Published in final edited form as:

J Res Adolesc. 2014 December ; 24(4): 734–747. doi:10.1111/jora.12080.

Academic Growth Trajectories and Family Relationships among African American Youth

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Abstract

This study explored trajectories of African American youths' academic functioning and assessed whether changes in parent-adolescent relationships were associated with changes in youths' academic functioning. The data were drawn from a three-year longitudinal study of gender socialization and development in two-parent African American families and included 197 families. Findings revealed gender differences in achievement trajectories and indicated that boys not only had lower levels of academic achievement compared to girls, but also experienced steeper declines in school self-esteem during adolescence. Changes in parent-adolescent relationship quality were linked to changes in academic functioning: Increases in conflict were related to decreases in GPA, school bonding, and school self-esteem and increases in warmth were related to increases in school bonding and school self-esteem.

Keywords

Academic functioning; African American youth and families; parent-adolescent relationships

Gender differences in the achievement of African American students are striking and show that on average, boys have lower grades and test scores (Mickelson & Greene, 2006), lower expectations for how much education they expect to obtain (Mickelson & Greene, 2006; Wood, Kaplan, & McLoyd, 2007), and that they are less likely to graduate from high school and go to college (Aud et al., 2011). Concern over these achievement gaps has prompted researchers to explore the multidimensional nature of academic outcomes, including self-evaluations, school engagement, and academic performance, yet longitudinal studies are needed to describe how these indices of academic functioning change over time. Given the important role that ethnic minority families play in their children's achievement (Slaughter-Defoe, Nakagawa, Takanishi, & Johnson, 1990), we explored the extent to which parent-

adolescent relationship quality contributed to changes in academic outcomes during adolescence.

The present study was guided by several theoretical perspectives. In line with cultural/ecological models of development that call for ethnic homogeneous research designs, the first goal of the study was to explore gender differences in trajectories of academic functioning in a sample of African American adolescents. Much of the research directed at explaining African American youth's academic achievement has focused on between group comparisons -- most often comparing African American to European American youth. A limitation of ethnic comparative designs, however, is that when group differences are found, investigators are left to speculate on the causes of those differences. Ethnic comparative designs also ignore the substantial variability that exists among African American youth (Garcia Coll et al., 1996). An ethnic homogeneous design allows identification of factors that explain differences among African American youth's academic achievement, including factors that may be unique to or uniquely important in this sociocultural group.

Grounded in an ecological perspective (Bronfenbrenner & Morris, 2006) which posits that proximal processes, such as parent-child interactions, are important for children's development and that the mesosystem links contexts such as home and school, the second goal of this study explored connections between parent-adolescent warmth/conflict and academic functioning. We also drew on a family systems perspective, studying both *mothers'* and *fathers'* relationships with their children. Despite work that documents the importance of fathers (Parke, 2000), little research has explored this role in ethnic minority fathers and the current study makes an important contribution to the growing literature on normative developmental processes and family relationships among ethnic minority youth.

Academic Functioning during Adolescence

Adolescence is a time of dramatic change, including the physiological changes of puberty, changes in family relationships, and school transitions, and negotiating these changes simultaneously can increase youth's vulnerability during this developmental period. For example, many youth experience declines in academic functioning during adolescence (Barber & Olsen, 2004; Dotterer, McHale & Crouter, 2009). Previous research on low-income African American youth also demonstrates declines in academic achievement during this period (Burchinal, Roberts, Zeisel, & Rowley, 2008; Gutman & Midgley, 2000), however longitudinal research is needed to understand changes in academic achievement among working and middle class racial minority youth, the focus of the current study.

Additionally, researchers have become increasingly interested in other dimensions of academic functioning such as school engagement particularly as they relate to the school experiences of racial and ethnic minority students (Bingham & Okagaki, 2012). School engagement has been operationalized as a multidimensional construct includes affective and cognitive dimensions and describes students' school-related thoughts, feelings, and behaviors (Fredricks, Blumenfeld, & Paris, 2004). The affective dimension reflects an emotional link to school and refers to students' sense of belonging to school (e.g., school bonding; Libby, 2004). The cognitive dimension refers to students' perceptions and beliefs

related to the self, such as students' sense of self-efficacy or school self-esteem (Jimerson, Campos, & Greif, 2003).

School engagement is important because of its links to drop out (Bridgeland, DiIulio, & Morison, 2006) and academic achievement (Fredricks et al., 2004; Wang & Holcombe, 2010), including among African American adolescents (Sirin & Rogers-Sirin, 2005; Eisle, Zand, & Thompson, 2009; Wang & Eccles, 2012). For example, Sirin and Rogers-Sirin (2005) reported that behavioral and cognitive components of school engagement, operationalized as school participation and school expectations, significantly predicted school grades among African American adolescents. Further, Eisle et al. (2009) found that behavioral engagement as measured by school bonding, was also positively related to academic achievement among African American early adolescents. Recent evidence suggests that similar to academic achievement, school engagement also declines during adolescence. In their multiethnic study, Wang and Eccles (2012) found that dimensions of school engagement declined from 7th to 11th grade. The researchers also noted racial differences in school engagement with African American adolescents reporting higher initial levels of school identification and valuing of learning but lower levels of school compliance compared to European American adolescents (Wang & Eccles, 2012).

