

Stage–Environment Fit During Adolescence: Trajectories of Family Relations and Adolescent Outcomes

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Within the framework of stage–environment fit theory, the authors examined the contribution of family relations to adolescent outcomes concurrently and longitudinally, as well as the moderating effects of gender and ethnicity in these associations. Data came from a longitudinal study of European American and African American families from a range of socioeconomic backgrounds. Results demonstrated that gender and ethnicity influenced both the level and rate of change in family relations and adolescent outcomes. Family relations contributed either concurrently or longitudinally to at least 1 of the adolescent outcomes. The effects of gender and ethnic moderation differed according to both the time frame and the outcome assessed.

Keywords: adolescent trajectories, ethnicity, family relations, gender, stage–environment fit

The developmental stage from early to late adolescence is unique in its multitude of concurrent changes that exist across various contexts. Changes occur as a result of puberty and cognitive development, school transitions, and changing roles with peers and families. These changes are often accompanied by shifts in adolescents' trajectories. For some adolescents, changes during this period can promote positive growth and adjustment. For other adolescents, however, these changes negatively affect self-esteem and mental health, as well as increase the risk of involvement in a variety of problem behaviors (Bongers, Koot, Van der Ende, & Verhulst, 2004; Eccles & Midgely, 1989; Eccles et al., 1993; Hankin et al., 1998). In this study, we focused on how family relations contribute to developmental trajectories from early to late adolescence and how these associations vary by gender and ethnicity.

Specific manifestations of maladjustment in adolescence often vary according to gender, ethnicity, and age. For example, although depression increases from the early teens to the mid-20s for both males and females (Kessler, Avenevoli, & Merikangas, 2001), females show larger increases than males (Hankin et al., 1998). Females also have lower self-esteem than males, with the

greatest difference occurring in late adolescence (Kling, Hyde, Showers, & Buswell, 1999). In contrast, males are more likely to show increases in their engagement in problem behaviors, such as acts of delinquency, than females (Bongers et al., 2004), although delinquency peaks in early to middle adolescence and then declines in later adolescence for both sexes (Hirschi & Gottfredson, 1983). Because of the dearth of longitudinal studies with data from normative samples of both European American and African American adolescents, there is less documentation of ethnic differences in developmental trajectories from early to late adolescence.

Why do such changes occur during the adolescent period? Some of these negative changes may result from a mismatch between the needs of developing adolescents and the opportunities afforded to them in their various social environments. According to stage–environment fit theory (Eccles & Midgely, 1989; Eccles et al., 1993), the unique transitional nature of adolescence results, in part, from the relation between changes in the developmental needs of adolescents and changes in the social contexts in which they live. Many of the developmental changes during adolescence precipitate strained relations within the family that are likely to undermine adolescents' mental health and behavioral outcomes (Eccles et al., 1993; Eccles, Lord, & Roeser, 1996). According to a stage–environment fit perspective, adolescents whose environments change in developmentally regressive ways are more likely to experience difficulties. In contrast, adolescents whose social environments respond to their changing needs are more likely to experience positive outcomes. The work by Eccles and Midgely (Eccles & Midgely, 1989; Eccles et al., 1993) provides strong support for this hypothesis.

In this study, we examined trajectories of family relations, including adolescents' perceptions of decision-making opportunities, negative family interactions, and positive identification with parents, and trajectories of adolescent outcomes, including depression, self-esteem, and delinquent problems, from early to late adolescence. Within the framework of stage–environment fit, we also investigated how family relations contribute to adolescents' developmental trajectories both concurrently and longitudinally.

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Finally, we examined gender and ethnicity differences in these associations.

Family Relations During Adolescence

Relationships with parents often undergo a stressful period during adolescence (Buchanan, Eccles, & Becker, 1992; Eccles et al., 1993; Smetana, 1988, 1989, 2000). Considering that one of the salient developmental tasks confronting adolescents is establishing oneself as an autonomous being (Eccles et al., 1993; Erikson, 1959; Smetana, 2000; Steinberg, 1990), it is not surprising that this stress is often focused on issues of autonomy versus control within the family. As children in the United States mature, their relationships with their parents evolve from being asymmetrical in terms of power and authority to becoming more and more independent and, ultimately, taking primary responsibility for their own lives (Smetana, 1988, 1989, 2000). These changes may lead adolescents to question their parents' authority and to push for more decision-making power with their parents (Smetana, 1988, 1989, 2000). Parents, on the other hand, in response to their adolescents' emerging sexuality and increased involvement with peers, may become more concerned about their safety and provide fewer opportunities for autonomous decision making than they did during the period of middle childhood (Eccles et al., 1993, 1996).

