

# Social-Demographic, School, Neighborhood, and Parenting Influences on the Academic Achievement of Latino Young Adolescents

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Using data from a national sample of 388 Latino young adolescents, this study identified the social-demographic characteristics, influences in the broader social environment, and parenting practices that predict youth academic achievement. Youths who were Mexican American, older, and had an English language problem had lower levels of reading and mathematics achievement. Youths of mothers who began childbearing at older ages, had higher levels of intellectual abilities, and reported no English language problem scored better on both types of achievement tests, but poverty was related only to reading achievement. Attendance in higher-rated schools was associated with higher reading and mathematics scores, but residence in better quality neighborhoods was related only to reading achievement. Three parenting practices—providing cognitive stimulation, parent–youth conflict, and academic involvement—predicted both types of achievement. The effect of poverty on reading achievement was explained by residence in lower quality neighborhoods, lower levels of cognitive stimulation, and parent–youth conflict.

**KEY WORDS:** Latino academic achievement; poverty; school environment; neighborhood influences; parenting practices.

According to Census 2000, Hispanics are the largest minority racial/ethnic group in the United States, comprising 12.5% of the population (Grieco and Cassidy, 2001). If the current growth rate of Latinos continues, by 2010, they will constitute 20% of the nation's population (Marotta and García, 2003). The Latino population not only is disproportionately young (U.S. Census Bureau, 1999), but Latino children and youths are disproportionately poor. An estimated 28% of Latinos under the age of 18 live in poverty, a poverty rate almost three times that of non-Hispanic Whites, and comparable to the poverty rate (30%) of African American children and adolescents (U.S. Census Bureau, 2002).

Research has documented the adverse effects of economic hardship on multiple measures of child and adolescent well-being, including academic achievement (Guo, 1998; Korenman *et al.*, 1995; Roscigno, 2000; Smith *et al.*, 1997). In addition to poverty, many Latino children and youths are exposed to other kinds of developmental risks both within and outside of the home. Within the home, those risks include being born to teenaged mothers, being reared by parents with limited English skills, and living in single-mother and large family households. Outside the home, attending low-quality, segregated schools and residing in disadvantaged neighborhoods are among those risks (Bumpass and Lu, 2000; Leyendecker and Lamb, 1999; Marín and Marín, 1991). Given the multiple risk factors that Latino children and youths can face, it is not surprising that Latinos tend to score lower on academic achievement tests (Ainsworth, 2002; Roscigno, 2000), attain fewer years of education (U.S. Department of Education, 2003), and fare worse on subsequent economic indicators such as earnings and family income (Marotta and García, 2003),

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compared to Caucasians and sometimes other minority groups.

The main goal of the present study is to examine the social-demographic characteristics and influences in the broader social and more immediate home environments that predict the academic achievement of a national sample of Latino young adolescents. Identifying the factors that are related to academic achievement is particularly important for Latino youths, because academic achievement predicts high school dropout (Catterall, 1998; Fernandez and Paulsen, 1989) and subsequent educational attainment and earnings (Jencks and Phillips, 1999). The Bronfenbrenner (1977) ecological systems model, which recognizes that developmental outcomes are determined by the characteristics of the developing individual and the quality and consistency of interactions in and between multiple systems, provides a theoretical framework for this analysis. Consistent with the Bronfenbrenner model, other researchers (García Coll *et al.*, 1999) have argued that in order to understand developmental outcomes of minority children, studies must examine the unique ecological experiences that are not (or as frequently) shared by Caucasians. For Latinos, attending low-quality schools, residing in disadvantaged neighborhoods, and acculturation experiences might be particularly relevant. This study examines the social-demographic variables and influences within and outside the home that the following research review indicates predict Latino youth academic achievement.

### Social-Demographic Characteristics

As the Bronfenbrenner (1977) model suggests, social-demographic characteristics of the youth and family might influence academic achievement directly, or indirectly by exposing youths to high-risk outside environments or by affecting parenting practices within the home. Latino Americans are a diverse population, including individuals of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish origin (Grieco and Cassidy, 2001). Latino subgroups vary in their immigration experiences, education, income, family structure, and parenting practices (Marín and Marín, 1991; Martínez, 1999), indicating the importance of controlling for subgroup differences in any analysis. Several studies on national and Latino samples indicate that females outperform males on standardized reading achievement tests, and males outperform females on mathematics achievement tests, although the latter relation is less consistent (Guo, 1998; Hao and Bonstead-Bruns, 1998; Keith and Lichtman, 1994; U.S. Department of Education, 2003). Scholars have explained those findings by differences between males and females in interests, attitudes, and

learning opportunities (Entwisle *et al.*, 1994; Oaks, 1990). Differential parenting practices also might contribute to gender differences in achievement. Latino parents, for example, were found to provide more rules, structure, and supervision for young adolescent females than for males (Bulcroft *et al.*, 1996).