Cross sectional and short-term longitudinal studies on African American adolescent's academic achievement and school engagement also suggest that boys may be more at-risk for these declines. Studies of samples ranging from school aged children to high school students reveal that African American girls have higher grade point averages and higher achievement test scores and they also report higher academic self-efficacy and school engagement (Burchinal et al., 2008; Chavous Rivas-Drake, Smalls, Griffin, & Cogburn, 2008; Connell, Spencer, & Aber, 1994; Sirin & Rogers-Sirin, 2005). However given that the majority of this research was cross-sectional or short-term with just two time points, it is unclear exactly when during adolescence these gender differences appear. For example, Mickelson and Greene (2006) reported that eighth grade girls had higher GPAs than boys, but there were no gender differences in prior math and reading achievement in the second grade, leaving the researchers to speculate that gender differences emerged sometime between the second and eighth grades. A paucity of longitudinal research on other dimensions of academic functioning such as school engagement has led us to question how African American adolescents' school self-esteem (e.g., cognitive engagement) and feelings of belonging at school (e.g., affective engagement) change overtime.

The school context also has important implications for academic achievement and school engagement. School type and school racial/ethnic composition are two such factors. For example, research on school type indicates that private schools may do a better job of motivating students and reducing achievement gaps (Eccles & Roeser, 2009). In a meta-analysis of the effects of attending private religious schools, Jeyes (2002) reported that private religious school attendance was significantly associated with academic achievement and school conduct, particularly for racial/ethnic minority youth. Previous research regarding school racial composition shows that racial/ethnic composition of the student body is significantly related to some indicators of engagement (e.g., teachers' reports of students' absenteeism and in-class engagement; students' self-reported attendance) such that greater

proportions of racial/ethnic minority students at school were associated with lower levels of engagement (Finn & Voelkl, 1993). Further, Johnson, Crosnoe, and Elder (2001) found that school racial composition was a significant predictor of school attachment (i.e., affective engagement). Thus, in the present study we examined the extent to which school type and racial composition were associated with trajectories of academic achievement and school engagement.

Parent-Adolescent Relationships and Academic Adjustment

A large body of literature documents the important role of African American parents in their children's education and achievement (Hill et al., 2004; Howard & Reynolds, 2008; Smalls, 2009) and two aspects of relationship quality, warmth and conflict have received considerable attention. Past research suggests that positive relationships with parents can influence students' engagement in school (Connell & Wellborn, 1991; Garcia-Reid, Reid, & Peterson, 2005). According to this perspective, positive relationships with parents can promote a healthy sense of competence and autonomy within the home which then becomes internalized and used in other settings such as schools (Connell & Wellborn, 1991; Furrer & Skinner, 2003). For example, Bean, Bush, McKenry, and Wilson (2003) examined the role of parental support on the academic achievement of African American and European American adolescents and found that maternal support was positively associated with academic achievement among African American, but not European American adolescents. In a study focused exclusively on African American students, Kerpelman, Eryigit, and Stephens (2008) reported that perceived support from mothers and fathers was positively related to GPA, and maternal support was also a significant predictor of adolescents' future education orientations. Parental warmth has also been related to other aspects of African American adolescents' academic adjustment. For example, Lamborn and Nguyen (2004) assessed adolescents' perceptions of maternal and paternal support and found that support was positively related to students' school orientation. In addition, Pallock and Lamborn (2006) found that adolescents' perception of parental acceptance was associated with school values, teacher bonding, and work orientation.

Parent-adolescent conflict has been linked to negative outcomes among African American adolescents including school problems (Constantine, 2006; Gutman McLoyd, & Tokoyawa, 2005). Further, Gutman and Eccles (1999) reported that higher levels of parent-adolescent conflict were associated with lower GPAs among 7th and 8th graders. Research by Spencer, Cole, DuPree, Glymph, and Pierre (1993) showed that adolescents' reports of family conflict were negatively associated with both boys' and girls' academic self-esteem. Moreover, girls who perceived greater family conflict had lower academic achievement.

Adolescence is a time of change in family relationships, including declines in warmth and increases in conflict (Laursen, DeLay, & Adams, 2010; McGue, Elkins, Walden, & Iacano, 2005), yet it is unclear whether changes in family relationships are related to changes in academic functioning given that much of the research linking parent-adolescent relationship quality and adolescent outcomes has been cross-sectional. However, two studies conducted with European American adolescents documented longitudinal connections between negative parent-adolescent relationships and academic achievement. For example, Melby

and Conger (1996) examined whether negative parental affect, measured when students were in the 8th and 9th grades, predicted adolescent academic achievement in 10th grade. Negative parental affect was operationalized as angry and irritable behavior toward the adolescent, and yelling, threatening, and physical punishment in response to misbehavior. Results indicated hostile parenting predicted lower school grades. Studying European American families, Dotterer, Hoffman, Crouter, and McHale (2008) examined reciprocal associations between parent-adolescent conflict and academic achievement over a two-year period. After accounting for previous academic achievement, parent-adolescent conflict predicted lower academic achievement two years later. Results from these studies underscore the importance of parent-adolescent relationship quality for changes in adolescent academic adjustment. In the present study, we built on this prior work and asked whether *changes* in parent-adolescent relationship quality were related to *changes* in academic adjustment in a sample of African American youth from working and middle class two-parent families.

