = .06, 95\% \text{ CI: } .00-.25$) were associated with higher levels of educational attainment at W4.

Discussion

This prospective longitudinal study was the first, to our knowledge, to use a person-centered approach (Magnusson, 2000) to examine heterogeneity in group trajectories of first-time pregnant Mexican-origin adolescents' educational expectations across the transition to parenthood. Guided by life course perspectives (Elder et al., 2003) and expectancy-value theory (Eccles & Wigfield, 2002), we identified several contextually relevant barriers and supports that were associated with unique patterns of change and stability in educational expectations across the transition to parenthood among this understudied population. Findings shed light on the critical supportive role of mother figures' expectations for their adolescent daughters and adolescents' on-track school status at the time of pregnancy as important predictors of high and increasing educational expectations. Several contextual correlates were associated with adolescent mothers' membership in the low and stable educational expectations group, including low academic engagement, mother figures' low expectations for their daughters, and an off-track school status at the time of pregnancy. Notably, a higher probability of being in the high and increasing educational expectation trajectory group was associated with higher educational attainment over time (on average, members of this group had earned a high school degree), an outcome that strongly contributes to occupational opportunities, social mobility, financial independence, and the developmental adjustment for the offspring of adolescent mothers (Hoffman, 2006; SmithBattle, 2007). Conversely, a higher probability of being in the low and stable expectations class group was associated with lower educational attainment (on average, members of this group had only completed 10 years of school), underscoring the need to address identified risk factors among Mexican-origin adolescent mothers.

Importantly, three-fourths (76%) of the current sample of Mexican-origin adolescent mothers had educational expectations that were above a high school degree and that actually increased across the transition to parenthood. This finding coincides with the qualitative work of SmithBattle (2007), who found that adolescent mothers perceived their pregnancy as a critical life event that propelled them to consider options and behaviors that could ensure a good future for themselves and their offspring. Yet, our finding is contradictory to existing quantitative research with African American adolescent mothers, which documented decreasing expectations post-partum (Barr & Simons, 2012). Nevertheless, our findings must be interpreted with caution, given that participants who did not complete all waves of the study tended to report lower educational attainment and have mother figures who reported lower educational expectations for them at W1, relative to those with complete

data; thus, non-participants may have had unique experiences that are not captured in the current findings given their absence at later waves of the study.

Given the discrepancy between the current study findings and similar work with African American adolescent mothers (i.e., Barr & Simons, 2012), further research is needed to illuminate potential methodological (i.e., person-centered versus variable-centered approaches) or cultural differences that may inform differential patterns of adolescent mothers' trajectories of educational expectations. For instance, Barr and Simons (2012) employed a variable-centered approach (i.e., focused on associations across sample participants), whereas the current study used a person-centered approach (i.e., focused on identifying meaningful subgroups of individuals within a sample to identify different patterns of change in expectations), which may have allowed for a more nuanced understanding of how adolescent mothers' expectations change during this transition. Further, the two studies were conducted in different decades (beginning in 1997 [Barr & Simons, 2012] versus 2007 [current study], respectively), suggesting that the broader political, social, and economic climates and discourses may have played an important role in understanding young mothers' expectations about their educational futures. Indeed, it is possible that educational expectations may have increased historically over time, given rises in students' expectations for prestigious occupations along with increases in the educational requirements necessary to obtain prestigious occupations (Goyette, 2008).

In addition, there may be important differences between African American and Mexican-origin adolescent mothers' perceptions of educational utility, given work suggesting that Black youth may disproportionately perceive low occupational returns for their educational accomplishments, compared to immigrant groups (Michelson, 1990). Future research is needed to better understand how methodological, chronological, and social factors may contribute to differences across studies, with a particular focus on how ethnic and racial groups' different sociopolitical and educational histories in the U.S. may inform findings. Nonetheless, a more comprehensive understanding of *why* some adolescents hold high and increasing educational expectations during the transition to parenthood, while others decrease their expectations is critical to inform intervention efforts aimed at increasing educational attainment of adolescent mothers.