This mismatch between parents' and adolescents' views of autonomy may be particularly evident in early adolescence, but one would expect to see new authority relationships emerge and the strain to continue across adolescence (Montemayer, 1983). Consistent with the stage-environment fit hypothesis, researchers have noted an association between autonomy and adolescents' developmental outcomes. For example, several researchers have found positive associations between adolescents' participation in family decision making and positive self-esteem and psychological adjustment (Eccles et al., 1996; Lord, Eccles, & McCarthy, 1994; Yee & Flanagan, 1985). Research also has indicated that adolescents' participation in family decision making may have long-term effects on academic achievement, self-concept, mental health, delinquency, and substance abuse (Gutman & Sameroff, 2004; Herman, Dornbusch, Herron, & Herting, 1998; Holmbeck & O'Donnell, 1991).

Findings regarding gender differences in the levels of adolescent decision making vary. Several investigators have found that girls have more decision-making opportunities than boys (e.g., Fuligni & Eccles, 1993; Holmbeck & O'Donnell, 1991), whereas evidence also indicates that boys are given more autonomy than girls (e.g., Dowdy & Klierer, 1998). Yet, several researchers have reported no gender differences in the effects of decision-making opportunities on adolescent outcomes (Goldstein, Davis-Kean, & Eccles, 2005; Herman et al., 1998). However, a longitudinal study spanning from early adolescence to young adulthood found that youth decision making in early adolescence had different predictive relations to depression for males and females in young adulthood: More youth decision making was related to decreased depression for males but increased depression for females (Gutman & Sameroff, 2004). This finding suggests that appropriate levels of decision-making opportunities in early adolescence may differ according to the adolescent's gender, and the effects of this difference may not exhibit itself until later in adulthood.

The effects of decision-making opportunities may also differ across ethnic and social class groups. For example, studies of high-risk African American youths have found that high levels of youth-involved decision making during early adolescence relate to poorer adjustment and achievement (Baldwin, Baldwin, & Cole, 1990; Gonzales, Cauce, Friedman, & Mason, 1996; Gutman, Sameroff, & Eccles, 2002). Greater parental control over decision making during early adolescence may be more beneficial for poor African American youths primarily because it protects them from the high-risk environments and dangerous neighborhoods where poor families typically reside. Smetana, Campione-Barr, and Daddis (2004) found similar results in a sample of middle-class African American adolescents: A higher level of parental involvement in formal decision making during early adolescence was associated with better self-worth in early adolescence and less deviance in middle adolescence. In contrast, and as one would expect developmentally, an increased role of adolescents in decision making predicted less depression and better self-worth when controlling for background characteristics and earlier adjustment. Smetana et al. (2004) suggested that parental decision making is normative during early adolescence in African American middle-class families and may protect adolescents from the pervasive risks of racism and prejudice. Taken together, these findings suggest that, although the level of decision-making opportunities may differ in early adolescence between African American and European American adolescents, an increased role in family decision making from middle to late adolescence may predict optimal adjustment for both groups.

Developmental changes in adolescence may also precipitate disruptions in the parent-adolescent relationship. Researchers, for example, have noted that emotional closeness and time spent with parents decrease (Larson, Richards, Moneta, Holmbeck, & Duckett, 1996; Steinberg, 1988), whereas family conflict increases during the adolescent years (Laursen, Coy, & Collins, 1998; Paikoff & Brooks-Gunn, 1991; Smetana, 1989). In accordance with stage-environment fit theory, such changes in family relations may result in a mismatch between the developing needs of adolescents and their family environment (Eccles et al., 1993). Although adolescents desire more autonomous, symmetrical relationships with their parents, at the same time, they often require more emotional closeness to, and open communication with, their parents. Adolescents may also benefit from positive identification with their parents, thus allowing adolescents to use their upbringing as a springboard to explore their own identities. Parents, however, may respond to their adolescents' desire for autonomy by detaching themselves from their children's lives or by demonstrating increased hostility to prevent the emergence of problem behaviors. Each of these responses is likely to increase the mismatch between parents and adolescents, which, in turn, could lead to the documented difficulties found for many adolescents. Numerous studies support these theoretical postulations. Research has indicated that hostile parenting practices and family conflict predict increases in delinquent behavior, whereas parental involvement and warmth predict lower rates of delinquent behavior and fewer depressive symptoms during adolescence (e.g., Chassin, Pillow, Curran, Molina, & Barrera, 1993; Ge, Best, Conger, & Simons, 1996; Patterson, Reid, & Dishion, 1992; Scaramella, Conger, & Simons, 1999; Simons, Wu, Conger, & Lorenz, 1994).