Study Goals and Hypotheses

In sum, our goals were to: (a) describe trajectories of African American youths' academic functioning and (b) assess whether changes in parent-child relationships were associated with changes in youths' academic functioning. Based on prior research, we predicted that academic functioning would decline over time and we expected these declines to be greater for boys. We also expected that decreases in parent-adolescent warmth and increases in parent-adolescent conflict would be related to declines in academic adjustment. Controlling for stable individual differences (i.e., individual differences in overall relationship quality), we built on previous research by connecting longitudinal *changes* in relationship qualities to adolescents' academic trajectories. The inclusion of fathers adds to the growing research on the important role of fathers in African American families (Caldwell et al., 2004; Cooper, 2009; Mandara & Murray, 2006; Smetana, Abernethy, & Harris, 2000).

Methods

Participants

The data were drawn from a three-year longitudinal study of gender socialization and development in two-parent African American families and included 197 families. Given the goals of the larger investigation we did not seek a representative sample. Rather, we sought families who self-identified as being African American or Black and included both a mother and father who were living together and rearing at least two offspring in middle childhood and adolescence. In order to participate, couples did not have to be married, but did have to be living together for at least three years (on average, couples had been living together for over 14 years, $M = 14.65$, $SD = 6.63$). The majority of youth were biologically related to mothers (92% of older and 96% of younger adolescents). Seventy-four percent of the older siblings and 77% of the younger siblings were the biological offspring of the fathers; additionally, 16% of the older siblings and 13% of the younger siblings were the stepchildren of the fathers and 4% of the older and younger siblings were the adopted children of the fathers. In 6% of families, family members were related in some other way such as grandparents raising grandchildren. Given that parent-child relationships in

stepfamilies are characterized by less warmth and more conflict (Bray & Berger, 1993; Fine, Voydanoff, & Donnelly, 1993), we controlled for father-child relatedness in our analyses.

Participants were recruited from two large metropolitan areas on the Eastern Seaboard with substantial African American populations using two different recruitment strategies. First, we hired African Americans residing in the targeted communities to recruit families by posting flyers in local businesses, providing information on the study to local churches, and distributing flyers at youth activities. Interested families then contacted the recruiters who passed on their names to the project office. Approximately half the sample was recruited using this procedure. We also purchased a marketing firm list that included names and addresses of African American students in grades 4 through 7 who lived in the geographic region of interest. We sent letters to families that described the study and included an 800 number to call and a postcard to return to the project office if the family fit the study criteria and was interested in participating.

All of the participating families self-identified as African American or Black. In terms of social class, families ranged from working to middle-class as reflected in parents' occupations, education and family income. Mothers' job prestige averaged 48.31 ($SD=11.87$) and fathers' averaged 47.12 ($SD=13.33$) based on the National Opinion Research Council's codes (Nakao & Treas, 1994); jobs in this range include teacher's aide (48.75), dental assistant (47.80), and police/detective (47.68). In terms of education, on average mothers' education was 14.63 ($SD=1.90$) years and fathers' education was 14.37 ($SD=2.29$), which corresponded to some college, but no degree on a scale when 12 = high school degree and 16 = college degree. The average family income was \$89,760 ($SD=\$55,522$) and above the average range of income of the communities in which the data were drawn (\$30,473 – \$49,697; US Census, 2005), however our sample was comprised of two-parent families with adolescent-age children (with older parents in the labor force for more time), and primarily two employed parents (98%). There was also considerable variability in the racial composition of the schools youth attended, ranging from 5% to 100% racial/ethnic minority enrollment and the average youth in this sample attended a school in which about two thirds of the students were African American. The majority of the youth attended public schools (80%) and 20% of the youth attended private or parochial schools. At Time 1, older siblings averaged 13.93 ($SD=1.87$) years of age in the eighth grade and younger siblings averaged 10.36 ($SD=1.08$) years of age in the fifth grade. The sample was approximately equally divided by gender (51% girls; 49% boys).

Procedures

During each year of the study, home interviews were conducted with mothers, fathers, and youth. The interviews began with a brief description of the study and a review of the informed consent/assent procedures, which had received Institutional Review Board approval. Then family members were interviewed individually about their personal qualities and family relationships. The parent interviews lasted about two hours and the youth interviews lasted about one hour. After completing the interviews, the family was paid a \$200 honorarium.