Contextual Factors Associated with Educational Expectation Trajectories

Consistent with our expectations, we found that a higher probability of membership in the low and stable educational expectations group was associated with lower academic engagement at the time of pregnancy, lower educational expectations from their mother figures, and an off-track school status at the time of pregnancy. Furthermore, a higher probability of membership in the high and increasing educational expectations group was associated with higher educational expectations from their mother figures and an on-track school status. Findings emphasize the equally important intersection between educational contexts and the *developmental timing of pregnancy* for understanding heterogeneity in group trajectories of Mexican-origin adolescent mothers' educational expectations across the transition to parenthood.

Our findings highlight the salient role of mother figures' educational expectations for parenting Mexican-origin adolescents (Contreras et al., 2002). Because adolescent mothers' educational expectations are at risk for declining during their transition to parenthood (Barr & Simons, 2012), it is critical to note that mother figures' educational expectations may buffer against some risks associated with adolescent parenthood, and promote young mothers' educational pursuits. Future programming efforts with Mexican-origin adolescent mothers should consider the inclusion of mother figures, as mothers' educational expectations may serve a motivational and protective role for their daughters' educational pursuits (Contreras et al., 2002).

Results from the current study are consistent with notions of expectancy value theory (Eccles & Wigfield, 2002), highlighting the long-term contribution of previous educational experiences (e.g., academic engagement, on-track status), which are conceptualized to significantly influence youths' academic self-concept, goals, self-schemata (i.e., social identities), and ultimately achievement related beliefs, choices, and performance (Alivernini & Lucidi, 2011; Eccles, 2007). Findings suggest that pregnant adolescents may be more likely to have optimistic expectations for their futures when they hold more positive orientations toward education (Barr & Simons, 2002). Additionally, adolescent mothers' positive experiences with an on-track schooling status prior to the transition to motherhood may facilitate the formation of high and increasing expectations. Conversely, adolescent mothers who are off-track in school at the time of pregnancy may be more likely than their on-track counterparts to encounter barriers within the educational system (e.g., language barriers, lower parent involvement; Fry, 2005), underscoring the need for increased support from educators and schools to increase educational attainment for this at risk group (Erdmans, 2012). These adolescent mothers may lack access to important educational assets in their homes, neighborhoods, and schools, thus decreasing perceived opportunities for educational advancement (Barr & Simons, 2012; Mello, 2009; Trusty, 1998). Future research could investigate potential resources in schools (e.g., tutors for off-track students) and communities (e.g., mentors) that may mitigate adolescent mothers' educational underachievement and bolster higher educational expectations.

Trajectories of Educational Expectations and Young Adult Educational Attainment

Pregnant adolescents' on-track schooling status and years of completed schooling at the time of pregnancy, and mother figures' educational expectations for their pregnant daughters were positively associated with adolescent mothers' educational attainment three-years postpartum, suggesting that educational experiences and maternal support at the time of pregnancy are important indicators of adolescent mothers' educational attainment. Importantly, years of schooling completed at the time of pregnancy had the strongest association with young adult educational attainment, suggesting that it may be particularly important to focus on reducing barriers and strengthening supports to help pregnant adolescents remain in school. Pregnant adolescents' on-track school status and years of completed schooling may contribute to their academic competency beliefs and importantly facilitate access to resources and strategies necessary to fulfill their educational pursuits. Future research will be needed to understand the process through which educational

experiences and maternal support inform adolescent mothers' educational attainment (e.g., strategies, instrumental support).