During the early adolescent years, youths experience multiple individual and social-environmental changes that can affect their academic performance. Those changes include emerging puberty, school transitions, declines in academic motivation, increased neighborhood and peer involvement, and decreased dependence on and increased conflict with parents (Eccles *et al.*, 1993). As youths become more active in their schools, neighborhoods, and peer groups, these outside influences likely become increasingly important. Youths who are not proficient English speakers tend to perform less well on standardized achievement tests compared to proficient English speakers (Abedi and Lord, 2001). Limited English speakers would likely have difficulty in understanding classroom lessons spoken and test questions written in English, or they might be placed in less rigorous academic classes (Zsembik and Llanes, 1996).

Although research has not always been consistent, maternal characteristics (such as intelligence, educational attainment, and early childbearing) and family structure also can affect youth academic achievement (Ainsworth, 2002; Battle, 1997; Guo, 1998; Hao and Bonstead-Bruns, 1998; Korenman *et al.*, 1995; Roscigno, 2000; Smith *et al.*, 1997). Youths of more educated and intelligent mothers tend to have higher academic achievement test scores, a relation that can be explained by genetic influences (Plomin, 1989) and by the better quality home environments that mothers with more intellectual abilities can provide (Eamon, 2002; Guo and Harris, 2000). Mothers who postpone childbearing might be more mature emotionally than younger mothers, enabling older mothers to provide more cognitively stimulating and emotionally supportive home environments (Menaghan and Parcel, 1991). Unmarried mothers and mothers with large families likely would face time constraints that interfere with providing supportive and involved parenting, and a father's absence can reduce overall parent-child interactions (McLanahan, 1985). Those maternal and family characteristics, however, might not be as important to Latino youths, because of the child rearing support and assistance frequently received from nuclear and extended family members (García Coll *et al.*, 1999; Martínez, 1999).

In Latino populations, various scales have been used to measure acculturation, many relying heavily on indicators of English language usage and generational status (Dinh *et al.*, 2002). Acculturation—the process of individuals from one culture modifying their behaviors,

beliefs, and values as a result of contact with another culture—can be a stressful experience for many Latinos (Leyendecker and Lamb, 1999). Other stressors associated with immigration, including changes in social networks and discrimination, and the depression that can result from acculturation stress (Hovey, 2000) might negatively influence parenting practices. Less-acculturated parents also might be ill prepared to be involved in their youths' academic activities or unwilling or unable to interact with school personnel (Keith and Lichtman, 1994; Plunkett and Bámaca-Gómez, 2003). Acculturation level also might affect family relationships, which, in turn, might influence youth academic achievement. For example, low-acculturated families were found to be more cohesive, but bicultural families had lower levels of conflict, compared to low- and high-acculturated families (Miranda *et al.*, 2000). Higher acculturation scores of Latina mothers also were associated with more cohesive and adaptable families, and those mothers used less rejection and inconsistent discipline than less-acculturated mothers (Knight *et al.*, 1994).

Studies have established relations between economic hardship and academic achievement in diverse samples of children and adolescents (Eamon, 2002; Guo, 1998; Roscigno, 2000; Smith *et al.*, 1997), with the effect of persistent poverty having a stronger relation to academic achievement than a 1-year measure (Korenman *et al.*, 1995). Poverty can influence Latino youth achievement by exposing youths to high-risk social environments and by adversely affecting parenting practices. Poor youths are more likely than nonpoor youths to live in disadvantaged neighborhoods, characterized by low social support, unemployment, and high crime (Eamon, 2001; Wilson, 1991) and are more likely to attend low-quality, resource-poor schools (National Research Council, 1993). Economic hardship also appears to lower youth academic achievement by creating economic stress, which disrupts involved parenting, increases negative and conflicted family interactions, and constrains parents' ability to provide cognitively stimulating home environments (Conger *et al.*, 1993; Eamon, 2002; Guo and Harris, 2000; Gutman and Eccles, 1999).

### Outside School and Neighborhood Environments

Consistent with the Bronfenbrenner model, interactions and influences in other ecological environments such as the school and neighborhood, and between systems such as in the school and home, also might affect youth academic achievement. Latinos attend some of the nation's most segregated and poorly-funded schools, resulting in educational disadvantages such as low-quality

facilities, poor student attitudes toward academic achievement, and low course work level (Chapa and Valencia, 1993; DeBlassie and DeBlassie, 1996; U.S. Department of Education, 2003). Students who attend schools with high percentages of poor and minority students, serious crime problems, low instructional expenditures, and few opportunities to enroll in advanced courses, in turn, have lower achievement scores (Catsambis and Beveridge, 2001; Hao and Bonstead-Bruns, 1998; Roscigno, 2000; U.S. Department of Education, 2003). Research also has related the school's social environment—the supportive relationships among students and teachers and the norms and rules regulating social behavior—to school achievement and to student attitudes such as academic motivation (Alva, 1991; Battistich *et al.*, 1995; Tan, 1999). In addition, schools frequently do not address Latino students' special language and other cultural needs (Leyendecker and Lamb, 1999). A cultural conflict or “mismatch” in behavior, values, and communication styles between the youth's school and home also might adversely affect learning and the youth's attachment to the school, resulting in underachievement (Bernal *et al.*, 1991).