Measures

Parent-adolescent warmth was assessed via adolescent, mother, and father reports using eight items from the Child's Report of Parental Behavior Inventory (Schwarz, Barton-Henry, & Pruzinsky, 1985) on which reporters used a 4-point scale (1 = *really unlike*, 4 = *really like*) to rate items such as "My mother/father understands my problems/worries." (adolescent report) and "I am a person who makes my child feel better after talking over his/her worries with me." (mother/father report). Youth rated their mothers and fathers at separate points in the interview and parents rated their children at separate points in the interview. For each reporter, items were averaged to create a total score with higher scores indicating greater warmth. Cronbach's alphas ranged from .78 to .94 across reporters and times of assessment.

Parent-adolescent conflict was measured via adolescent, mother, and father reports using an instrument adapted from Smetana (1988) that assessed conflict frequency in 11 domains (e.g., choosing activities, social life, homework). Youth rated their mothers and fathers at separate points in the interview and parents rated their children at separate points in the interview regarding how often they had conflicts in each domain on a 6-point scale (1 = *not at all*, 6 = *several times a day*). Items were summed, with higher scores reflecting higher conflict during the past year. Cronbach's alphas ranged from .77 to .87 across reporter and times of assessment.

School grades were obtained from youth's report cards during the home interviews. GPA was calculated from grades in math, science, social studies, and language arts. Letter grades were assigned numerical scores (A = 4, etc.), such that high scores signified higher grades.

School bonding was assessed with six items adapted from The National Longitudinal Study of Adolescent Health (Add Health; Udry, 1998) that reflected students' sense of belonging (e.g., "I feel close to people at my school"). Responses were rated on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*) and were summed with higher scores signifying greater school bonding. Cronbach's alphas ranged from .62 to .74 across siblings and times of assessment.

School self-esteem was measured with 10 items from the school subscale of the Hare Area-Specific Self-Esteem Scale (Hare, 1996). Items (e.g. "I usually have been proud of my report card") were rated on a 4-point scale (1 = *strongly disagree*, 4 = *strongly agree*) and were summed to create a total score, with higher scores denoting higher school self-esteem. Cronbach's alphas ranged from .68 to .74 across siblings and times of assessment.

Family background characteristics including youths' age, biological relatedness to father, and parental education were assessed during the parent portion of the home interview. Both mothers and fathers reported on their highest level of education obtained (12 = high school graduate, 14 = some college, and 16 = college graduate). The mean of mothers' and fathers' education levels (which were correlated, $r = .53$, $p < .001$) and father-child relatedness (1 = biologically related; 0 = not biologically related) were used as controls.

School Context included school type which was collected from mothers reports (0 = public; 1 = private/parochial) and school racial composition which was obtained from the U.S. Department of Education, Institute for Education Sciences, National Center for Educational Statistics and coded for the proportion of African American students.

Results

Analytic Strategy

To examine the trajectories of adolescents' academic adjustment we used a multilevel modeling (MLM) strategy. This approach was chosen because of the nested nature of the data (time within individuals; siblings within families). MLM is also appropriate when data are unbalanced. That is, individuals need not be assessed at the same point in time, and measurement spacing does not have to be equal across participants. In the present study, we used age as the index of time rather than the more typically employed, wave of data collection given that our research design is an cohort-sequential design in which there is variability in age at each wave of data collection. The use of age as the metric for time increases the precision with which each child's growth trajectory can be measured (Singer & Willet, 2003). Youth's age was centered at age 13 (the mean age across all youth, across all times of measurement). A major strength of MLM is that it accommodates missing data and effectively reduces biases in the estimation of parameters and standard errors (Schafer, 1997) although only about 5% of our data were missing across variables, persons, and time points. Models were estimated using the PROC MIXED procedure in SAS version 9.2. Restricted maximum likelihood (REML) was used in reporting model parameters, and degrees of freedom were estimated using the Satterthwaite method.

We estimated a series of multilevel models to examine: (a) trajectories of academic adjustment and (b) whether changes in parent-adolescent relationship quality were related to changes in academic adjustment. *Model 1* examined the developmental course of academic adjustment. At Level 1 (within-individuals over time) we included a linear term to describe patterns of change in academic adjustment and we evaluated whether coefficients should be treated as random or fixed using deviance tests by comparing a series of nested models that differed only in the random effect of interest. Because the difference between two nested models in their deviances (i.e., $-2 \log\text{-likelihood}$) was chi-square distributed, it indicated whether adding the random variance component constituted a better error structure (Raudenbush & Bryk, 2002).

Model 2 examined whether trajectories differed for boys and girls or by school context (public vs. private school; school racial composition). At Level 2 (between-siblings, within-families) we included individual-level time invariant characteristics: gender, school type, and racial composition. The reference group for adolescent gender was male and the reference group for school type was public school. Cross-level interactions of age X gender were included at Level 1 to evaluate whether trajectories differed for boys and girls. At Level 3 we included controls for parental education and father-child relatedness.