Consistent with notions from expectancy-value theory (Eccles & Wigfield, 2002), adolescent mothers who had a higher probability of being in the low and stable expectations class achieved less educational attainment compared to their counterparts with a higher probability of being in the moderate and high and increasing educational expectation groups. Because the low and stable trajectory class was fairly static, it is possible that educational expectations of adolescents in this class may be persistently vulnerable to barriers discussed above that would impede their efforts to continue their education. Further, adolescent mothers in this group may have difficulty visualizing themselves as successful in the educational context (e.g., negative possible selves; Oyserman, Bybee, Terry, & Hart-Johnson, 2004), due to educational risk factors (e.g., limited educational support). Thus, adolescent mothers with low and stable expectations may benefit the most from intervention efforts aimed at facilitating high school completion and transitions to higher education for adolescent mothers. Future research can build on the current study by identifying adolescent-mother specific supports and barriers in schools (e.g., on-site child care, mentors), particularly for those who hold low educational expectations at the beginning of their pregnancy.

Study Limitations and Future Directions

The current study was not without limitations. Trajectories of adolescents' educational expectations were examined from the third trimester of pregnancy to three years later in this study. Ideally, data on educational expectations would be collected prior to the event of pregnancy to gain a better understanding of possible changes in adolescent mothers' educational expectations that occur following pregnancy. Additionally, given that adolescent mothers' educational pursuits typically take longer compared to non-parenting youth, as many adolescent mothers continue school (e.g., high school, college) throughout adulthood (SmithBattle, 2007), it will be important for future research to examine educational expectation trajectories among adolescent mothers throughout young adulthood. It is possible, for instance, that trajectory groups such as those with low expectations may attain more schooling at later points in life, as these adolescents encounter initial barriers (e.g., low family support) to forming high educational expectations in the early years postpartum. Further, given that the data came from an ethnically homogeneous sample of Mexican-origin adolescents, generalizability to other populations is unknown. The specificity of this study, however, may be regarded as a strength because it enabled an examination of the existing variability in educational expectations within this high-risk group, which is equally important.

Additionally, although a proxy measure of adolescents' school achievement (i.e., pregnant adolescents' academic engagement) was included in the current study, other measures of academic achievement (e.g., grades, standardized test scores) and liabilities (e.g., learning disabilities, grade retention) are likely strong indicators of Mexican-origin adolescent mothers' trajectories of educational expectations and should be examined in future work. Furthermore, the trajectories examined in the current study focused only on one domain of

adolescent mothers' educational endeavors (i.e., expectations). Future studies would benefit from including multiple open-ended questions to gain a more nuanced understanding of adolescent mothers' educational expectations (e.g., perceived possible selves) and their personal strategies to achieve their expectations. Further research is needed to understand the impact of social and institutional policies that may lessen barriers encountered by adolescent mothers. Finally, future studies should also consider the role of additional factors that could influence school outcomes after the birth of their first child (e.g., repeat pregnancy, employment status).

Despite these limitations, this study has a number of strengths, such as the use of longitudinal data to examine education-related processes among a population that has been traditionally neglected in the education literature (SmithBattle, 2007). Additionally, the current study is one of few empirical studies to examine associations between educational expectation trajectories and educational attainment among Mexican-origin adolescent mothers. Our findings underscore the potential positive contribution of moderate or high and increasing educational expectation trajectories to Mexican-origin adolescent mothers' actual educational attainment, highlighting the critical role of both mother figures' educational expectations for their daughters and adolescents' prior academic engagement.