Much of the previous research examining parent–adolescent conflict has found that these conflicts usually involve fairly mundane issues, such as personal appearance and curfews (Smetana, 1988), and, therefore, do not appear to cause any lasting harm to adolescents' development (Steinberg, 1990). There are fewer studies, however, examining trajectories of hostile, harsh parenting behaviors, such as yelling and being overly critical, during adolescence that may represent a greater breach in parent–adolescent relations beyond the normative amount of storm and stress. Changes in such negative parenting behaviors and their effect on shifts in adolescent development clearly need to be examined more fully.

Evidence also has indicated that the effects of parent–adolescent relations on outcomes may differ according to adolescents' gender. Researchers have noted that relationships with parents may be more important for girls than boys (Geuzaine, Debry, & Liesens, 2000; Gilligan, 1982; Gilligan, Lyons, & Hammer, 1990). Yet, gender moderation on the effects of parent–adolescent relations may depend on the outcome being assessed. Evidence has indicated that parent–adolescent relations have significant effects on the depression of girls but not of boys (Compton, Synder, Schrepferman, Bank, & Shortt, 2003; Gutman & Sameroff, 2004). In contrast, studies examining the effects of parent–adolescent relationships have found no significant moderating effects of gender on delinquent behaviors (Compton et al., 2003; Dekovic, Buist, & Reitz, 2004; Goldstein et al., 2005). This suggests that, although the family processes associated with delinquency may be similar for boys and girls, the pathways to depression may be gender specific (Compton et al., 2003).

Recent studies of African American families also have found that more negative, hostile parenting predicts depressive symptoms in children and adolescents (e.g., Gutman, McLoyd, & Tokoyawa, 2005; Kim et al., 2003). In addition, increases in hostile parenting are associated with increases in children's depressive symptoms (Kim et al., 2003). However, findings on the relation between harsh parenting and delinquent problems among African American families have been mixed. Some studies confirm this relation (e.g., Kim et al., 2003), whereas others suggest that ethnic–cultural variations may moderate this association (Deater-Deckard & Dodge, 1997). However, very little research has examined the effects of family processes on the occurrence of both mental health and behavioral outcomes from early to late adolescence for both African American and European American youths.

Research Questions

Previous evidence has indicated that adolescents experience changes in their relationship with their families as well as changes in their mental health and engagement in delinquent behaviors from early to late adolescence. However, because many studies examined data only at one or two time points and across a limited period, there is less information documenting longitudinal change in family relations and developmental outcomes from early to late adolescence. Using hierarchical linear modeling (HLM), we extend previous research by documenting age-related trends in both family relations and adolescent outcomes from ages 13 to 19 years. On the basis of previous research examining changes in family relations during adolescence (e.g., Eccles et al., 1993; Smetana, 1988, 1989, 2000), we included indicators of autonomy and per-

ceptions of family relationships in our measures of family relations. Autonomy was measured by the degree to which adolescents felt they had decision-making opportunities. Family relationships included both negative and positive dimensions: (a) adolescents' perceptions of negative family interactions measured by their parents' use of yelling, criticizing, and physical punishment, and (b) adolescents' positive identification with their parents defined by their perceptions of closeness to, respect for, and time spent with their parents.

Considering the specific risks facing adolescents, we chose our measures of adolescent outcomes to reflect developmental trajectories that are vulnerable to change during the adolescent period and known to vary according to gender and ethnicity. Adolescent outcomes included both mental health and behavioral outcomes. For mental health, we examined both positive (i.e., self-esteem) and negative (i.e., depressive symptoms) dimensions. For behavioral outcomes, we focused on delinquent problems.

Evidence has shown that family relations influence developmental outcomes during adolescence. However, many of these studies have focused on how family relations relate to outcomes at one specific point in time during adolescence or how family relations predict changes in adolescent outcomes. We fill this research gap by investigating how family relations relate to developmental outcomes both concurrently and longitudinally from early to late adolescence. Within the framework of stage–environment fit theory, we expected that adolescents who perceive an increased role in decision making, fewer negative family interactions, and greater positive identification with their parents would have higher self-esteem, less depression, and fewer instances of delinquent problems both concurrently and longitudinally from early to late adolescence compared with their peers.