Model 3 examined the extent to which changes in parent-adolescent relationship quality were related to changes in academic adjustment. This step included parent-adolescent

relationship qualities as time-varying covariates at Level 1. In order to account for both within and between person change, we separated the time-varying relationship quality variables into these two components by including the cross-time mean for the Level 1 time-varying covariates (mother-adolescent conflict, father-adolescent conflict, mother-adolescent warmth, father-adolescent warmth) as predictors of the Level 2 intercepts (Hoffman & Stawski, 2009). The coefficients for these cross-time means reflect all between individual variation and restricted the Level 1 time-varying coefficients to explain within-individual change. In other words, after accounting for between person differences in the amount of conflict or warmth in parent-adolescent relationships, this model evaluates the extent to which increases or decreases in conflict or warmth are related to *changes* in academic adjustment. Level 2 (between-siblings, within-families) included individual-level time invariant characteristics: gender, school type, and racial composition. At Level 3 (between-families), we included parents' education level and father-child relatedness as control variables.

Academic Trajectories

To address the first goal of this study, to describe youth's academic trajectories, we evaluated both fixed and random time effects by estimating a series of unconditional growth models. Beginning with *GPA*, a model with random liner effects and a fixed linear effect was chosen as the best-fitting growth model. The intercept was 2.74, which indicated that, at age 13 youth earned a grade of B-, on average. Youth's grades declined over time as indicated by the significant linear term, $\gamma = -.08$, $p < .001$. Model 2 added effects for gender, school type, and racial composition and parental education and father-child relatedness were included as controls. A significant main effect for gender indicated that girls had higher GPAs than boys, $B = -.23$, $SE = .06$, $t = 3.77$, $p < .001$. The interaction between gender and the linear slope was non-significant, indicating that boys and girls had similar rates of decline and that gender differences in GPA were consistent over time. A significant effect for school type indicated that youth who attended private/parochial schools had higher GPAs than youth who attended public schools, $B = .18$, $SE = .08$, $t = 2.18$, $p < .05$. Racial composition was unrelated to GPA.

Turning to *school bonding*, a model with random intercepts and slopes and a fixed linear effect was the best-fitting growth model. The intercept was 3.79, which indicated that, at age 13, youth's ratings were above the midpoint on this scale, on average. A significant and negative linear term, $\gamma = -.03$, $p < .001$, indicated that school bonding declined over time. Model 2 added effects for gender, school type, and racial composition and parental education and father-child were included as controls. There were no significant main effects for gender nor were there gender differences in the slope for GPA which indicated that boys and girls declined in school bonding at similar rates. A significant effect for school type indicated that youth who attended private/parochial schools reported more school bonding than youth who attended public schools, $B = .28$, $SE = .07$, $t = 3.80$, $p < .001$ and students who attended schools with a higher proportion of African American students reported less school bonding, $B = -.18$, $SE = .08$, $t = -2.09$, $p < .05$.

For *school self-esteem*, a model with random intercepts and slopes and a fixed linear effect was the best-fitting growth model. The intercept was 3.09 which indicated that on average youth reported high levels of school self-esteem. School self-esteem declined significantly over time, $\gamma = -.03$, $p < .001$. Again, Model 2 added effects for gender, school type, and racial composition and parental education and father-child relatedness were included as controls. A significant time X gender interaction, $\gamma = -.03$, $p < .05$ indicated that boys experienced greater declines in school self-esteem than girls (see Figure 1). School type and racial composition were unrelated to school self-esteem.

Are Changes in Parent-Adolescent Relationships Related to Changes in Academic Trajectories?

In order to address the second goal of this study, we used the time-varying covariates of mother- and father-adolescent warmth and conflict to predict changes in academic adjustment (see Tables 1 and 2). Separate models were estimated for relationship quality with mothers and fathers and included both adolescent and parent reports. We began with the best-fitting growth model for *GPA*, which included random intercepts and slopes and fixed linear effects. We then added the time-varying relationship quality covariates (Level 1) along with gender, school type and racial composition (Level 2). Parental education and father-child relatedness were included as controls (Level 3). At Level 2, the cross-time means of relationship qualities were included as controls so that we could separate within-person from between-person effects. The first set of analyses examined mother-adolescent relationship quality via mother and adolescent reports. Results revealed significant between-person effects that indicated adolescents and mothers who reported more conflict in their relationships had lower GPAs. Further, a significant within-person effect indicated that a one unit increase in mother reports of conflict were associated with a 0.09 decrease in GPA each year (see Table 1). Mother and adolescent perceptions of warmth were not related to overall GPA (between-person) or changes in GPA (within-person). The second set of analyses examined father-adolescent relationship quality via father and adolescent reports. As shown in Table 2, a significant between-person effect signified that more father-adolescent conflict was associated with lower GPAs. Additionally, a significant within-person effect revealed that a one unit increase in father-adolescent conflict was associated with a .11 unit decrease in GPA each year. Father and adolescent perceptions of warmth were not related to overall GPA (between-person) or changes in GPA (within-person).

