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The Role of Protective Factors in Supporting the Academic Achievement of Poor African American Students During the Middle School Transition

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In this study of 62 African American families living in poverty, we examined the main and interactive effects of psychological, family, and school factors on students' grade point average across the middle school transition. Both parent interviews and student surveys were collected, resulting in three major findings. First, students experienced a significant decline in grade point average across the transition from elementary to middle school. Second, students who felt more academically efficacious had higher grade point averages across the transition than did their peers. Third, significant interactions were found between family and school factors. These results suggest that rather than focusing exclusively on either parental involvement or the school environment, the combination of both family and school factors may be most effective in supporting the academic achievement of poor African American students during the transition to middle level schools.

INTRODUCTION

Adolescence is almost by definition a period of transition: a time of self-discovery, expanding horizons, emerging independence, and physical and emotional growth. How adolescents negotiate their way through this formative period

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can have life-long consequences. Unfortunately, American adolescents are faced with so many stresses that this developmental period is especially risky at this point in history. According to a recent report by the Carnegie Council on Adolescent Development (1995), nearly half of American adolescents are at high or moderate risk of seriously damaging their life chances.

The period of early adolescence (ages 10 to 14) can be particularly difficult for many children (Carnegie Council on Adolescent Development, 1995). Early adolescence not only encompasses the biological and physiological changes associated with puberty but, also for many children, includes the social and learning environment changes that characterize the transition from elementary to middle level schools. According to Eccles and Midgley (1989), these changes can create a mismatch between the new school environment and the developmental needs of early adolescents. As a result, many youth experience a decline in school performance and adjustment during this transition (see Eccles and Midgley, 1989; Eccles *et al.*, 1993, for reviews). For example, Simmons and Blyth (1987) found that students not only experienced a significant decline in school grades during the middle school transition, but also that the magnitude of this decline was predictive of subsequent school failure and dropout.

RISKS FACING POOR MINORITY YOUTH

Although early adolescence is a time of heightened vulnerability for many students, this period may be particularly problematic for students already at risk of experiencing academic difficulties, such as those living in poverty. Poor and low SES youth, on average, are more likely to experience academic problems including more grade retentions and course failures, lower achievement test scores, and fewer completed years of schooling than their more advantaged peers (see McLoyd, 1998, for a review).

A number of environmental variables have been found to contribute to this achievement gap. For example, poor youth tend to live in areas of concentrated poverty besieged by joblessness, crime, violence, teen pregnancy, and drugs (Wilson, 1990). Research indicates that children who grow up in these areas are more likely to experience academic difficulties, complete fewer years of schooling, and drop out of school than children from similar families living in more affluent neighborhoods (Brooks-Gunn, Duncan, Klebanov, and Sealand, 1991; Connell, Spencer, and Aber, 1994; Duncan, 1994).

Youth living in poverty also may face stark inequalities in terms of their school resources and educational opportunities (Kozol, 1991). Interpersonal processes between teachers and students, in addition, may contribute to variation in poor and nonpoor students' achievement. For example, research indicates that teachers have lower expectations for, and respond less positively to, poor and low SES

students (Rist, 1970). Teachers of lower SES students also report less positive perceptions of the school and classroom climate than do teachers of higher SES students (Alexander, Entwisle, and Thompson, 1987).

Likewise, social variables play a role in explaining variation in achievement. A disproportionate number of youth living in poverty are from minority groups: three times as many African American and Hispanic children as European American children live in families with income below the official U.S. poverty line (Brooks-Gunn, Klebanov, and Duncan, 1996). These youth have to contend with stresses because of limited financial resources, as well as the social pressures that often accompany minority status, such as racism, discrimination, stereotypes, and prejudice (Ford, 1993). These social injustices are undoubtedly the primary factors in the underachievement of many poor minority students (Irvine, 1990).

POOR MINORITY YOUTH AND THE TRANSITION TO MIDDLE SCHOOL

With multiple risks facing them, early adolescence can be a very difficult time for poor minority youth. During this time period, poor minority youth have to contend not only with environmental and social pressures, but also have to negotiate the biological, physical, and social transformations that accompany early adolescence. As a result, many poor and minority youth begin to engage in behaviors that are harmful to themselves or others (Carnegie Council of Adolescent Development, 1995).

The transition to middle school, in particular, can be difficult for poor minority students as the stresses in the surrounding environment interact with the changes in the new school structure (Seidman, Allen, Aber, Mitchell, and Feinman, 1994). For example, although early adolescence is a time when social networks are particularly important, the transition to middle school is often characterized by a move to a larger, more complex environment, less emotional support from teachers, and decreased contact between students and their teachers and between students and their peers (Eccles and Midgley, 1989; Simmons and Blyth, 1987). This type of school structure is likely to threaten students' identification with their teachers and connection to their school environment. These types of changes, in particular, may challenge the academic success of poor and minority students who are more likely to feel unconnected to an environment whose culture seems irreconcilable to their own (Ford, 1993; Steele, 1992). The need for enduring, stable, and supportive bonds with caring adults may also be especially important for poor minority youth who often have less access to adult role models and mentoring (Carnegie Council of Adolescent Development, 1995).

Although early adolescence is a time of heightened self-consciousness, many students also experience an increased emphasis on competition, relative ability, and

comparative performance when they move to middle school (Eccles and Midgley, 1989). Past studies have shown that this type of environment negatively impacts adolescents' academic and psychological adjustment (Maehr and Fyans, 1989; Roeser and Eccles, 1998). These types of changes may be particularly debilitating for poor minority students who are more likely to be placed in lower academic tracks than their nonpoor, European American peers (Oakes, 1985). Evidence suggests that an emphasis on students' relative ability may be more detrimental to the academic behavior and performance of African American compared to European American students (Midgley, Arunkumar, and Urdan, 1996; Steele and Aronson, 1995).

Considering these factors, it is not surprising that academic problems either begin or accelerate in middle school for many poor and minority students. For example, research indicates that although African American students begin school with test scores that are similar to their European American peers, by middle school, many African American students fall two grade levels behind (Steele, 1992). Another study revealed that while the grades of all students on average declined after the middle school transition, the grades of African American students "plummeted" (Simmons, Black, and Zhou, 1991). Seidman and his colleagues (1994) also found that the self-esteem, class preparation, and the grade point average of urban minority students declined significantly after the middle school transition.