We also examined the moderating effects of ethnicity and gender. Many researchers have commented on the need for more studies examining normative developmental processes among well-functioning African American families (e.g., Graham, 1992; McLoyd, 1998). Furthermore, much of the previous research on African American families has focused on those living in poverty, yet the findings are often compared to middle-class European American families. To address this research gap, data for this study came from a longitudinal study of European American and African American families from a wide range of socioeconomic backgrounds. We predicted that gender and ethnic differences would emerge regarding the association between family relations and adolescent outcomes, yet similarities may also be evident. For example, we predicted that European Americans would have higher levels of decision-making opportunities than African American adolescents, but both groups would experience similar positive effects from increased decision-making opportunities (Smetana et al., 2004). We also expected that negative family interactions would have similar effects on the mental health and delinquent problems of European American and African American adolescents (Gutman et al., 2005; Kim et al., 2003). For gender differences, we expected that the associations between family relations and delinquent problems would be similar for boys and girls, but the contributions of family relations to depression would differ according to gender (Compton et al., 2003).

In summary, our study had three main research goals. First, we examined how trajectories of family relations differed by gender and ethnicity from early to late adolescence. Second, we examined

how trajectories of adolescent outcomes differed by gender and ethnicity from early to late adolescence. Third, we examined how family relations influenced adolescent outcomes from early to late adolescence both concurrently and longitudinally and how gender and ethnicity moderated these associations.

Method

Participants

The participants were part of the Maryland Adolescent Development in Context (MADIC) study. MADIC is an ongoing, longitudinal study of adolescents, their families, and their schools in Maryland (principal investigators: Jacquelynne S. Eccles and Arnold J. Sameroff). Participants were recruited from 23 schools in a single large county that includes rural, suburban, and urban areas. In Fall 1991, students were initially recruited to participate in a Comer and Cook school evaluation study through a letter that was sent home with each seventh grader in the county (Cook, Herman, Phillips, & Settersten, 2002). Families who were interested in learning more about the study were asked to sign and return a form giving the study staff permission to contact them. Of the families, 1,700 agreed to be contacted about the study. A subsample of 1,472 families was selected to participate on the basis of a stratified sampling procedure designed to get proportional representations of families from each of the 23 middle schools.

MADIC participants have been assessed at six time points, ranging from early adolescence (seventh grade) through young adulthood (3 years post-high school graduation). In this article, we examine four of the six waves of data, including Wave 1, collected in Fall 1991 when the target adolescents were in 7th grade (i.e., the 1st year of junior high school); Wave 3, collected in Summer and Fall 1993 when the adolescents were making the transition to high school; Wave 4, collected in 1996 when most of the adolescents were in 11th grade; and Wave 5, collected in 1998 when most of the adolescents had graduated from high school. Wave 2 was a telephone interview for parents, and Wave 6 does not include similar family relation measures as the earlier waves and, therefore, was not included in the following analyses.

In this study, we used only data of the African American and European American target adolescents from Wave 1 ($n = 1,329$), Wave 3 ($n = 945$), Wave 4 ($n = 943$), and Wave 5 ($n = 811$). The ethnic composition of the families matched the county at large; 60% African Americans, 30% European Americans, and 10% other ethnic backgrounds. The other ethnicity groups were too small in number to be included in our analyses. The African American families had lower mean levels of income (between \$40,000 and \$44,999 in 1990) and years of education ($M = 14.16$, $SD = 2.44$) than the income (between \$50,000 and \$54,999) and years of education ($M = 15.11$, $SD = 2.90$) of the European American families. Consequently, socioeconomic status (SES) for the European American families ($M = .23$, $SD = .77$) and African American families ($M = -.16$, $SD = .82$) was significantly different, $F(1, 1325) = 70.93$, $p = .001$; therefore, SES was controlled in the analyses. Note, however, that these differences are much smaller than usual because of our sampling procedure.