The best-fitting growth model for *school bonding* included random intercepts and slopes and fixed linear effects. To this model, we added the time-varying relationship quality covariates (Level 1), gender, school type and racial composition (Level 2). At level 2, the cross-time means of relationship qualities were included as controls so that we could separate within-person from between-person effects. Parental education and father-child relatedness were included as controls (Level 3). Results revealed a significant between-person effect that indicated adolescent reports of conflict with mothers were related to less school bonding and a significant within-person effect showed that increases in conflict were related to decreases in school bonding. Specifically, a one unit increase in conflict with mothers was associated with a .08 decrease in school bonding each year. Additionally, a significant between-person effect signified that adolescent reports of warmth with mothers were related to more school

bonding and a significant within-person effect showed that a one unit increase in warmth was related to a .16 increase in school bonding each year (see Table 1). Results for father-adolescent relationship quality (Table 2) revealed a significant between-person effect which indicated that adolescent reports of conflict with fathers were associated with less school bonding and a significant within-person effect showed that a one unit increase in conflict was related to a .08 decrease in school bonding each year. Additionally, a significant between-person effect showed that adolescent perceptions of warmth with fathers were associated with more school bonding.

The best-fitting growth model for *school self-esteem* included random intercepts and slopes and fixed linear effects. To this model, we added the time-varying relationship quality covariates (Level 1) gender, school type and racial composition (Level 2). At level 2, the cross-time means of relationship qualities were included as controls so that we could separate within-person from between-person effects. Parental education and father-child relatedness were included as controls (Level 3). Results revealed a significant between-person effect such that adolescent reports of conflict with mothers were associated with less school self-esteem and a significant within-person effect indicated that when mother-adolescent conflict increased by one unit there was a .04 unit decrease in school self-esteem each year (Table 1). Further, a significant between-person effect showed that adolescent reports of warmth with mothers were associated with more school self-esteem and a significant within-person effect indicated that when mother-adolescent warmth increased by one unit, there was a .17 unit increase in school self-esteem each year (Table 1). In the case of fathers, a significant between-person effect signified that adolescent reports of conflict with fathers were associated with less school self-esteem. Additionally, a significant between-person effect showed that adolescent reports of warmth with fathers were associated with more school self-esteem and a significant within-person effect indicated that when father-adolescent warmth increased by one unit, there was a .12 unit increases in school self-esteem each year (Table 2).

Discussion

Our findings highlight two important conclusions. First, gender differences in achievement trajectories indicated that boys not only have lower levels of academic achievement throughout adolescence compared to girls, but also experience steeper declines in school self-esteem during adolescence. Second, changes in parent-adolescent relationship quality, (warmth and conflict) had implications for achievement trajectories, above and beyond the tendency toward decline. Below we review our findings, highlighting how our results contribute to the larger literature on development among African American youth and what directions they suggest for future work.

Academic Adjustment Trajectories

Concerns over the academic achievement of African American youth directed our use of an ethnic homogeneous rather than the more typical ethnic comparative design. Much of the research on achievement among African Americans focuses on economically disadvantaged youth and our study of working and middle class youth makes an important contribution to

the literature, especially given that this is a growing segment of the African American population (Marsh, Darity, Cohen, Casper, & Salters, 2007). Our longitudinal findings showed that academic achievement, school bonding, and school self-esteem all declined over time and that declines in school self-esteem were more pronounced for boys.

These findings are consistent with previous research documenting declines in academic functioning following the transition to middle school among at-risk low-income African American youth (Burchinal, et al., 2008; Gutman & Midgley, 2000). Importantly, our results contributed to the literature in several ways. First, our results extend to a working/middle class group of racial minority youth suggesting that declines in academic functioning may be more typical during adolescence. However, it should be noted that although these youth experience declines in academic functioning, they were by no means “failing” and continued to fare quite well overall. This is a noteworthy finding given that the literature that focuses on at-risk minority youth tends to paint a more negative picture of academic adjustment during adolescence. Second, our study charted trajectories of academic functioning over a longer timespan from pre- to middle adolescence (ages 10 – 16) than previous research (Burchinal et al., 2008; Gutman & Midgley, 2000). Third, in response to a call for researchers to move beyond test scores and grades as outcomes of minority students school experiences (Slaughter-Defoe et al., 1990; Wong & Rowley, 2001), we took a multidimensional approach examining trajectories of school bonding and school self-esteem in addition to academic performance. School bonding and school self-esteem reflect affective and cognitive dimensions of school engagement (i.e., school-related emotions/feelings, thoughts, and behaviors; Jimerson, et al., 2003) which is of interest to researchers because of its links to achievement and school completion (Appleton, Christenson, & Furlong, 2008).

Results from this study indicated that boys are especially at-risk for declines in academic functioning as evidenced by their lower GPA and greater decreases in school self-esteem over time compared to girls. These findings are consistent with previous research showing that boys have lower levels of academic achievement and school self-esteem/self-concept than girls (Chavous et al., 2008; Saunders, Davis, Williams, & Williams, 2004). Our results add to this literature by documenting gender differences in the longitudinal changes in academic functioning. Adolescence is a challenging time for youth who are negotiating many biological, cognitive, and psychosocial changes. African American boys have the additional challenges of developing positive racial/ethnic identities and coping with higher levels of discrimination than girls (Chavous et al., 2008). Previous research indicates that boys are more likely to experience discrimination at school from teachers (Chavous et al., 2008), which is one reason why boys may experience greater declines in school self-esteem than girls. Our results showed that boys had lower levels of academic achievement compared to girls, which may have also contributed to greater declines in their school self-esteem.