THE ROLE OF PROTECTIVE FACTORS

Although this research suggests that poor minority students are at risk of experiencing negative academic outcomes during the middle school transition, there is very little information about the factors that promote successful adaptation for these students particularly during this critical period of development (Garmezy, 1983, 1991; Huston, McLoyd, and Coll, 1994). Yet, many poor minority students do experience academic success. What then are the factors that protect these students from the academic problems typically associated with the transition to middle level schools? There are hints in the resilience literature suggesting variables that may be operative in promoting a successful middle school transition for poor minority students. In his review of research on resilient children, Garmezy (1993) identified three broad sets of variables that seem to operate universally as "protective" factors: (a) psychological factors such as perceived academic competence, (b) characteristics of the family context such as involved parenting, and (c) the availability of external support systems, as exemplified by a supportive teacher or an institutional structure such as a caring school environment.

In this study, we investigated psychological, family, and school factors that may support the academic achievement of poor African American students during the transition from elementary to middle level schools. In particular, we examined

the effects of academic self-efficacy, parental involvement, perceived teacher support, and feelings of school belonging on the grade point average of poor African American students across the middle school transition. We included these protective factors in recognition of previous research documenting their significance in the academic achievement of poor and minority adolescents as well as their relevance in the context of early adolescence and the middle school transition. In the following sections, we review previous studies examining these factors in more detail.

Psychological Factors

Several investigators have suggested that psychological characteristics such as problem-solving skills, cognitive skills, confidence in one's competence, and feelings of efficacy are key influences on one's adjustment to stressful situations (Bandura, 1986; Compas, 1987; Garmezy, 1983, 1991, 1993; Harter, 1990; Lord, Eccles, and McCarthy, 1994). When considering the period of early adolescence and the middle school transition, feelings of academic efficacy defined as, "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances," seem particularly relevant (Bandura, 1986, 391). Although early adolescence is a time of increasing self-focus and self-consciousness, most students are forced to adjust to a new school environment that is characterized by increased rigor in grading, social comparison, and competition (Eccles and Midgley, 1989). As academic self-efficacy affects an individual's choice of activities, effort expenditure, and persistence (Schunk, 1989), such feelings may help support students' school performance during these stressful changes. There is also some evidence that feelings of academic self-efficacy are particularly important for the academic achievement of African American adolescents. For example, in a study of urban African American students, Spencer and her colleagues (1993) found that academic self-efficacy was the most salient predictor of academic performance for both males and females. Although this study suggests that psychological factors such as academic self-efficacy represent important pathways to understanding the academic success of African American adolescents (Spencer *et al.*, 1993), our study extends this previous research by examining whether academic self-efficacy supports the academic achievement of poor African American students during the middle school transition.

Family Factors

Numerous studies of families with diverse demographic characteristics have linked parents' involvement in their children's education to a variety of positive academic outcomes for children and adolescents (Clark, 1983; Comer, 1980; Eccles

and Harold, 1993; Epstein, 1987, 1990, Tienda and Kao, 1994). Research has also shown that parental involvement varies widely by ethnicity and income, and thus, may help explain differential achievement levels. For example, evidence indicates that high-achieving, as opposed to low-achieving, poor African American adolescents have parents who are more involved in their education both within the home (e.g., conversations with their adolescents about school and consistent monitoring of organized learning activities) and at school (e.g., frequent contact with the school initiated by parents and attendance at PTSA meetings; Clark, 1983; Tienda and Kao, 1994). According to Clark (1983), these actions not only reinforce the importance of schooling, they also encourage adolescents to do their best in school. In addition, adolescents tend to perceive parental involvement as evidence of continued parental expectation of their successful school performance and of parental acceptance of some responsibility for that performance. Despite the beneficial effects of parental involvement on students' achievement at all ages, parental involvement declines steadily through elementary school and is too often nonexistent by middle school (Carnegie Council on Adolescent Development, 1995). Given this decline, it may be particularly important to consider the relation between parental involvement and the academic achievement of poor African American students during this period.

School Factors

Studies focusing on the achievement of poor and minority children have also emphasized the importance of establishing supportive teacher-student relationships and school environments that promote a sense of belonging (e.g., Comer, 1980; Rutter, 1979; Steele, 1992). Qualitative accounts, in particular, have highlighted the significance of having concerned, caring teachers who give students special attention and take time to work with them (Comer, 1980; Rutter, 1979). Additionally, several quantitative studies have documented a positive relation between teacher support and school adjustment and achievement (Cauce, Hannan, and Sargeant, 1992; Dubow and Tisak, 1989). Unfortunately, however, the transition to middle school is often associated with decreased contact between teachers and students and less emotional support from teachers (Eccles and Midgley, 1989; Feldlaufer, Midgely, and Eccles, 1988; Felner, Ginter, and Primavera, 1982). Although these types of changes may have important implications for the academic achievement of poor minority youth, there is little information concerning the role of perceived teacher support for poor African American students during the transition from elementary to middle level schools.

The extent to which students feel personally accepted, respected, included, and supported at school (a sense of "school belonging") may also be an important factor in supporting academic achievement of poor minority youth. Although a sense of school belonging is important for all students, it may be especially critical

to the academic survival of those students who are more likely to feel alienated and unaccepted in an environment whose values and beliefs seem incompatible with their own (Ford, 1993; Steele, 1992). Although ethnographic accounts (Fine, 1991; Kagan, 1990) have explored students' perceptions of school belonging, few empirical studies have investigated how feelings of school belonging are related to the academic outcomes of poor minority adolescents. In a notable exception, Goodenow and Grady (1994) found that a sense of school belonging was significantly associated with the school motivation and engagement of low-income African American and Hispanic early adolescents. Although feelings of school belonging seem particularly relevant during the middle school transition as students often move from the smaller, neighborhood elementary school to the larger, more impersonal environment of the middle school (Carnegie Council on Adolescent Development, 1989), our study is one of the first to date that examines whether a sense of school belonging promotes the academic achievement of poor African American students during this transition.