Youths who reside in better quality neighborhoods tend to perform better academically, compared to youths who live in resource-poor neighborhoods (Ainsworth, 2002; Dornbusch *et al.*, 1991; Entwisle *et al.*, 1994; Gillock and Reyes, 1999). Lack of appropriate role models and adult supervision, restricted career and employment opportunities, and unsupportive or unhelpful social networks are among the explanations for the influence of disadvantaged neighborhoods on academic achievement (Ainsworth, 2002). Low-quality neighborhoods also might indirectly influence youth academic achievement by adversely affecting parents. Disadvantaged neighborhoods can provide inadequate informal and institutional resources to assist parents in socializing their children and providing them with educational opportunities (Catsambis and Beveridge, 2001; Elliott *et al.*, 1996), can increase parental depression (Ross, 2000), and can reduce parental warmth and responsiveness (Klebanov *et al.*, 1994).

### Parenting Practices Within the Home

Scholars have suggested that interactions within the microsystem of the family might be particularly important to Latinos, because of the strong values that many Latinos hold regarding the importance of family, cooperation, and positive interactions (Leyendecker and Lamb, 1999; Marín and Marín, 1991). Parenting practices that are emotionally supportive and responsive, are involved in youths' academic lives (e.g., discuss school issues, assist in planning school courses, and contact the school about

academics), and provide youths with cognitively stimulating materials and experiences, have predicted better academic outcomes for children and adolescents in diverse samples, including Latino samples (Conger *et al.*, 1993; Desimone, 1999; Eamon, 2002; Gray and Steinberg, 1999; Guo and Harris, 2000; Keith and Lichtman, 1994).

### Current Study

In this study, I analyzed data from a national sample of 10- through 14-year-old Latino youths to assess the social-demographic, broader social environment, and parenting influences on academic achievement. I also specifically examined the variables that mediate or explain the relation between poverty and Latino youth academic achievement. This study is unique in using a national sample of Latinos to simultaneously examine the multiple social-demographic, school, and neighborhood influences, and parenting practices that predict Latino academic achievement.

## METHOD

### Sample

Data for this analysis were extracted from the National Longitudinal Survey of Youth (NLSY) and the NLSY mother-child datasets (Center for Human Resource Research, 2000). In 1979, 12,686 individuals between the ages of 14 and 21, including an oversample of Hispanics, comprised the original NLSY. In 1986 and every 2 years afterwards, a number of assessments were administered to the original NLSY females and to their biological children. The sample for this study included NLSY Latina mothers' young adolescents, 10 through 14 years of age, who in the most recent of 3 years (1996, 1998, or 2000, referred to as "assessment year") completed a self-administered survey, resided with their mothers, attended school, and had valid Peabody Individual Achievement Test (PIAT) Reading Comprehension and Mathematics scores. To meet the assumption of statistical independence, one adolescent was randomly selected from families with multiple adolescents, resulting in a final sample of 388 Latino youths.

### Measurements

#### *Independent Variables*

Youth characteristics included Latino origin (Mexican American, Puerto Rican, or other), based

on the mother's identification of her first or primary race/ethnicity; gender; age at the assessment (years, to one decimal place); and whether the youth had an English language problem (coded 1 if during any surveys up to and including the assessment year, the interviewer indicated that the child had problems with English, terminated the interview because of an English language problem, or conducted the interview in Spanish). Maternal characteristics included the mother's age at the birth of her first child (continuous), years of education completed by the assessment year (continuous), percentile score on the Armed Forces Qualification Test (AFQT) administered in 1980, and two measures of acculturation (English language problem and U.S. birth). The AFQT percentile score was computed from raw scores for four sections of the Armed Services Vocational Aptitude Battery related to mathematics and reading abilities. Scores range from 1 to 99 (Center for Human Resource Research, 2001). The AFQT score is frequently used in research as a measure of intellectual ability. If the mother indicated in either of 2 years (1979 or 1982) that she had a "hard time getting a job because English was a foreign language," and if the mother was not born in the United States, those variables were coded 0, and 1 otherwise to represent higher levels of acculturation. Family variables included an average adult-to-child ratio, calculated by dividing the number of adult caretakers in the household (the mother, her spouse, and females over the age of 18) by the number of the mother's children, from the year of the child's birth to the assessment year. The ratios were then added and divided by the number of interviews. This variable was expected to measure the frequently observed shared child-rearing practices in Latino families and the child assistance and support available to mothers and youths, relative to the number of children. Latino fathers tend to be highly involved with their children (Hofferth, 2003), but through gender-role socialization, many Latinos believe that women are primarily responsible for child rearing (Marín and Marín, 1991). Based on this research, I counted only the mother's spouse and adult females in the numerator of the adult-to-child ratio. Poverty was measured by the proportion of youths' lives they were poor (from the year of the youth's birth to the assessment year, using the years in which income information was available), using the federal government's official poverty thresholds.