We also examined the effects of school context (school type and racial composition) on academic functioning and found that attending a private school was associated with higher GPAs and more school bonding. This finding is in line with previous research regarding the effects of public versus private school which have also shown in nationally representative samples that private school attendance is associated with greater achievement and school

bonding (Gamoran, 1996). These findings might reflect the cultures of private schools which have strict academic standards and a community environment that provides a social basis for student motivation (i.e., caring relationships; Eccles & Roeser, 2009). Regarding school racial composition, we found that the proportion of African American students was related to school bonding, but was unrelated to academic achievement or school self-esteem. Our findings were consistent with previous research that documented greater proportions of racial/ethnic minority students at school were associated with lower levels of school engagement (Finn & Voelkl, 1993). However, others have reported that the proportion of minority students is positively related to some dimensions of school engagement such as school belonging (Benner & Graham, 2009).

Parent-Adolescent Relationships and Academic Functioning

Consistent with an ecological perspective we found that changes in parent-adolescent relationships were related to changes in academic functioning. Results from this study yielded consistent associations between parent-adolescent conflict/warmth and youth academic functioning. In line with previous research (Gutman & Eccles, 1999; Spencer et al., 1993), we found that on average, warmth and conflict with mothers and fathers (between-person effects) was associated with adolescents' GPAs, school bonding, and school self-esteem. More importantly, results from our study contribute new information to the field regarding the implications of changes in relationship quality as we found that increases in parent-adolescent conflict were associated with decreases in GPA, school bonding, and school self-esteem whereas increases in parent-adolescent warmth were related to increases in school bonding and school self-esteem. Adolescence is a time of change in family relationships, including normative declines in warmth and increases in conflict (Laursen, et al., 2010; McGue, et al., 2005; Shanahan, McHale, Crouter, & Osgood, 2007). However, we extended research in this area by documenting that increases in parent-adolescent conflict (above and beyond average levels of conflict) has implications for academic functioning including GPA and school engagement (i.e., school bonding and school self-esteem).

Congruent with a family systems perspective, our results also highlighted the importance of incorporating the perspective of multiple family members. For example, parent reports of conflict were related to decreases in GPA, whereas adolescent reports of conflict with their mothers were related to decreases in school bonding and school self-esteem and conflict with fathers was related to decreases in school self-esteem. Importantly, we found that conflict with both mothers *and* fathers was related to changes in academic functioning. This finding adds to the growing body of research regarding normative processes among African American families (Mandara, Varner, & Richman, 2010; Smetana, 2000) and the inclusion of fathers in research (Caldwell et al., 2004; Cooper, 2009; Parke, 2000). Further, incorporating both parent and adolescent reports of warmth, we found that adolescents' perceptions of warmth were more predictive of academic functioning than were parents' perceptions of warmth. Others have pointed out that adolescents' perceptions of parenting are especially important to consider (Neiderhiser, Pike, Hetherington, & Reiss, 1998). There is also great support for the reliability and predictive utility of adolescent ratings of the parent-child relationship (Metzler, Biglan, Ary, & Li, 1998).

Limitations and Conclusions

Several limitations should be noted. First, the participants in our study were from African American working and middle class families residing in the Eastern United States and findings cannot be generalized to other populations. Recent demographic trends in the rates of marriage, divorce, cohabitation, single-parenthood in African American families, suggest that future work would benefit from the exploration of family relationship dynamics across a broader range of family structures and socioeconomic strata. Second, three time points of data limited our ability to describe nonlinear growth models. Third, despite the advantages of a within-person approach to studying the implications of changes in parent-adolescent relationships (Curran & Bauer, 2011), the present study used a correlational design. Therefore, it is not possible to determine whether changes in parent-adolescent warmth/conflict led to changes in academic functioning or the other way around. Future studies with more waves of data could use time-lagged designs to investigate the direction of effects. Fourth, we were unable to examine additional school context factors such as the transition to junior high/middle school because we did not assess school transitions at each wave of data collection. Given that school transitions are associated with declines in academic motivation (Dotterer, McHale, & Crouter, 2009) and achievement (Gutman & Midgley, 2000) future research should examine the extent to which school transitions are associated with changes in academic trajectories.

Despite these limitations, this study contributes to our understanding of academic functioning among African American adolescents. Using data that spanned from pre-to middle adolescence, we were able to chart the academic trajectories of African American youth and examine gender differences in changes in academic functioning. In addition, this study demonstrated the important role of family relationships as they relate to changes in academic trajectories. With some exceptions (Caldwell et al., 2004; Cooper, 2009; Mandara et al., 2010; Smetana, 2000) there is very little research on parent-adolescent relationship quality among African American families, and our study makes an important contribution by connecting changes in relationship quality to adolescents' academic adjustment.

Acknowledgments

This research was supported by a grant from the National Institute for Child Health and Human Development (R01-HD32336) to Ann C. Crouter and Susan M. McHale, Co-Principal Investigators. We are grateful to the entire staff of the Penn State Family Relationships Project as well as families who participated in this study.