Multiple Protective Factors

For the most part, studies have focused primarily on one type of protective factor. Yet, the differential effects of diverse types of protective factors on students' academic achievement deserve more consideration. Moreover, most studies of poor African American youth have focused primarily on the role of the family. Few of these studies, however, have looked beyond family demographic variables (e.g., parents' level of education, marital status, and occupation) to explain variation in the achievement of poor African American adolescents (Ford, 1993). Even less attention has been placed on examining the role of other environmental contexts, such as schools, in supporting the academic achievement of poor African American adolescents. Yet, as Eccles and Midgley (1989) suggest, school factors such as teacher support are critical especially during the transition to middle level schools.

In addition to greater elaboration of the different types of protective factors that may influence the academic achievement of poor African American youth during the middle school transition, it is also important to consider the extent and nature of their effects in conjunction with one another. As other researchers have suggested, rather than a single factor alone, it may be the combination of protective factors that is most important (Cauce *et al.*, 1992). The multiplicative effects among protective factors may explain more variance in life stress adjustment, such as school performance, than one factor in isolation.

Several researchers, in particular, have suggested that the interaction between psychological and social support variables may best explain an individual's reaction to stressful life events (Roos and Cohen, 1987). For example, Cauce *et al*. (1992) found that the effects of school support as a buffer of life stress were most pronounced for those adolescents with an internal locus of control for success.

The authors concluded that students were not able to take advantage of school support while experiencing stressful events unless they were personally disposed to view such events as controllable (Cauce *et al.*, 1992). Similar results may also occur when examining the interaction between academic self-efficacy and parental involvement, school belonging, or perceived teacher support. Academically efficacious students may be better able to take advantage of the benefits of involved parents, helpful teachers, or supportive school environments for their academic achievement. For example, parental involvement and supportive teachers and school environments may be most helpful for supporting the academic achievement of those students who feel that they can learn, comprehend, and complete their school work (i.e., academically efficacious). As a result, we expect that the effects of parental involvement, teacher support, and school belonging on students' grade point average may be more pronounced for those students who feel academically efficacious. However, few studies have examined the interaction between psychological and other factors particularly in supporting the academic achievement of poor African American students during the middle school transition.

The importance of family and school interactions for children's academic achievement has also been highlighted in several qualitative accounts of African American adolescents (Clark, 1983; Comer, 1980). According to Comer (1980), parents' interest in, and support of, their children's school help reinforce students' feelings of school belonging and their identification with teachers and other school personnel. Clark (1983) also noted that parent-initiated contacts with their children's school help strengthen students' identification with teachers. In examining the interaction between parental involvement and teacher support or feelings of school belonging, students whose parents are involved in their school may be better able to take advantage of the benefits of supportive teachers or school environments for their academic achievement. For example, parental involvement may be most helpful for supporting the academic achievement of those students who also identify with their teachers and school environment. Therefore, we expect that the effects of teacher support and school belonging on students' academic achievement may be more pronounced for those students whose parents are involved in their school. However, little consideration has been given in quantitative studies to the interactive nature between family and school factors in shaping adaptive outcomes for poor African American students during the transition from elementary to middle school.

RESEARCH QUESTIONS AND HYPOTHESES

In this study, we examine the main effects of protective factors (i.e., academic self-efficacy, parental involvement, perceived teacher support, and feelings school belonging) on the grade point average of poor African American students during the middle school transition. We also examine the interactive effects between

psychological and family factors, between psychological and social support factors, and between family and school factors. In order to examine the extent to which protective factors were related to grade point average over time, we control for the prior level of grade point average in all analyses. Controlling statistically for initial levels of the criterion variable when examining longitudinal predictor-criterion associations offers a stronger basis for inferring possible causal relationships than do simple zero-order longitudinal correlations (Kenny, 1979).

In this study, we test the following hypotheses: (a) Students, on average, will experience a significant decline in grade point average across the transition from elementary to middle school (fifth to sixth grade). (b) Controlling for prior grade point average, students who feel more academically efficacious, whose parents report more involvement, who perceive more support from teachers, and who have a greater sense of school belonging in middle school will have higher grade point averages across the transition than their classmates. (c) Controlling for prior grade point average, students with high levels of both academic self-efficacy and parental involvement, perceived teacher support, or school belonging will have higher grade point averages across the transition than their classmates with high levels of one or none of these factors. (d) Controlling for prior grade point average, students with high levels of both parental involvement and perceived teacher support or school belonging will have higher grade point averages across the transition than their classmates with high levels of one or none of these factors.

METHOD

The Larger Study

The participants in this study were drawn from a larger longitudinal study conducted in southeastern Michigan. The study was designed to examine the effects of classroom and school characteristics on students' psychological and academic outcomes during the transition from elementary to middle level schools. The sample included 22 elementary schools and 10 middle schools in four school districts. Data from the students were collected using surveys administered at the schools during the last year of elementary school ($n = 901$) and then again during the first year of middle school ($n = 738$). Students were required to have parental permission in order to participate, and 83% received this permission.

Study Participants

For this study, we collected additional data from families of participating students in one school district. This school district was selected because it included a large percentage of African American students (42%) and economically

disadvantaged families as indicated by the proportion of students receiving reduced and free lunch (84%). Information from the middle school principals also indicated that the majority of families whose children attended schools in this district were poor and had low incomes.

The participating students in this district attended one of seven elementary schools (prekindergarten to fifth grade) and one of four middle schools (sixth to eighth grade). The director of research for this school district chose these schools as representative of the community as a whole. Our response rate for this school district was 81%, with 257 students participating during the last year of elementary school and 218 students participating in the first year of middle school.

In the summer prior to the sixth grade year, letters were sent to the parents of all participating African American students ($n = 97$) in the designated school district. The letters informed the families that the purpose of the study was to examine the roles of the family and school in children's transition from elementary to middle school. The letter requested their participation, offered $10 as a token of appreciation for their involvement in the study, and informed them that they would be contacted in the next few weeks. Families were then either called or visited by a trained interviewer. The interviewer answered any questions about the study and asked if the primary caregiver of the student participating in the larger study would agree to be interviewed.