Because of the multiple items in the NLSY that could measure the school, neighborhood, and parenting practices variables, I first selected items believed to represent those constructs and performed principal components analyses. I selected the final variables based on factor loadings (at least .45), alpha levels, and their associations with

academic achievement. School environment was measured by a composite score of youths' rating their schools (1 = very true; 4 = not at all true) on four different items: most of the classes are boring, children don't feel safe at this school, most teachers don't know their subject well, and children can get away with almost anything (scores range from 4 to 16; Cronbach's alpha = .58). Neighborhood quality was defined by a composite score of mothers' rating (1 = a big problem; 3 = not a problem) the seriousness of seven problems in their neighborhoods: lack of respect for rules and laws, crime and violence, abandoned or run-down buildings, insufficient police protection, parents not supervising their children, people keeping to themselves and not caring what goes on in the neighborhood, and finding jobs (scores range from 8 to 21; alpha = .85). For both variables, higher scores indicate better quality schools and neighborhoods.

I included three parenting practices in the analysis. Cognitive stimulation was defined as an additive scale of three items: number of books youths owned (1 = none; 4 = 20 or more), youths had a musical instrument, and a computer was present in the home (scores range from 1 to 6; alpha = .50). Parent-youth conflict was measured by youths' responses to how frequently (0 = never; 3 = often) youths and their parents argued over rules about watching television, the youth's whereabouts, homework, and dating (scores range from 4 to 12; alpha = .68). I measured academic involvement by an additive score of youths' indicating (0 = never; 3 = often) how frequently they discussed school activities or events; things studied in class, grades, or report card; and community, national, or world events (scores range from 2 to 12; alpha = .62).

Approximately 23% of the sample had missing information on at least one independent variable. I imputed missing data using the matching procedures available in Interactive LISREL (du Toit and du Toit, 2001). The models presented in the Results section were estimated on the sample ( $n = 300$ ) with no missing information; results were substantively the same.

### *Dependent Variables*

Reading achievement was measured by the youth's standardized score on the PIAT Reading Comprehension subscale, consisting of 66 items of increasing difficulty. Mathematics achievement was measured by the young adolescent's standardized score on the PIAT-Mathematics subscale, which tests increasingly more difficult mathematical concepts taught in typical classrooms. The norming sample used to standardize the achievement scores has a mean of 100 and a standard deviation of 15 (for a more

detailed discussion of the norming procedures, see Center for Human Resource Research, 2000).

### **Data Analysis**

Four hierarchical multiple (OLS) regression models for each PIAT score were estimated. In Step 1, reading and mathematics achievement scores were regressed on the youth characteristics (Latino origin, gender, age, and English language problem). Those variables were placed first into the models in order to determine whether they had direct effects on the achievement scores, which were not explained by their relations with maternal and family characteristics, school and neighborhood environments, and parenting practices. The maternal and family characteristics were entered into the models in Step 2. Those variables were placed into the models before the remaining two blocks of variables, because any effects of maternal and family characteristics (including poverty) on Latino youth academic achievement might be mediated by the broader social environment and parenting practices. In Step 3, the school and neighborhood variables were entered. Those variables were entered before the parenting practices variables, because parenting practices might be influenced by the broader social environment. Finally, the parenting variables were entered in Step 4. To determine if the variables measuring the broader social environment and parenting practices explained the effect of poverty on academic achievement, I used the criteria of Baron and Kenny (1986) for demonstrating mediation. That is, the independent and mediator variables must be significantly related to the dependent variable, and when the mediator variables are added to the model, the effect of the independent variable must be eliminated or significantly reduced.

### **RESULTS**

Descriptive statistics (means and standard deviations or percentages) for the variables in the analysis are presented in Table I.