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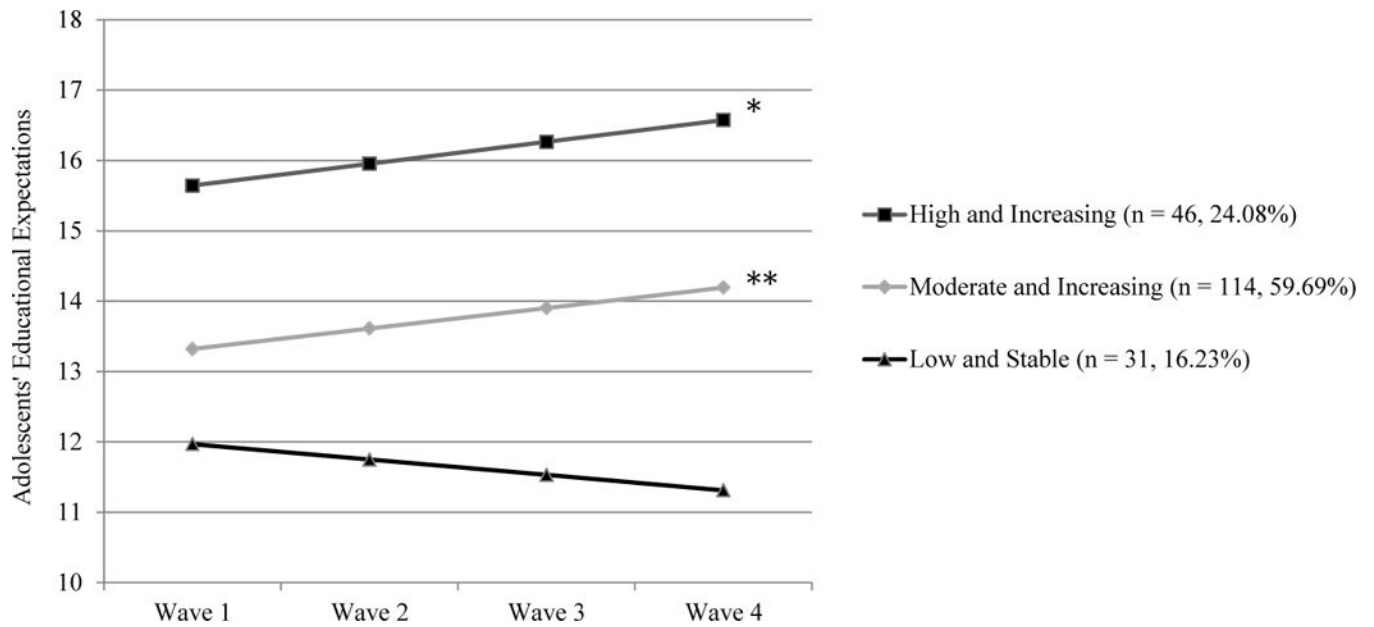


Figure 1.

Developmental trajectories of adolescents' educational expectations across the transition from pregnancy to parenthood.

Note. N = 191. Adolescents were on average 16.76 years at Wave 1, 17.72 years at Wave 2, 18.89 years at Wave 3, and 19.9 years at Wave 4. The description for the values on the y-axis are as follows: 10 (10 total years of school, Sophomore year of high school in the U.S.), 11 (11 total years of school, Junior year of high school in the U.S.), 12 (12 total years of school, High school completion), 13 (1 year post-secondary study), 14 (2 years post-secondary study / associate's degree), 15 (3 years post-secondary study), 16 (4 years post-secondary study / bachelor's degree), 17 (1 year professional/graduate study), and 18 (2 years professional/graduate study / master's degree). Asterisks denote significance levels of trajectory slopes. ** $p < .01$. * $p < .05$.