For this study, we only included those families who were living at or below the 1995 U.S. poverty threshold (U.S. Bureau of Census, 1997)[3] and who remained in the school district for both the fifth and sixth grade years. Of the 97 African American families, 62 families agreed to participate and were below the U.S. poverty threshold, 12 families agreed to participate but were not below the U.S. poverty threshold, 12 families moved to another district, 9 families did not reply to the letters and phone messages, one family missed the appointment and was unable to reschedule, and one family refused to participate in the study.

Family Characteristics

Of the 62 families, 49 of the primary caregivers interviewed were the student's mother, 6 were the student's father, and 7 were the student's guardian, usually an aunt or grandmother.[4] The median family income was $12,365, with a range of less than $3,500 to $24,999. Seventy-two percent of the families were receiving public assistance. Twenty-nine of the parents/guardians had never been married,

[3]The measurement of the U.S. poverty threshold was developed in the 1960s and is adjusted each year for changes in the cost of living using the Consumer Price Index. In 1995, U.S. poverty thresholds for families of three, four, five, six, seven, and eight persons were $12,158, $15,569, $18,408, $20,804, $23,552, $26,237, respectively (U.S. Bureau of Census, 1997). Families with annual cash incomes, before taxes, that fall below these thresholds were considered "poor."

[4]Although some of the primary caregivers were not the children's parents, we use that term henceforth.

14 were married, 7 were separated, 9 were divorced, and 3 were widowed. Of the parents/guardians who were not married, 12 were currently living with a partner. The average educational level of parents/guardians was a high school degree. Thirty-four of the target adolescents were male, and twenty-eight were female.

School Characteristics

The school district was in an urban environment that included both inner-city housing projects and lower income residential neighborhoods. Five of the elementary schools had a majority of minority students (from 99 to 58%), while two of the elementary schools were more ethnically mixed (from 42 to 50%). The majority of students attending each of the middle schools were minorities (from 62 to 99%).

Using survey data from principals, we obtained information about the nature of the school environment. All of the elementary principals indicated that classrooms were "self-contained," in that students remained in their classroom with the same teacher throughout the day for all academic courses. However, students also attended nonacademic courses including art, music, and physical education and extracurricular activities with a variety of other teachers. The middle schools were described as "departmentalized" in that students attended both academic and nonacademic courses in different classrooms with various teachers throughout the day. However, some reforms consistent with the middle school philosophy had been implemented in all of the schools, particularly at the sixth grade level. These included team teaching, the use of advisory programs, and the elimination of heterogeneous grouping.

Procedure

Information about parental involvement was collected through parent interviews. One interview was conducted with each family during the summer prior to, and the early fall of, the students' sixth grade year (1995). Two African American interviewers from the community conducted interviews. Most of the interviews occurred in the home; however, five took place in the interviewer's home. Because of difficulty with meeting times, three parents were interviewed over the phone. Analyses revealed that these parents did not differ significantly from the other families in terms of family income, family structure, or parental education.

Before the interview began, the parent was informed that the interview was confidential and participation was voluntary. The parent was also told that she/he could decline to answer any questions, stop talking, or withdraw from the study at any time without penalty. If the parent agreed to participate, the parent signed the consent form.

The interviewers read the questions to the parents exactly as written in the interview booklet. A card containing all relevant response scales was provided to the respondent. Interviewers referred respondents to this card rather than reading each response scale. Although interviewers circled the parents' responses, all interviews were audio taped and checked for accuracy. The entire interview took approximately an hour.

Information about the psychological and school factors was obtained through the larger study. Trained research assistants read surveys aloud to students in their classrooms. Students were instructed in the use of anchored scales and were assured that all information would be kept confidential. Survey administration for this data occurred during the spring of the students' first year in middle school (1996).

Measures

Psychological Factors (Assessed on the Student Survey)

Academic Self-Efficacy. (alpha = .77) The scale measuring academic self-efficacy was taken from the Patterns of Adaptive Learning Survey (PALS; Midgley *et al.*, 1997) and has been used in a number of studies. This scale assessed students' beliefs that they can master the work they are given in school. The questions did not refer to a particular subject area or task but rather to students' judgments of their competency to do their class work that year (sixth grade). Five items were interspersed with items assessing other constructs and were introduced with this sentence: "Now I want you to answer some questions about yourself as a student in this school." Items included "Even if the work is hard, I can learn it" and "No matter how hard I try, there is some class work I'll never understand" (reversed). These items were on a 5-point scale anchored with 1 = not at all true; 3 = somewhat true; 5 = very true.

Family Factors (Assessed in the Parent Interview)

Parental Involvement. (alpha = .75) The scale measuring parental involvement was adapted from The Family School Survey Study (Eccles and Sameroff, 1991). This scale measured the extent to which parents and other family members are involved in their children's education both within the home and at school during the school year. Ten items were introduced with this sentence: "There are lots of ways for parents to be involved in their child's schooling, please tell us how often these things happen during the school year." Items included "You or someone in your family work as a school program supporter such as coming to school to assist in events; for example, by chaperoning a party or field trip," "You or someone in your family work as a classroom volunteer," "You or someone in your family

check child's homework after it's completed; for example, by checking that it's done correctly," and "You or someone in your family talk with child about what he or she is learning in school." These items were on a six point scale anchored with 1 = almost never; 3 = one to three times a month; 6 = almost everyday.

School Factors (Assessed on the Student Survey)

Perceived Teacher Support. (alpha = .79) The scale measuring perceived teacher support was taken from the Classroom Environment Scale (CES; Moos and Trickett, 1987). This scale assessed whether students feel supported and respected by their middle school teachers. Eight items were introduced with these sentences: "You are in middle school, and you have several different teachers and are in several different classrooms during the day. When you answer the next series of questions, think about all your teachers and all the classrooms you are in." Items included "How many of your teachers can you count on for help when you need it?" and "How many of your teachers criticize you?" (reversed). These items were on a five point scale anchored with 1 = none of them; 3 = about half of them; 5 = all of them.