Table II reports the hierarchical multiple regression results for reading and mathematics achievement among Latino young adolescents. In Step 1, when reading and mathematics achievement were regressed on the youth characteristics, those variables accounted for a small, but significant proportion of the variance in both scores (for reading achievement,  $R^2 = .05$ ,  $F = 3.73$ ,  $p < .01$ ; for mathematics achievement,  $R^2 = .04$ ,  $F = 3.51$ ,  $p < .01$ ). Identical youth characteristics predicted both types of academic achievement. The standardized coefficients

**Table I.** Percentages or Means and Standard Deviations for the Study Sample ( $N = 388$ )

Variable	Percentage	Mean	Standard deviation
<i>Independent variables</i>			
Youth characteristics			
Latino origin			
Mexican American	69.33		
Puerto Rican	15.98		
Other	14.69		
Gender			
Male	53.09		
Female	46.91		
Age (.1 years)		12.53	1.25
English language problem			
At least 1 indicator	16.49		
No indicators	83.51		
Maternal and family characteristics			
Mothers' age at first birth		20.98	3.41
Mothers' years of education completed		11.66	2.84
Mothers' AFQT score		22.74	20.49
Mothers' English language problem			
No	79.64		
Yes	20.36		
Mothers born in the United States			
Yes	70.36		
No	29.64		
Average adult-to-child ratio		1.02	.45
Proportion of youths' lives poor		.32	.34
School and neighborhood environments			
School environment		12.22	2.44
Neighborhood quality		17.84	3.27
Parenting practices			
Cognitive stimulation		4.10	1.38
Parent-youth conflict		6.43	2.13
Academic involvement		7.81	2.40
Dependent variables			
Reading achievement		95.15	13.22
Mathematics achievement		97.84	13.51

Note: AFQT = Armed Forces Qualifying Test.

are similar in size, but youths' English language problem has a larger effect on reading versus mathematics achievement. The significant standardized coefficients indicate that Mexican Americans, compared to youths of other Latino origins ( $\beta = -.15$  for reading and  $\beta = -.16$  for mathematics achievement), older youths ( $\beta = -.11$  for reading and  $\beta = -.10$  for mathematics achievement), and youths with an English language problem ( $\beta = -.15$  for reading and  $\beta = -.11$  for mathematics achievement), had lower levels of academic achievement.

Adding the maternal and family characteristics in Step 2 significantly increased  $R^2$  in both models (by .17 and .13, for reading and mathematics achievement, respectively). Youths whose mothers began childbearing at later ages ( $\beta = .12$  for reading and  $\beta = .15$  for mathemat-

ics achievement), had more intellectual abilities ( $\beta = .28$  for reading and  $\beta = .25$  for mathematics achievement), and had no English language problem ( $\beta = .12$  for reading and  $\beta = .18$  for mathematics achievement) had higher achievement scores. Contrary to expectations, the proportion of their lives youths lived in poverty was related significantly only to reading achievement ( $\beta = -.14$ ). Compared to the other standardized coefficients, the effects of mothers' intellectual abilities on both types of achievement are relatively large.

Adding the school and neighborhood variables into the models in Step 3, also significantly increased the explained variance in both models (by .04 and .02, for reading and mathematics achievement, respectively). Youths who perceived more positive school environments had higher levels of both reading ( $\beta = .17$ ) and mathematics ( $\beta = .11$ ) achievement, but neighborhood quality is related to only reading achievement ( $\beta = .12$ ). As shown in Table II, adding the neighborhood and school environment variables in Step 3 reduced the standardized poverty coefficient for the reading achievement model by 21%. Although the poverty coefficient remained statistically significant, this reduction and the significant coefficient for poverty ( $\beta = -.23$ ;  $p < .001$ ) when the neighborhood variable was regressed on the independent variables in Step 2, indicate that the effect of poverty on Latino youth reading achievement is partially mediated by neighborhood quality. Poverty was not significantly related to the school environment.

Adding the parenting variables in Step 4 also resulted in a significant increase in  $R^2$  (.04 for reading and .03 for mathematics achievement). Youths whose parents provided more cognitive stimulation ( $\beta = .14$  for both scores) and were more academically involved with them ( $\beta = .09$  for reading and  $\beta = .11$  for mathematics achievement) had higher academic achievement scores. Parent-youth conflict was related to lower levels of both reading ( $\beta = -.14$ ) and mathematics ( $\beta = -.10$ ) achievement.

As shown in Table II, adding the parenting variables into the reading achievement model resulted in the coefficient for poverty becoming negligible ( $\beta = -.03$ ) and statistically insignificant. When the three parenting variables were regressed on the independent variables included in Step 2 (ordered logistic regression was used), the poverty coefficients for the cognitive stimulation ( $\beta = -.43$ ;  $p < .001$ ) and parent-youth conflict ( $\beta = .14$ ;  $p < .05$ ) models were significantly different from zero. Poverty was not significantly related to academic involvement. Results indicated that the longer Latino youths lived in poverty, the less likely they were to reside in high quality neighborhoods, the less likely their parents were to

**Table II.** Summary of Hierarchical Regression Results Predicting Reading and Mathematics Achievement of Latino Young Adolescents ( $N = 388$ )