Both Wave 3 and Wave 4 retained more than 70% of the sample from Wave 1. At Wave 5, we obtained data from 61% of the Wave 1 sample of adolescents. These retention percentages, when

viewed in the context of our entire study, are actually 89% and 81%, respectively, because some of the participants who did not participate at Waves 3 or 4 returned to the sample in Waves 4 or 5. To ascertain whether the adolescents who dropped out of the study at Wave 1 ($n = 118$) differed from the adolescents who participated in all four waves ($n = 567$), we conducted a series of t tests with all study variables at Wave 1. Significant differences emerged between the two groups on gender, SES, and delinquent problems. Percentages indicated that gender was equally divided with the exception of Wave 5, in which 57% of the sample was female. Means indicated that participants who remained in the study for all four waves were more likely to be female, have higher SES, and have fewer delinquent problems at Wave 1 than those who dropped out of the study after Wave 1.

Procedure

An in-home interview format was used in Waves 1, 3, and 4. In each family, the target adolescent was interviewed and given a self-administered questionnaire to complete. As often as possible, the race of the interviewers was matched to the race of the adolescents. Interviewers were from the local area and were mostly women with some college or a bachelor's degree. The interviewing process took place in the home and included both face-to-face structured interview and self-administered formats. The face-to-face interviews took approximately 1 hr; the self-administered booklet took approximately 30 min to complete. Target adolescents were offered \$20 at each wave to participate in Waves 1, 3, and 4. At Wave 5, adolescents were mailed three self-administered booklets. Each booklet took approximately 30 min to complete. Target adolescents received \$35 for participating.

Measures

Table 1 presents the means, standard deviations, and reliabilities of each wave for the measures.

SES. The index included highest household occupation, highest household education, and combined household income. Family income was measured by asking the primary caregiver, "From all sources of income, tell me your total family income before taxes in 1990." Primary and secondary caregivers reported educational attainment (in years).

Decision-making opportunities. This construct was measured with a single item adapted from the Family Management Study (Furstenberg, Cook, Eccles, Elder, & Sameroff, 1999): "How do you and your parents make decisions affecting you?" (1 = *my parent[s] decide themselves*, 2 = *my parent[s] decide after discussing it with me*, 3 = *we decide together after discussing it*, 4 = *I decide after discussing it with my parent[s]*, 5 = *I decide all by myself*).

Negative family interactions. This scale was based on items from the Family Management Study (Furstenberg et al., 1999) and included four items that began with the phrase, "During the past month, how often have your parent(s) . . ." Items included yell at you; criticize your ideas; put his/her needs ahead of your needs; and hit, push, grab, or shove you (1 = *never*, 2 = *once or twice*, 3 = *3 or 4 times*, 4 = *a couple of times a week*, 5 = *almost every day*).

Table 1
Means, Standard Deviations, and Reliabilities for Measures

Scale	Wave	<i>M</i>	<i>SD</i>	α
Decision-making opportunities	1	2.77	.76	NA
	3	2.83	.68	NA
	4	3.46	.61	NA
	5	3.46	.61	NA
Negative family interactions	1	1.89	.65	.56
	3	1.77	.61	.61
	4	1.70	.60	.60
	5	3.46	.61	.67
Positive identification with parents	1	3.37	.51	.67
	3	3.18	.59	.75
	4	3.11	.62	.74
	5	3.04	.66	.82
Depression	1			
	3	1.29	.40	.80
	4	1.54	.28	.77
	5	1.29	.39	.82
Self-esteem	1	3.60	.95	.80
	3	3.88	.90	.73
	4	3.83	.90	.76
	5	3.65	1.00	.77
Delinquent problems	1	.38	.32	.68
	3	.43	.35	.74
	4	.29	.33	.69
	5	.24	.27	.62

Note. Blank cells indicate that the scale does not exist.

Positive identification with parents. This scale was based on four items from the Family Management Study (Furstenberg et al., 1999), including “How close do you feel to your parent?” “How much do you respect your parent?” “How much do you want to be the kind of person your parent is when you are an adult?” and “How often do you and your parent do things that you enjoy together?” (1 = *not at all*, 2 = *just a little*, 3 = *quite a bit*, 4 = *a lot*).

Depression. This scale was based on the six items from the Children’s Depression Inventory (Kovacs, 1992) and began with the question, “In the past two weeks, how often have you had these feelings?” Items included “I am sad,” “I am worthless,” “I feel like crying,” “I feel like I hate myself,” “I feel like nothing will ever work out for me,” and “Things bother me all the time” (1 = *once in a while*, 2 = *many times*, 3 = *all the time*).

Self-esteem. This scale was based on the work of Harter (1985) and included three items: “How often do you wish you were different than you are?” “How often would like to change lots of things about you if you could?” and “How often do you feel pretty sure about yourself?” (1 = *almost never*, 2 = *once in a while*, 3 = *sometimes*, 4 = *often*, 5 = *almost always*).