Feelings of School Belonging. (alpha = .78) The scale measuring feelings of school belonging was adapted from Goodenow and Grady (1994). This scale assessed the extent to which students feel personally accepted, respected, included, and supported in middle school. Five items were interspersed with items assessing other constructs and were introduced with this sentence: "Here are a few more questions about how you feel at school." Items included "I feel like a real part of the school" and "I wish I was in a different school" (reversed). These items were on a five point scale anchored with 1 = not at all true; 3 = somewhat true, 5 = very true.

Grade Point Average

Grades for each student were collected from school records at the end of the fifth and sixth grade years. The overall grade point average (GPA) was calculated for each student by computing the average of their grades at the end of the school year in the core subjects (social studies, language arts, math, and science). Grades were coded using a 4-point scale [0.0 = F to 4.0 = A+].

RESULTS

For ease of presentation, the results are reported in four sections. The first section examined correlations among protective factors and achievement outcomes. The second section examined the change in grade point average from elementary to

Table I. Correlations, Means, and Standard Deviations for Protective Factors and Achievement Outcomes

Variables	1	2	3	4	5	6	Means	SD
1. 6th Academic self-efficacy	—						4.16	.70
2. 6th Parental involvement	.01	—					3.34	.70
3. 6th School belonging	.39[c]	.02	—				4.01	1.00
4. 6th Teacher support	.31[a]	−.10	.14	—			3.57	.80
5. 5th GPA	.45[b]	.07	.50[c]	.23	—		2.25	2.50
6. 6th GPA	.41[b]	.08	.41[b]	.22	.66[c]	—	2.05	2.40

[a] $p \leq .05$.
[b] $p \leq .01$.
[c] $p \leq .001$.

middle school. The third section examined the main effects of the protective factors on grade point average across the transition. The final section examined the interactive effects of the protective factors on grade point average across the transition.

Correlational Analysis

Table I presents means, standard deviations, and the correlations between all variables. As expected, academic self-efficacy and feelings of school belonging in sixth grade were significantly correlated with grade point average in fifth and sixth grade. However, parental involvement and perceived teacher support in sixth grade were not significantly correlated with grade point average in either fifth or sixth grade. Of the protective factors, perceived teacher support and feelings of school belonging were significantly correlated with academic self-efficacy. Of the achievement outcomes, grade point average in fifth grade was significantly correlated with grade point average in sixth grade.

Change in Grade Point Average Across the Transition

Analysis of variance (ANOVA) was used to examine whether there was a significant change in grade point average across the transition. Results revealed that students experienced a significant decline in grade point average from fifth to sixth grade ($F(1, 61) = 1.96$, $p < .05$). On average, students had higher grade point averages in fifth grade ($M = 2.25$, $SD = .92$) than they did in sixth grade ($M = 2.05$, $SD = .90$).

Main Effects of the Protective Factors

Hierarchical regression analyses were performed to examine the main effects of psychological, family, and school factors on students' achievement across the

middle school transition. This approach, recommended for designs with multiple variables, reveals the unique contribution of the predictor to the outcome, having taken into account the interrelationships among the predictors (Cohen and Cohen, 1983). Criteria suggested by Cohen and Cohen (1983) were used in determining the order in which variables were entered into the equation. In the following analyses, the control variable (i.e., prior grade point average) was entered at the first step.[5] In the subsequent steps, variables were entered according to their proximity to the student. In particular, academic self-efficacy in sixth grade was entered at the second step, parental involvement in sixth grade was entered at the third step, and perceived teacher support and feelings of school belonging in sixth grade were entered at the fourth step.[6]

Table II presents the hierarchical regression results. Overall, the model accounted for 38% of the variance in GPA. After prior achievement was taken into account, academic self-efficacy accounted for 6%, parental involvement accounted for 2%, and perceived teacher support and feelings of school belonging accounted for 3% of the explained variance. As shown in Table II, students who felt more academically efficacious in sixth grade had higher grade point averages than their peers, even after taking into account their school performance in fifth grade. However, parental involvement, perceived teacher support, and feelings of school belonging, were not significant protective factors.

Interactive Effects of the Protective Factors

Interactions between academic self-efficacy and parental involvement, between academic self-efficacy and perceived teacher support, between academic self-efficacy and feelings of school belonging, between parental involvement and perceived teacher support, and between parental involvement and feelings of school belonging were also tested. To test for interactive effects, we first created two-way interaction terms by centering each of the variables and then computing a

[5]Family income, family structure, and the education and occupation of the primary or secondary caregiver were not entered in the hierarchical regression analyses as control variables because they did not significantly correlate with the dependent variable (sixth grade GPA). This is most likely because of the relatively homogeneous sample. Gender was moderately correlated with sixth grade GPA ($r = .28$, $p < .05$). However, when included in the analyses, gender changed neither the direction nor the significance levels of the effects. Moreover, gender was not a significant variable at any step in the hierarchical regression analyses. These preliminary findings, along with the loss of statistical power that results when adding more predictors, justified our decision not to include gender as a control variable. Students' prior levels of academic self-efficacy, school belonging, and teacher support (at fifth grade) were also not included in the hierarchical regression analyses as none of these variables were significantly associated with the dependent variable (sixth grade GPA).

[6]Analyses of variance were also performed to determine whether there were differences in school belonging and perceived teacher support among middle level schools. Results revealed that there were no significant differences in either teacher support, $F(3, 59) = 2.60$, or school belonging, $F(3, 59) = 1.01$, among the four middle level schools in the district.