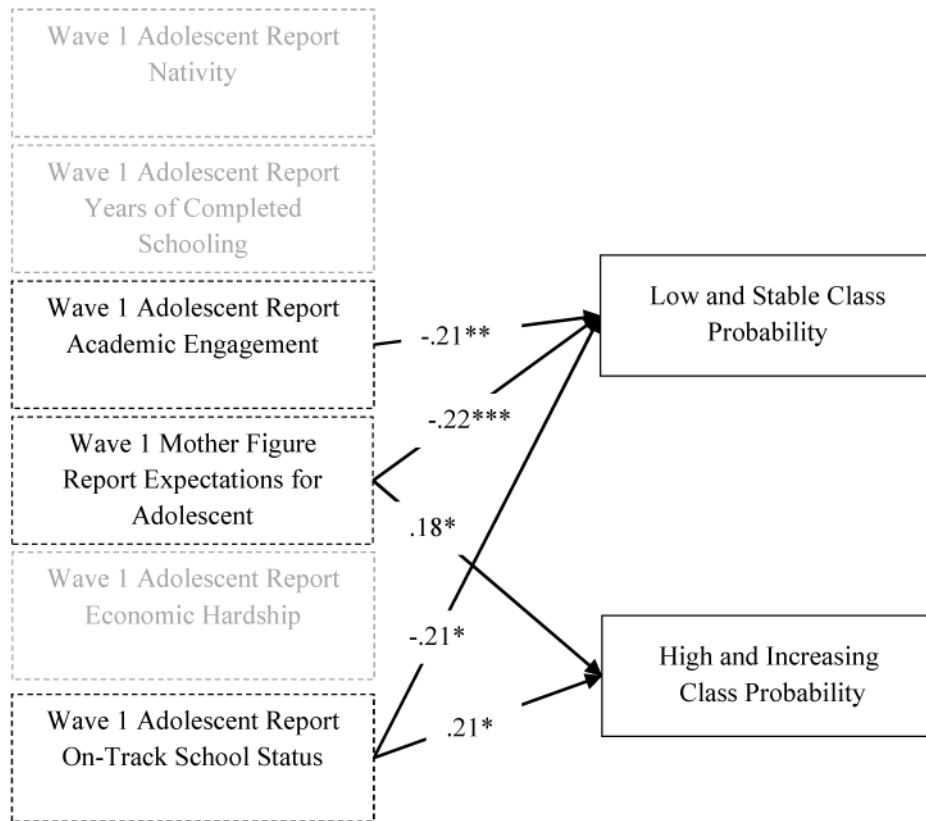


Figure 2. N = 191. Correlates of adolescents’ probability of educational expectation trajectory membership
Note. Nativity: 0 = Mexico-born, 1 = U.S.-born. On-track: 0 = not on-track, 1 = on-track. Standardized coefficients are presented. Only significant paths are shown. Covariates are represented by dashed lines. All non-significant predictors are indicated by grey font. The moderate and increasing class was used as the reference group. Model fit: χ^2 (df = 5) = 9.171, $p = 0.10$; CFI = 0.95; RMSEA = 0.07 (90% C.I. = 0.00, 0.13); SRMR = .05. $^{***} p < .001$. $^{**} p < .01$. $^* p < .05$.