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Figure 1.
Gender Differences in School Self-Esteem Growth Trajectory

Multilevel Modeling (MLM) Coefficients for Growth Trajectories of Academic Adjustment Utilizing Mothers' and Adolescents' Reports of Relationship Quality

Table 1

	GPA			School Bonding			School Self-Esteem		
	γ	SE	t-ratio	γ	SE	t-ratio	γ	SE	t-ratio
<i>Fixed Effects</i>									
Intercept	1.69***	.30	5.56	3.43***	.27	12.74	2.92***	.15	19.85
<i>Level 1</i>									
Age (Linear)	-.07***	.02	-4.29	-.03	.02	-1.89	-.01	.01	-1.18
AgeXGender	-.01	.02	-.53	.01	.02	.57	-.03**	.01	-2.60
WP A-M Conflict	.01	.04	.27	-.08*	.03	-2.47	-.04*	.02	-2.09
WP M-A Conflict	-.09*	.04	-2.00	.04	.04	1.10	-.01	.02	-.42
WP A-M Warmth	-.06	.05	-1.11	.16**	.05	3.17	.17***	.03	5.99
WP M-A Warmth	-.01	.07	-.17	-.12	.06	-1.84	-.02	.04	-.65
<i>Level 2</i>									
Gender	-.22***	.06	-3.67	-.05	.05	-.87	-.02	.03	-.51
BP A-M Conflict	-.12*	.05	-2.28	-.14**	.05	-2.99	-.14***	.03	-5.15
BP M-A Conflict	-.19***	.05	-4.04	.02	.04	.53	-.04	.02	-1.51
BP A-M Warmth	.02	.07	.33	.17**	.06	2.78	.07*	.04	1.97
BP M-A Warmth	.02	.07	.28	-.01	.06	.75	.04	.04	1.13
<i>Level 3</i>									
Parent Education Level	.08***	.02	3.90	.03	.02	1.66	.01	.01	1.29
% African American at school	-.02	.09	-.17	-.19*	.08	-2.25	-.02	.05	-.40
School Type	.15	.08	1.83	.26***	.07	3.64	.05	.04	1.23
<i>Variance Components</i>									
Residual	.32***	.02	16.98	.24***	.02	15.38	.10***	.01	18.56
Intercept	.08**	.03	2.96	.06**	.02	2.77	.01	.01	1.29

Note. WP = Within-Person Change; BP = Between-Person Change; Adolescent-Mother = Adolescent report of conflict with mother; Mother-Adolescent = Mother report of conflict with adolescent

.100' > *d*

; .10' > *d*
**
'50' > *d*
*

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Table 2

Multilevel Modeling (MLM) Coefficients for Growth Trajectories of Academic Adjustment Utilizing Fathers' and Adolescents' Reports of Relationship Quality

	GPA			School Bonding			School Self-Esteem		
	γ	SE	t-ratio	γ	SE	t-ratio	γ	SE	t-ratio
<i>Fixed Effects</i>									
Intercept	1.96***	.32	6.13	3.27***	.29	11.27	2.87***	.17	17.39
<i>Level 1</i>									
Age (Linear)	-.06**	.02	-3.29	-.03*	.02	-1.98	-.01	.01	-1.17
AgeXGender	-.02	.03	-.79	.02	.02	.66	-.02	.01	-1.99
WP Adolescent-Father Conflict	-.05	.04	1.47	-.08*	.04	-2.41	-.03	.02	-1.27
WP Father-Adolescent Conflict	-.11**	.04	-2.95	-.02	.04	-.45	.01	.02	.26
WP Adolescent-Father Warmth	.07	.04	1.49	.07	.04	1.62	.12***	.02	4.64
WP Father-Adolescent Warmth	.02	.06	.31	-.08	.06	-1.45	.04	.03	1.33
<i>Level 2</i>									
Gender	-.23***	.06	-3.60	-.05	.06	-.90	-.01	.03	-.30
BP Adolescent-Father Conflict	-.10	.05	-1.81	-.13**	.05	-2.73	-.15***	.03	-5.13
BP Father-Adolescent Conflict	-.15***	.04	-3.76	.02	.04	.54	.01	.02	.42
BP Adolescent-Father Warmth	.05	.06	.81	.15**	.05	2.70	.08**	.03	2.60
BP Father-Adolescent Warmth	-.06	.07	-.92	.05	.06	.75	-.02	.03	-.66
<i>Level 3</i>									
Parent Education Level	.06**	.02	2.89	.04*	.02	.01	.01	.01	1.36
% African American at School	-.03	.10	-.28	-.15	.09	-1.71	.01	.05	.29
School Type	.21*	.08	2.50	.24**	.07	3.15	.07	.04	1.60
<i>Variance Components</i>									
Residual	.29***	.02	15.74	.24***	.02	14.30	.10***	.01	17.09
Intercept	.07**	.03	2.51	.07**	.02	3.10	.01	.01	1.42

Note. WP = Within-Person Change; BP = Between-Person Change; Adolescent-Father = Adolescent report of relationship with father; Father-Adolescent = Father report of relationship with adolescent

* $p < .05$;

.100' > *d*

;10' > *d*
**

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