Variable	Reading achievement			Mathematics achievement		
	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	$\beta$
<b>Step 1</b>						
Mexican American (other)	-4.26	1.90	-.15*	-4.80	1.94	-.16*
Puerto Rican	-3.36	2.39	-.09	-4.34	2.44	-.12
Male	.08	1.32	.00	1.84	1.35	.07
Age	-1.13	.53	-.11*	-1.06	.54	-.10*
Youths' English language problem	-5.20	1.78	-.15**	-4.04	1.82	-.11*
<b>Step 2</b>						
Mexican American (other)	-1.94	1.81	-.07	-2.53	1.90	-.09
Puerto Rican	.30	2.26	.01	-1.12	2.38	-.03
Age	-.46	.51	-.04	-.38	.53	-.03
Male (female)	.07	1.22	.00	1.63	1.29	.06
Youths' English language problem	-2.25	1.84	-.06	-1.58	1.93	-.04
Mothers' age at first birth	.48	.22	.12*	.58	.23	.15*
Mothers' years of education	-.25	.29	-.05	-.41	.31	-.09
Mothers' AFQT score	.18	.04	.28***	.17	.04	.25***
No English language problem	3.84	1.82	.12*	5.90	1.92	.18**
Mother born in U.S.	-1.37	1.62	-.05	-2.51	1.71	-.09
Average adult-to-child ratio	.50	1.59	.02	-.83	1.68	-.03
Proportion youths' lives poor	-5.44	2.14	-.14*	-3.11	2.25	-.08
<b>Step 3</b>						
Mexican American (other)	-2.20	1.77	-.08	-2.71	1.89	-.09
Puerto Rican	.67	2.21	.02	-.88	2.37	-.02
Male	.82	1.21	.03	2.10	1.29	.08
Age	-.11	.51	-.01	-.16	.54	-.01
Youths' English language problem	-2.07	1.79	-.06	-1.47	1.92	-.04
Mothers' age at first birth	.45	.22	.11*	.55	.23	.14*
Mothers' years of education	-.27	.29	-.06	-.42	.31	-.09
Mothers' AFQT score	.17	.04	.26***	.16	.04	.24***
No English language problem	3.26	1.79	.10	5.53	1.92	.16**
Mother born in U.S.	-.78	1.59	-.03	-2.13	1.70	-.07
Average adult-to-child ratio	.55	1.56	.02	-.80	1.67	-.03
Proportion youths' lives poor	-4.43	2.13	-.11*	-2.46	2.28	-.06
School environment	.92	.25	.17***	.59	.27	.11*
Neighborhood quality	.47	.19	.12*	.30	.21	.07
<b>Step 4</b>						
Mexican American (other)	-1.37	1.74	-.05	-1.94	1.87	-.07
Puerto Rican	.78	2.17	.02	-.84	2.33	-.03
Male	.81	1.18	.03	2.10	1.27	.08
Age	-.06	.51	-.01	-.04	.54	-.00
Youths' English language problem	-1.56	1.76	-.04	-.97	1.89	-.03
Mothers' age at first birth	.37	.21	.10	.48	.23	.12*
Mothers' years of education	-.43	.28	-.09	-.60	.31	-.13
Mothers' AFQT score	.15	.04	.24***	.14	.04	.22***
No English language problem	3.51	1.76	.11*	5.67	1.89	.17**
Mother born in U.S.	-1.20	1.56	-.04	-2.60	1.68	-.09
Average adult-to-child ratio	.72	1.53	.02	-.75	1.64	-.03
Proportion youths' lives poor	-1.27	2.25	-.03	.54	2.42	.01
School environment	.72	.25	.13**	.38	.27	.07
Neighborhood quality	.50	.19	.12**	.33	.20	.08
Cognitive stimulation	1.38	.54	.14*	1.37	.58	.14*
Parent-youth conflict	-.84	.28	-.14*	-.63	.30	-.10*
Academic involvement	.50	.25	.09*	.64	.27	.11*

Note: For reading achievement,  $R^2 = .05$  for Step 1;  $\Delta R^2 = .17$  ( $p < .001$ ) for Step 2;  $\Delta R^2 = .04$  ( $p < .01$ ) for Step 3; and  $\Delta R^2 = .04$  ( $p < .01$ ) for Step 4. For mathematics achievement,  $R^2 = .04$  for Step 1;  $\Delta R^2 = .13$  ( $p < .001$ ) for Step 2;  $\Delta R^2 = .02$  ( $p < .01$ ) for Step 3; and  $\Delta R^2 = .03$  ( $p < .05$ ) for Step 4. For the final models,  $R^2 = .30$  for reading achievement, and  $R^2 = .22$  for mathematics achievement. AFQT = Armed Forces Qualifying Test. Reference variables are in parenthesis. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ , for two-tailed tests.

provide cognitive stimulation, and parent–youth conflict increased. Those influences, in turn, were associated with lower levels of reading achievement. Results of the final model also indicate that the school and neighborhood environments had direct influences on Latino youths' reading achievement even after the parenting variables were entered into the model. The coefficient for school environment for the final mathematics model, however, was no longer statistically significant.