Table II. Psychological, Family, and School Factors as Predictors of Grade Point Average

Variable	R^2(Adj. R^2)	*B*	*SE B*	Beta
Step 1	.28(.27)			
5th GPA		.59	.12	.54[c]
Step 2	.35(.33)			
5th GPA		.51	.13	.46[c]
6th Academic self-efficacy		.92	.39	.26[b]
Step 3	.38(.35)			
5th GPA		.53	.12	.48[c]
6th Academic self-efficacy		1.03	.42	.29[b]
6th Parental involvement		.64	.35	.19
Step 4	.43(.38)			
5th GPA		.42	.12	.46[c]
6th Academic self-efficacy		.88	.43	.25[a]
6th Parental involvement		.60	.34	.18
6th Teacher support		.36	.33	.10
6th School belonging		.49	.28	.17

Note. B (Unstandardized) Beta (Standardized).
[a] $p \leq .05$.
[b] $p \leq .01$.
[c] $p \leq .001$.

multiplicative interaction term (Jaccard, Turrisi, and Wan, 1990). Next, we performed separate hierarchical regression analyses for each interaction term (i.e., Academic Self-Efficacy × Parental Involvement, Academic Self-Efficacy × School Belonging, Academic Self-Efficacy × Teacher Support, Parental Involvement × Belonging, and Parental Involvement × Teacher Support). In the hierarchical regression analyses, prior grade point average was entered at the first step followed by the psychological, family, and school factors (steps 2–4). In the fifth step, we examined whether there was a significant increment in R^2 when one of the two-way interaction terms was added.

Table III presents the results for the fifth step of the hierarchical regression analyses for each of the five interaction terms. As shown in Table III, two of the five interaction terms were statistically significant. These were: between parental involvement and feelings of school belonging [Beta = .95, $F(6, 56) = 8.55$, $p < .01$, $\Delta R^2 = .09$] and between parental involvement and perceived teacher support [Beta = .94, $F(6, 56) = 8.03$, $p < .05$, $\Delta R^2 = .05$]. The interactions between academic self-efficacy and parental involvement, between academic self-efficacy and perceived teacher support, and between academic efficacy and school belonging were not statistically significant.

To interpret significant interactions, regression analyses were performed using criteria suggested by Jaccard *et al.* (1990). This approach involved calculating the slope of Y (i.e., grade point average in sixth grade) on X_1 (i.e., perceived teacher support and feelings of school belonging) at high and low values of X_2 (parental

Table III. Significant and Nonsignificant Interactions

Variable	R^2(Adj. R^2)	*B*	*SE B*	Beta
Step 5	.43(.38)			
5th GPA		.33	.11	.30[c]
6th Academic self-efficacy		1.81	1.84	.11
6th Parental involvement		1.90	2.09	.14
6th Teacher support		.56	.25	.18
6th School belonging		.49	.30	.20
Self-efficacy × involvement		.19	.51	.25
Step 5	.43(.38)			
5th GPA		.50	.12	.46[c]
6th Academic self-efficacy		.17	1.31	.05
6th Parental involvement		.59	.35	.18
6th Teacher support		.47	.34	.15
6th School belonging		.02	1.40	.02
Self-efficacy × belonging		.11	.33	.26
Step 5	.43(.38)			
5th GPA		.49	.12	.45[c]
6th Academic self-efficacy		1.76	1.65	.50
6th Parental involvement		.59	.35	.17
6th Teacher support		1.95	2.06	.19
6th School belonging		.47	.28	.62
Self-efficacy × support		−.34	.47	−.73
Step 5	.53(.47)[b]			
5th GPA		.42	.11	.38[c]
6th Academic self-efficacy		.35	.40	.10
6th Parental involvement		−4.28	1.48	−1.28
6th Teacher support		.63	.32	.18
6th School belonging		−3.62	.27	−1.05
Parental involvement × belonging		.88	.40	.95[b]
Step 5	.48(.43)[a]			
5th GPA		.40	.12	.40[c]
6th Academic self-efficacy		.65	.42	.20
6th Parental involvement		−2.88	1.63	−.85
6th Teacher support		−2.99	1.62	−.95
6th School belonging		.59	.28	.20
Parental involvement × support		.80	.46	.94[a]

Note. B (Unstandardized) Beta (Standardized).
[a] $p \leq .05$.
[b] $p \leq .01$.
[c] $p \leq .001$.

involvement), where "low" was defined as one standard deviation below the mean and "high" as one standard deviation above the mean. Prior achievement was included as a control. As shown in Fig. 1, students with high levels of both family (i.e., parental involvement) and school (i.e., perceived teacher support and feelings of school belonging) factors had higher grade point averages in sixth grade when controlling for prior achievement than did their classmates who had high levels of either one or none of these factors.

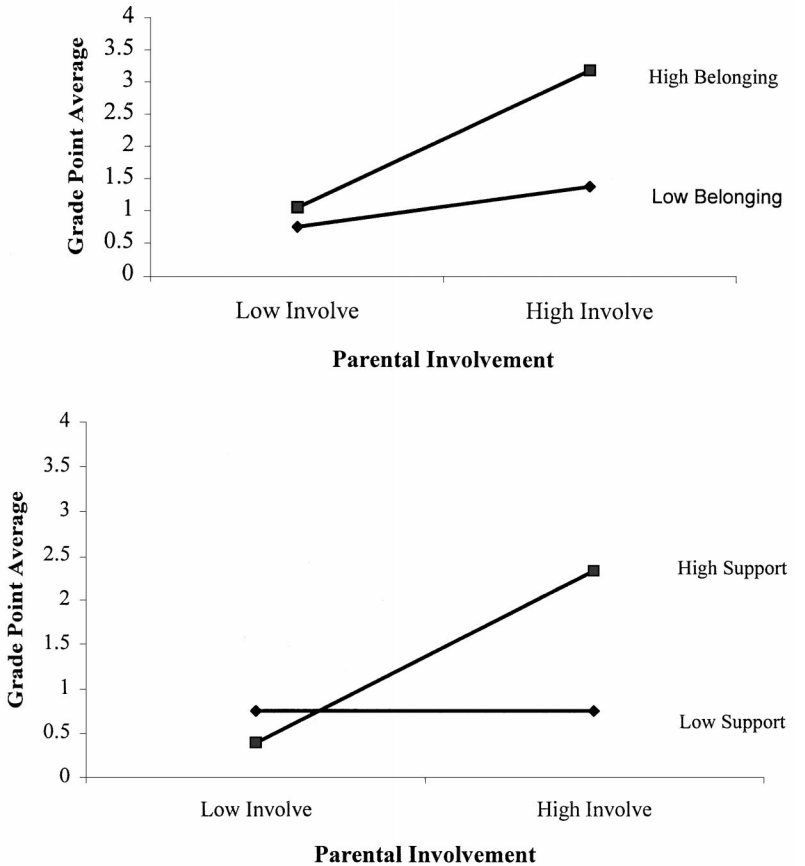

Fig. 1. Interactions between family and school factors in predicting grade point average across the middle school transition.