Delinquent problems. This scale was based on the work of Elliott, Huizinga, and Menard (1989) and included six items: “In the past year, have you stolen from a store?” “. . . been involved in a gang fight?” “. . . damaged property for fun?” “. . . hit someone for what they said or did?” “. . . lied to your parents?” and “. . . stolen a motor vehicle?” (1 = *0 times*, 2 = *1 to 9 times*, 3 = *more than 10 times*).

Description of Analyses

Using HLM 5 (Raudenbush, Bryk, Cheon, & Congdon, 2000), we applied a two-level hierarchical linear model with time nested within individuals.

Level 1 model. This study used a growth curve model, which means that a polynomial of degree n was used to model the outcome variable as a function of time to describe the individual trajectory of change for each student (Bryk & Raudenbush, 1987, 1992):

$$Y_{it} = \beta_{0i} + \beta_{1i}(\text{Age}_{it} - 15) + \beta_{2i}(\text{Age}_{it} - 15)^2 + e_{it}$$

In this equation, the value of 15 has been subtracted from the individual’s age so that β_{0i} represents the score on the outcome at age 15, β_{1i} represents the rate of change in the outcome at age 15, and β_{2i} estimates changes in the rate of change in the outcome over time, characterizing growth patterns that are not linear.

Level 2 model. β_{0i} , β_{1i} , and β_{2i} are the outcome measures for the Level 2 equations:

$$\begin{aligned} \beta_{0i} = & \gamma_{00} + \gamma_{01}\text{SES}_i + \gamma_{02}\text{Gender}_i + \gamma_{03}\text{Ethnicity}_i \\ & + \gamma_{04}\text{Gender} * \text{Ethnicity}_i + \gamma_{05}\text{Mean}(\text{Age} - 15)_i \\ & + \gamma_{06}\text{Mean}(\text{Age} - 15)_i^2 + u_{0i}, \end{aligned}$$

$$\begin{aligned} \beta_{1i} = & \gamma_{10} + \gamma_{11}\text{SES}_i + \gamma_{12}\text{Gender}_i + \gamma_{13}\text{Ethnicity}_i \\ & + \gamma_{14}\text{Gender} * \text{Ethnicity}_i + u_{1i}, \text{ and} \end{aligned}$$

$$\begin{aligned} \beta_{2i} = & \gamma_{20} + \gamma_{21}\text{SES}_i + \gamma_{22}\text{Gender}_i + \gamma_{23}\text{Ethnicity}_i \\ & + \gamma_{24}\text{Gender} * \text{Ethnicity}_i + u_{2i}. \end{aligned}$$

The set of constant terms for the Level 2 equations defines the growth curve when all of the predictor variables in the model are set to zero. Given the coding of the Level 2 variables (described below), γ_{00} was the sample mean at age 15, γ_{10} was the average rate of change in the outcome variable at age 15, and γ_{20} was the degree of curvature averaged across the sample (Bryk & Raudenbush, 1992, pp. 25–29).

SES was standardized (i.e., mean centered and divided by its sample standard deviation) so that the coefficients γ_{01} , γ_{11} , and γ_{21} reflect differences in the outcome per 1 standard deviation change in the predictor variable. We included SES in our analyses to ensure that the gender and ethnicity differences in patterns of change were not attributable to differences in SES. Thus, although we present these coefficients in tables, they are not discussed in the results.

The coefficients for gender, γ_{02} , γ_{12} , and γ_{22} , represent the difference in the growth curves for boys and girls. The coefficients for ethnicity, γ_{03} , γ_{13} , and γ_{23} , represent the difference in the growth curves for African Americans and European Americans. Gender and ethnicity were coded with -5 assigned to boys and African Americans and $.5$ assigned to girls and European Americans. Positive values indicate higher means, slopes, and more convex curvature for European Americans and girls, whereas negative values indicate higher means, slopes, and more concave curvature for African Americans and boys. The coefficients γ_{04} , γ_{14} , and γ_{24} represent the interactions between gender and ethnicity.

Individuals’ means for age and age-squared were included at the intercept, β_{0i} . These terms ensure that the equations for linear and quadratic change reflect only within-individual change and not stable individual differences that are confounded because of the timing of data collection or attrition that creates differences between individuals in each wave. Otherwise, growth curve esti-

mates could be influenced not only by within-individual change over time but also by any stable individual differences between those who stayed in the study and those who dropped out (Bryk & Raudenbush, 1992, pp. 121–123).