## DISCUSSION

Consistent with the Bronfenbrenner model, this research indicates multiple influences on the academic achievement of Latino youths. Those influences include social-demographic characteristics, school and neighborhood environments, and parenting practices. This study highlights the importance of not only examining the social-demographic characteristics of youths and their families, but interactions in environments both within and outside of the home. Interventions and social policies also are suggested, the effectiveness of which can only be determined by future research.

### Social-Demographic Characteristics

The academic underachievement of Mexican Americans found in this study is consistent with other research comparing youths of different Latino origins (Portes and MacLeod, 1996) and various immigrant groups (Hao and Bonstead-Bruns, 1998). Unfortunately, educational attainment and academic achievement for many Mexican Americans do not improve with generational status (Chapa and Valencia, 1993; Padilla and Gonzalez, 2001; Zsembik and Llanes, 1996). Social-economic and other factors such as discrimination, hostile treatment by immigration officials, and residence in transient communities might account for this underachievement (Portes and MacLeod, 1996). Because Mexican Americans are the largest Latino subgroup in the nation (Marotta and García, 2003), educational policies and interventions that assist Mexican American youths to achieve academic success appear to be particularly important.

The decline in Latino youths' achievement test scores between the ages of 10 and 14 might be due to the developmental changes associated with the transition into early adolescence (Eccles *et al.*, 1993). Those results also are consistent with research indicating that children from disadvantaged backgrounds tend to exhibit low academic performance early in life, and continue to experience declines

over time (Jimerson *et al.*, 1999). Programs designed to improve the academic achievement of Latinos must begin early, and early childhood programs such as Head Start can increase Latino academic achievement (Currie and Thomas, 1999). Because Latino children are less likely than Caucasians and African Americans to attend early childhood programs (Federal Interagency Forum on Child and Family Statistics, 2003), communities must enhance efforts to increase Latino children's participation.

Youth's English language problem was associated with lower reading and mathematics achievement scores, a finding that is consistent with other research (Abedi and Lord, 2001). Limited English skills, not Spanish proficiency, however, appear to account for the relation between language problems and low academic achievement (Solis, 1995). Studies indicate that retention of parental language can even facilitate academic achievement (Hao and Bonstead-Bruns, 1998; Yeung, 2000). Those research findings, in conjunction with the large increase during the last two decades in the number of children and youths whose home language is Spanish (U.S. Department of Education, 2003), indicate the need for educational programs to assist second language users, while encouraging the retention of their home language. Unfortunately, bilingual education has become politicized, but effective programs do exist (Schwartz, 2000) and need to be more frequently implemented.

Latino youths of mothers, who began childbearing at older ages, had more intellectual abilities, and were better English speakers had higher academic achievement scores. Although the literature review in the introduction indicated inconsistent research findings for relations between maternal and family characteristics and youth academic achievement, the current study suggests that programs assisting Latinas to postpone childbearing and to increase their intellectual abilities and English language proficiency will improve their children's academic achievement. Other research documents the difficulties that parents with English language problems have in being academically involved with their youths in the home and school (Keith and Lichtman, 1994). Educators and parents themselves also agree that parents' limited English skills can impede their children's academic success (McLaughlin *et al.*, 2002).

The proportion of their lives that Latino youths lived in poverty was related to reading, but not mathematics achievement. The latter finding was unexpected and is inconsistent with other research that demonstrates a relation between long-term measures of poverty and both types of achievement (Guo and Harris, 2000; Korenman *et al.*, 1995). Other research suggests that poverty occurring in early childhood, when children are acquiring basic

cognitive skills, is the most vulnerable period (Duncan and Brooks-Gunn, 1997). Guo (1998), on the other hand, argued that during the adolescent period, youths might be particularly vulnerable to the effects of poverty. Poverty can create impoverished environments, which can result in lower levels of academic achievement by decreasing youths' motivation and opportunity. Guo found in his study that 3 years of income measured during the early adolescent years had a stronger impact on achievement, compared to income measured earlier in the child's life. Other research suggests that the effects of the timing of poverty might be different for reading than for mathematics achievement (Pungello *et al.*, 1996).