DISCUSSION

This study investigated psychological (e.g., academic self-efficacy), family (e.g., parental involvement), and school factors (e.g., perceived teacher support and feelings of school belonging) that support the academic achievement of poor African American students during the transition from elementary to middle school. There were three major findings. First, students, on average, experienced a significant decline in grade point average across the transition. Second, students who were more academically efficacious had higher grade point averages across the middle school transition than did their peers. However, parental involvement, perceived teacher support, and feelings of school belonging did not significantly predict grade point average across the transition. Third, students with high levels of both parental

involvement and perceived teacher support had higher grade point averages across the middle school transition than did their peers with high levels of one or none of these factors. Students with high levels of both parental involvement and school belonging also had higher grade point averages across the middle school transition than did their peers who had high levels of either one or none of these factors. However, there were no significant interactions between academic self-efficacy and parental involvement, between academic self-efficacy and perceived teacher support, and between academic efficacy and school belonging. Each of these major findings will be discussed below.

Change in Grade Point Average Across the Transition

Our results support previous research indicating that African American students, on average, a experience significant decline in school performance during the transition from elementary to middle level schools (Simmons *et al.*, 1991). In this study, we demonstrated that this pattern of decline was also true for African American students whose families were living at or below the U.S. poverty threshold. This was expected, but still very unfortunate. As discussed below, however, certain factors may protect some students from experiencing the magnitude of decline in achievement associated with this transition.

The Role of Psychological, Family, and School Factors

Our study supports previous research highlighting the importance of academic self-efficacy for the academic achievement of poor and minority youth (Spencer *et al.*, 1993). However, our study also expands this research by demonstrating this association for poor African American students during the middle school transition. Considering the nature of the middle school transition, it is not surprising that confidence in one's capabilities to perform was related to academic achievement during the middle school transition. Traditional middle school classrooms, as compared to elementary school classrooms, are often characterized by an increase in practices such as whole-class task organization and public evaluation of the correctness of work, which are likely to lead to increased emphasis on academic ability, social comparison, and public evaluation. Given the increased self-focus and self-consciousness in early adolescence, such emphasis may cause some youth to question their academic abilities (Covington, 1992; Eccles *et al.*, 1993). However, middle school classrooms that provide a reasonably safe and intellectually challenging environment may help sustain students' academic motivation, including feelings of efficacy, during this transitional period (Simmons and Blyth, 1987). As our data indicate, poor African American students with a greater sense of confidence in their ability to master academic tasks may not experience

the magnitude of decline in academic achievement typically associated with the middle school transition.

Unexpectedly, we did not find that parental involvement, school belonging, and perceived teacher support were associated with students' grade point average across the transition to middle school. This seems to counter research suggesting that these factors are important in supporting the academic achievement of poor minority youth (e.g., Clark, 1983; Comer, 1980; Tienda and Kao, 1994). However, there are many reasons why our results may differ from previous studies. First and foremost, our sample size was small and, as a result, we may not have had enough power to detect significant relationships. Second, although these factors may be related to students' academic achievement, they may not be associated with students' grade point average across the middle school transition when controlling for prior levels of achievement. This may be particularly true for school belonging as it was significantly correlated with higher grade point averages in fifth and sixth grades, but was not a significant protective factor when controlling for prior levels of achievement. Because the school district in this study implemented some important reforms to make the learning environments in the middle schools smaller and more intimate, the students in our sample may not have experienced profound changes in the school environment during the transition from elementary to middle school. For example, the school district adopted reforms, such as team teaching and the use of advisory programs, and eliminated some exclusionary policies such as heterogeneous grouping. Therefore, the transition to a middle school environment that continues to be inclusive, welcoming, and supportive may have a positive influence on, but may not predict changes in, the academic achievement of poor African American youth. Third, these factors alone may not be sufficient to support students' achievement during the transition to middle school. Rather, as our significant interactions suggest, the combination of both family and school involvement may make the most difference in the achievement of poor African American youth across the transition from elementary to middle level schools.

The Role of Multiple Factors

Contrary to our expectations, we did not find significant interactions between academic self-efficacy and parental involvement, between academic self-efficacy and perceived teacher support, and between academic efficacy and school belonging. Rather, as discussed, our data only revealed a main effect of academic self-efficacy. That is, in our sample, poor African American students who felt more academically efficacious had higher grade point averages across the transition than did their peers. However, academic self-efficacy did not appear to strengthen the effectiveness of parental involvement, teacher support, or feeling of school belonging on students' academic achievement during this transition.

However, we did find significant interactions between family and school variables. In our study, students with high levels of both family (i.e., parental involvement) and school (i.e., perceived teacher support and feelings of school belonging) factors experienced higher grade point averages across the transition than did their classmates who had high levels of either one or none of these factors. These results may reveal important implications for middle school reform. They suggest that rather than focusing exclusively on either parental involvement or the school environment, the combination of both family and school factors may be most effective in supporting the academic achievement of poor African American students during the transition to middle level schools.

Considering the multiple challenges facing families living in poverty, it is not surprising that the effectiveness of parental involvement may depend on support from teachers and schools. According to Comer (1980), the need for parental involvement is often greatest in poor and minority communities or wherever parents feel that they are of little value to, and excluded from, their children's education. These parents are likely to have had previous negative interactions with schools and sometimes painful recollections of their own educational experiences that may inhibit involvement in their children's education (Eccles and Harold, 1993). In addition to feelings of alienation, negativity, and impotence (Comer, 1980), parents living in poor communities may also face barriers that limit the time and energy needed for active involvement (see McLoyd, 1990).