HLM assumptions including homoskedasticity and normality of residuals were checked. There was no relation between the residuals and predictors, and the distribution was symmetric and unimodal. Significance tests were also conducted to determine whether a linear, rather than quadratic, growth curve model characterized patterns of change, using a multiple-parameter significance test for the regression coefficients of β_{2j} . This test was significant for all of the variables. In addition, the variance component of the quadratic element of change was not significant and, therefore, was not included in any of the models.

Results

Three sets of HLM analyses are presented. The first set examined gender and ethnicity differences in the trajectories of the family relations variables (i.e., decision-making opportunities, negative family interactions, and positive identification with parents) from ages 13 to 19 (see Table 2). The second set of analyses examined gender and ethnicity differences in the trajectories of the adolescent outcomes (i.e., depression, self-esteem, and delinquent problems) from ages 13 to 19, with the exception of depression, which was examined from ages 15 to

19 (see Table 3). For these first two sets of analyses, we constructed trajectories according to both ethnicity and gender (see Figures 1–6). The last set of analyses examined how family relations contribute to adolescent outcomes across both concurrent and time-lagged trajectories (see Tables 4–6). We also examined how gender and ethnicity moderate these associations. This last set required some elaboration of our HLM model, which is described below.

Family Relation Variables

Decision-making opportunities. The average adolescent experienced an increase in decision-making opportunities from ages 13 to 19, with a sharp rise occurring between ages 15 and 17. As shown in Table 2, European Americans reported more decision making than did African Americans at age 15. Decision-making opportunities increased over time for the average adolescent. There was also a significant negative quadratic slope that was more negative for boys than girls. For girls, decision-making opportunities increased from ages 13 to 19, with the greatest increase occurring between the ages of 15 and 17 (see Figure 1). Boys had an increasing trajectory from ages 13 to 17 that stabilized from ages 17 to 19.

Negative interactions. For the average adolescent, perceptions of negative interactions decreased from ages 13 to 17 and then increased from ages 17 to 19. As shown in Table 2, boys perceived

Table 2
Growth Models for Decision-Making Opportunities, Negative Interactions, and Positive Identification

Measure	Decision-making model		Negative interactions model		Positive identification model	
	Coef.	SE	Coef.	SE	Coef.	SE
For intercept						
Intercept	2.775***	.046	1.806***	.036	3.198***	.042
SES	.037	.021	-.030	.019	-.005	.019
Gender	-.050	.032	-.055*	.027	.019	.030
Ethnicity	.133***	.033	-.020	.032	-.129**	.029
Gender \times Ethnicity	-.061	.067	-.046	.058	.199**	.063
Mean age	.049	.032	-.035	.025	.046	.039
Mean age ²	-.015	.009	.003	.006	-.009	.009
For linear slope						
Intercept	.060***	.007	-.033***	.006	-.065***	.005
SES	.000	.009	.018*	.007	.003	.005
Gender	-.004	.015	.017	.011	.018*	.009
Ethnicity	-.003	.015	.050***	.011	-.020*	.010
Gender \times Ethnicity	-.045	.029	-.017	.023	.047*	.020
For quadratic slope						
Intercept	-.004*	.002	.007***	.002	.009***	.001
SES	.000	.002	-.005*	.002	.000	.000
Gender	.007*	.003	-.006*	.003	-.002	.003
Ethnicity	-.000	.004	-.010**	.002	.005*	.002
Gender \times Ethnicity	.007	.007	.005	.006	-.007	.005
Residual variance	Variance		Variance		Variance	
For intercept	.217***		.232**		.194***	
For linear slope	.022***		.014***		.004***	
For quadratic slope	.001***		.001***		.001***	

Note. Coef. = coefficient; SES = socioeconomic status.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3
Growth Models for Depression, Self-Esteem, and Delinquent Problems