Regardless of these inconsistent findings and theories, consistent with previous research (Conger *et al.*, 1993; Eamon, 2001, 2002; Gomel *et al.*, 1998; Guo and Harris, 2000), this study found that the longer Latino youths lived in poverty, the less likely they were to reside in quality neighborhoods and to be exposed to cognitively stimulating home environments, and the more likely they were to engage in conflict with their parents. These factors, in turn, predicted lower levels of reading achievement. Persistent poverty was not related to youths' school environments or to their parents' academic involvement. Those findings suggest that social policies assisting Latino families to increase their income might result in residing in better quality neighborhoods, providing more cognitively stimulating home environments, and reducing parent-youth conflict, all of which can improve youth reading performance. Alternatively, other policies such as providing housing assistance and programs that offer opportunities for cognitive stimulation in the school or community also might improve the reading achievement of poor Latino youths.

### Outside School and Neighborhood Environments

Youths who assessed their school environments more favorably (interesting classes, knowledgeable teachers, safe schools, enforced behavior rules) had higher levels of reading and mathematics achievement. Those relations between youths' perceptions of their school environment and academic achievement are consistent with studies that found associations between objective measures of school quality (e.g., percentage of low-income students and low-funded schools) and academic achievement (Hao and Bonstead-Bruns, 1998; Roscigno, 2000; U.S. Department of Education, 2003). School environments can be improved by assisting teachers in becoming more sensitive to and prepared for the different learning styles and needs of Latino students; establishing tutoring

and mentoring programs, instead of placing Latino youths in lower-level course work; holding high academic expectations; providing counseling and support services; and enhancing parental involvement and communication between parents and schools (Cooper *et al.*, 1999; DeBlassie and DeBlassie, 1996; McEvoy and Welker, 2000; Slavin and Calderón, 2001). The findings of this study also suggest that school policies and guidelines that increase student safety and set and enforce standards of behavior might enhance Latino youth academic achievement.

Neighborhoods with fewer social and environmental problems promoted reading achievement in this sample of Latino young adolescents, but no relation was found between neighborhood environment and mathematics achievement. Other studies on samples of diverse youth have found relations between measures of neighborhood quality and both reading and mathematics achievement (e.g., Ainsworth, 2002; Catsambis and Beveridge, 2001; Entwisle *et al.*, 1994). Why no relation was found between neighborhood quality and mathematics achievement in this sample is unclear. One research study, however, suggests that Latino parents place priority on their children's developing English language skills (Piotrkowski *et al.*, 2000). Latino parents, therefore, might encourage their youths to take advantage of reading related community resources more frequently when they do exist, compared to other types of academic resources. The findings of this study suggest that improving neighborhood environments might result in better reading achievement. Examples of relevant community interventions include forming "cultural partnerships" between Latino families, school personnel, and members of the community to enhance Latino students' safety, achievement, and social and emotional well-being (Cooper *et al.*, 1999). Other community groups have assisted Latino students experiencing reading difficulties by providing positive role models, mentors, and educational resources (Sosa, 1990).

### Parenting Practices Within the Home

Youths whose parents provided cognitively stimulating home environments (books, a musical instrument, and a computer), were involved with them academically (discussed school-related issues and events outside of school), and engaged in less conflict over common family rules (such as television and homework) had higher reading and mathematics scores. These findings are consistent with the previous literature review, and suggest that interventions that assist Latino parents in providing cognitively stimulating home environments, in being involved with the student's academic life, and in resolving conflict with their youths, can increase Latino youth academic achievement.

## Limitations and Strengths

This study has a number of limitations. Although the children of the NLSY are representative of children born to mothers aged 14–21 years in 1979 (Center for Human Resource Research, 2000), because the majority of these children were born in the United States, the youths in this study are not representative of all Latino youths 10 through 14 years of age. Thus, the generalization of this study's findings is limited. As acknowledged previously, Latino subgroups are heterogeneous; therefore, the findings of this study might not be generalizable to all Latinos. The causal order between academic achievement and other variables in this analysis was not established, and because this is a correlational study, causation cannot be established. The study did not address the bidirectional interactions between the youths, parents, and broader social environment, and included only limited measures of the influences of fathers and extended family members, all of which might affect Latino youth academic achievement. Relying on mothers' and youths' reports of parenting practices and school and neighborhood environments, rather than on independent observations, might have introduced unmeasured biases. The reliability of some of the variables (e.g., cognitive stimulation) was low, and the validity of the parenting practices, school, and neighborhood variables was not established.

Despite these limitations, this study was unique in using a national sample of Latinos and simultaneously estimating the effects of youth, maternal, and family characteristics, school and neighborhood environments, and parenting practices on youth academic achievement. The findings of this study indicate the importance of examining environments both within and outside the home in understanding developmental outcomes. Influences in the home, school, and community were all important in predicting Latino academic achievement. The findings of this study also adds to understanding the ways in which poverty impacts academic achievement during the early adolescent period. Finally, findings suggested social policies and interventions, the effectiveness of which must be determined by future studies.

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