Alternatively, school personnel can either encourage or deter parental involvement by their own beliefs and attitudes (Eccles and Harold, 1993). This may be particularly true in poor and minority communities where school personnel often view parents as part of the problem in educating students, rather than the solution (Comer, 1980). In these communities, the attitudes and behaviors of school personnel are often crucial in parents' levels of school involvement. For example, teachers can encourage parents' sense of efficacy by recognizing their involvement and contribution as valuable resources for student's achievement (Comer, 1980; Eccles and Harold, 1993). Schools can also offer parents more meaningful roles for involvement, which, in turn, are likely to increase parents' investment in, and positive connection with, the school (Comer, 1980). Such actions may not only encourage parents' involvement in their children's education, they may also help the school environment become more of a place of mutual respect and trust rather than a place that seems different and alien to parents and students (Comer, 1980).

These efforts on the part of school personnel can have important behavioral consequences for students' achievement. If parents feel excluded from, and of little value to, their children's educational activities, these attitudes are likely to be transmitted to their children (Comer, 1980). On the other hand, if parents feel like they are making important contributions, are comfortable at school activities, and have good relationships with school personnel, their children are more likely to feel positive connections to their school and identify with their teachers

(Clark, 1983; Comer, 1980; Eccles and Harold, 1993). As our data suggest, middle level schools that create a positive environment and encourage parent/teacher involvement may not only help engage parents of adolescents (Carnegie Council on Adolescent Development, 1995), but also they may help to make parental involvement more effective in supporting the academic achievement of poor African American students across the middle school transition.

LIMITATIONS AND CONCLUSIONS

Several limitations must be considered when interpreting the results of this study. One limitation concerns the different data collection time points of the protective factors. Although the parent interviews were conducted in the summer prior to, and the fall of, the students' sixth grade year, the student surveys were collected during the second semester of the sixth grade year. We collected the student data during the sixth grade year as we were particularly interested in how the middle school environment was related to changes in students' grade point average across the transition. Moreover, we collected this information during the second semester because this allowed the students to report on their perceptions of the school environment based on the first semester of that school year as well as the beginning of the second semester. In addition, collecting this data at the beginning of the second semester allowed us to examine how students' perceptions of their school environment were related to students' final grade point average at the end of the sixth grade year. The parent interviews, on the other hand, were conducted during the summer prior to, and the fall of, the student's sixth grade year for several reasons. First, because we were interested in how parental involvement was related to changes in grade point average, we wanted to measure parental involvement before changes in students' grade point average had occurred. This would help us ascertain that parents' involvement in their children's education was not the result of changes in their children's grade point average across the transition. Second, because of several factors involved in conducting the parent interviews such as contacting families without telephones, locating families who had moved, and reaching families when they had the time to meet, this time schedule resulted in the collecting the maximum number of interviews. However, because parent reports were based on their perceptions of their involvement during the fifth grade year and the beginning of the sixth grade year, we did not have information on which parents continued their involvement through the end of the sixth grade year. Although our data suggest that parental involvement before and at the time of the transition in conjunction with support from the school has a positive impact on students' grade point average during the middle school transition, we cannot determine how continued parental involvement would affect students' achievement. To develop a more comprehensive picture of how family factors are associated with academic achievement across the middle school transition, in future studies,

parental involvement and other parenting practices should be examined both before and after the transition.

Second, the reliance on correlational data limits the extent to which conclusions about causality can be made based on the findings. For example, a reasonable argument could be made that high academic achievement may contribute to, rather than be the result of, feelings of academic self-efficacy. However, the use of longitudinal data in these analyses provides more support for the causal hypotheses than would data collected at a single time point. In particular, the inclusion of the students' prior achievement in all of the analyses indicates that these factors may have contributed to changes in achievement. Moreover, because the psychological, family, and school factors were measured before the students received their final grades for their sixth grade year, this provides additional support for the contention that these factors contributed to academic achievement across the transition.

Another limitation concerns the generalizability of our results. The size of our sample was too small and locally based to be representative of all African American early adolescents living in poverty. Our sample was also not representative as we chose to focus only on African American families living in poverty. Yet, our sample included families with various structures (i.e., single parent, married, never been married, and widowed) who were living in different types of neighborhoods (i.e., inner-city housing projects and residential neighborhoods). Moreover, the elementary and middle schools in this study were representative of schools in this district and schools in other lower income communities. For these reasons, we believe our findings are applicable to other African American families with similar economic characteristics. Larger, more comprehensive studies should determine whether these results are also true of poor African American students living in other locales.

Lastly, our analyses were, by no means, exhaustive. Certainly, other protective factors, such as extracurricular and religious involvement (Carnegie Council of Adolescent Development, 1995; Gutman and McLoyd, in press), have been shown to make a difference in the lives of poor minority youth. Our analyses were also limited to school grades as the sole outcome variable. Future research should expand our findings to examine other indices of school success (e.g., motivation and engagement) for poor African American students across the transition to middle school. In this study, however, we focused on the school grades of poor African American students across the middle school transition for several reasons. First, previous research has consistently shown that poor and minority students receive lower grades in middle school than European American students do (Children's Defense Fund, 1993; Roeser and Eccles, 1998). There is also some evidence that the decline in grade point average across the transition is more severe for African American students than for European American students (Simmons *et al.*, 1991). Second, other academic outcomes have not shown such consistent patterns of decline and are often more robust for poor and minority students (e.g., academic self-efficacy and the value of education) (Mickelson, 1990; Roeser and Eccles, 1998; Stevenson, Chen and Uttal, 1990). Most importantly, grades have particular

significance in our society because they are the single most important determinant of course selection, grade completion, and greater educational opportunities. Although personal resources (e.g., self perceptions about one's academic abilities, effort and ability attributions, and motivations to succeed) are important correlates of achievement (Harter, 1982; Henderson and Dweck, 1990), they are not considered proxies for academic achievement in our society.

Considering the significance of grades in our society, the findings of this study may suggest important implications for middle schools with a large percentage of poor African American students. These results indicate that, in addition to reforming middle school environments, we also need to place more attention on the interaction between families and schools. Not only do we need to consider how schools can engage parents of adolescents, but also we may need to understand how families and schools can work together to better support the academic achievement of poor African American youth.

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