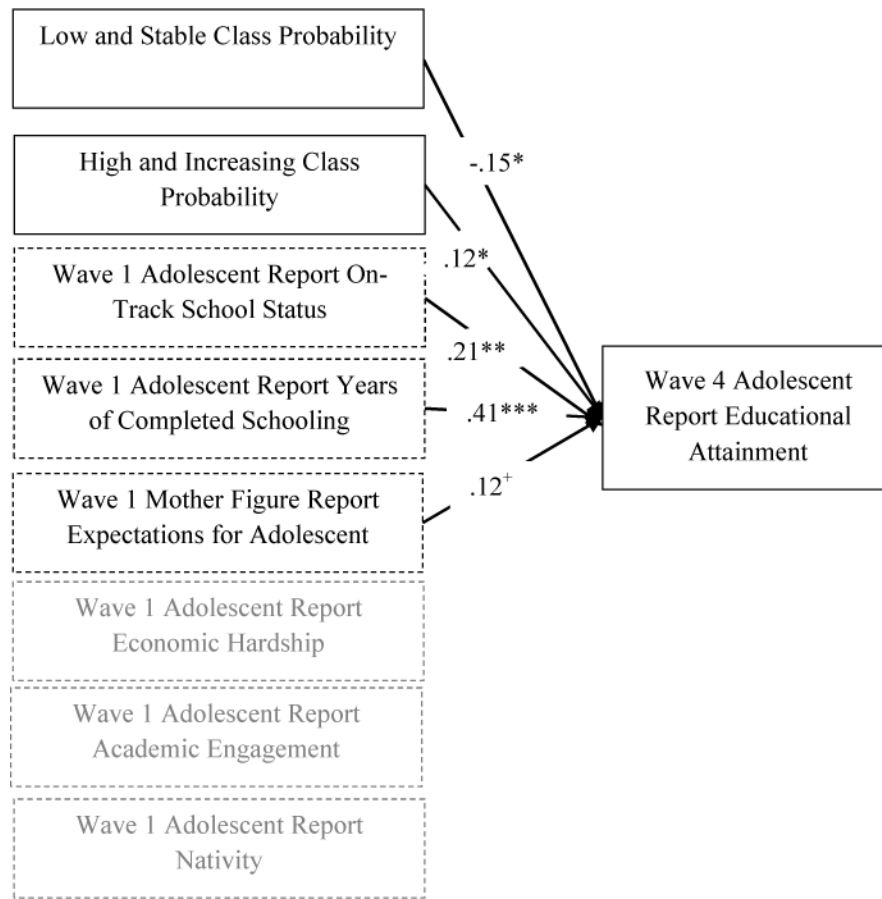


Figure 3. N = 191. Educational expectation trajectory probabilities as predictors of adolescents' educational attainment.
Note. Nativity: 0 = Mexico-born, 1 = U.S.-born. On-track: 0 = not on track, 1 = on track. Standardized coefficients are presented. Only significant paths are shown. Covariates are represented by dashed lines. All non-significant predictors are indicated by grey font. The moderate and increasing class was used as the reference group. Model fit: χ^2 (df = 7) = 11.77, $p = 0.11$; CFI = 0.95; RMSEA = 0.06 (90% C.I. = 0.00, 0.12); SRMR = .05. *** $p < .001$. ** $p < .01$. * $p < .05$.

Table 1
Means, Standard Deviations, and Correlations among Study Variables (N = 191)

	1	2	3	4	5	6	7	8	9	10	11
1. Adolescent Expectations Wave 1 ^a	–										
2. Adolescent Expectations Wave 2	.44***	–									
3. Adolescent Expectations Wave 3	.32***	.61***	–								
4. Adolescent Expectations Wave 4	.33***	.51***	.59***	–							
5. Nativity Wave 1 ^b	.13	.17*	.28***	.07	–						
6. Completed Schooling Wave 1 ^c	.23**	.35***	.28***	.11	.13	–					
7. On-Track School Status Wave 1 ^d	.29***	.38***	.41***	.31***	.21*	.59***	–				
8. Academic Engagement Wave 1 ^e	.28***	.33***	.24**	.20*	.07	.26***	.26***	–			
9. Mother Figure Expectations Wave 1	.23**	.36***	.20*	.28***	.08	.30***	.23**	.20**	–		
10. Economic Hardship Wave 1 ^f	-.14	-.11	-.11	-.16*	-.03	-.18*	-.21*	-.11	.03	–	
11. Educational Attainment Wave 4 ^g	.17*	.46***	.48***	.36***	.24**	.60***	.57***	.12	.33***	-.17*	–
Mean	13.52	14.12	14.08	14.31	0.63	9.67	0.74	3.37	13.33	-.11	11.23
Standard Deviation	2.11	2.35	2.11	2.30	0.48	1.40	0.44	0.54	2.47	2.50	1.48
Range	8–18	7–18	7–18	8–18	0–1	6–12	0–1	1–4	8–18	-4.6–8.5	7–14

^aNote. Educational expectations were coded based on the number of years of expected schooling, and participants had options up to PhD/ JD/ MD (e.g., 7 = 7 years of school, 18 = Master's Degree).

^bNativity: 0 = Mexico-born, 1 = U.S.-born.

^cYears of completed schooling was coded using the same rating scale as educational expectations.

^dOn-track: 0 = not on-track, 1 = on-track.

^eAcademic engagement was rated on a 4-point Likert scale ranging from *Strongly Disagree* (1) to *Strongly Agree* (4).

^fEconomic hardship was scored based on a composite score of four subscales (i.e., financial strain, inability to make ends meet, not having enough money for necessities, and economic adjustments or cutbacks), with higher values indicating greater perceived economic hardship.

^gEducational attainment was coded using the same rating scale as educational expectations.

* $p < .05$.

.100 > *p*

.10 > *p*
**

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