Measure	Depression model		Self-esteem model		Delinquent model	
	Coef.	SE	Coef.	SE	Coef.	SE
For intercept						
Intercept	1.311***	.033	3.833**	.033	1.665*	.041
SES	-.027	.015	.009	.025	-.016	.022
Gender	.100***	.025	-.269**	.042	-.238***	.034
Ethnicity	-.000	.025	-.062	.048	-.017	.032
Gender \times Ethnicity	.068	.050	-.269**	.027	-.078	.035
Mean age	-.004	.039	-.010	.039	-.062	.042
Mean age ²	.003	.007	-.005	.007	.009	.008
For linear slope						
Intercept	.150**	.008	.070***	.008	-.012*	.005
SES	.029**	.010	-.004	.010	.006	.006
Gender	-.030	.016	.009	.016	-.006	.010
Ethnicity	.029	.018	-.019	.012	.028*	.011
Gender \times Ethnicity	-.027	.032	.009	.032	-.006	.019
For quadratic slope						
Intercept	-.030***	.002	-.019***	.002	-.006***	.002
SES	-.007***	.002	.003	.002	-.001	.001
Gender	.002	.003	.003	.003	.004*	.001
Ethnicity	-.005	.003	.005	.003	-.007*	.003
Gender \times Ethnicity	.006	.006	.006	.006	.007	.005
Residual variance						
	Variance		Variance		Variance	
For intercept	.0714***		.0464***		.174***	
For linear slope	.0029***		.0182***		.0007**	

Note. Coef. = coefficient; SES = socioeconomic status.

* $p < .05$. ** $p < .01$. *** $p < .001$.

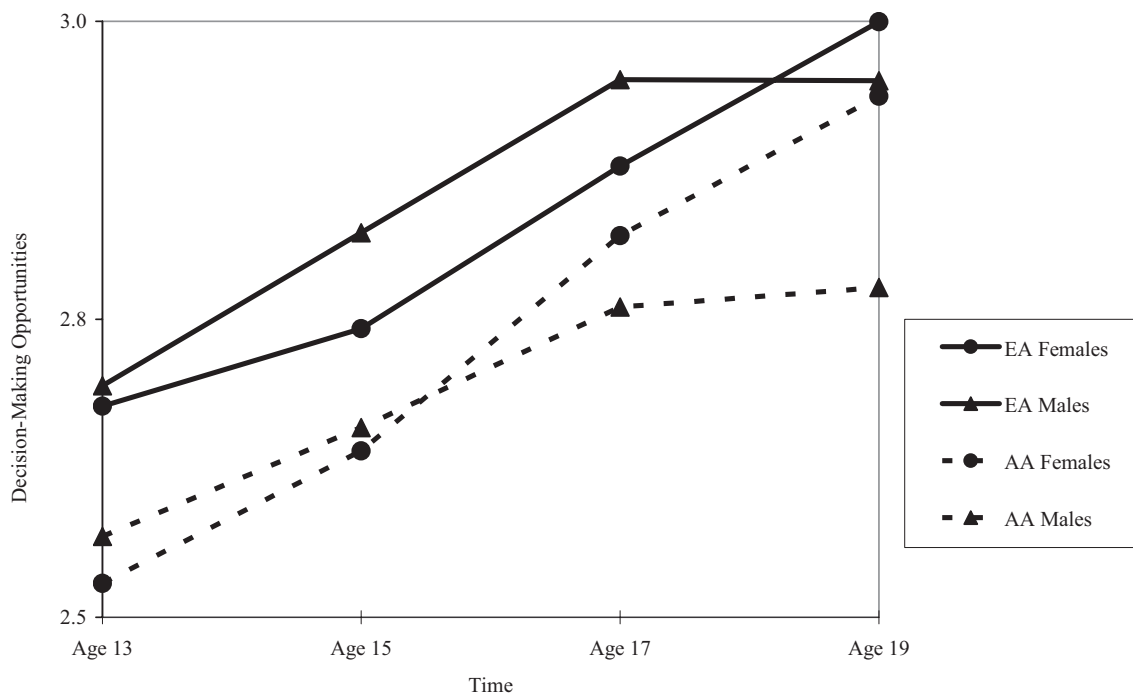


Figure 1. Growth curves for decision-making opportunities for European American (EA) and African American (AA) male and female adolescents.

more negative interactions with their parents than did girls at age 15. Perceptions of negative interactions decreased over time for the average adolescent. The rate of decrease was greater for African Americans than for European Americans, but there was a significant, positive quadratic slope that was greater for boys and African Americans than for girls and European Americans. As shown in Figure 2, European Americans experienced a relatively stable trajectory of negative interactions from 13 to 19 years. African Americans, on the other hand, experienced a downward trajectory from ages 13 to 17 and then experienced an increase from 17 to 19 years. On average, boys experienced a greater increase in their perceptions of negative interactions from ages 17 to 19 than did girls.

Positive identification with parents. For the average adolescent, perceptions of positive interactions decreased from ages 13 to 17 and then slightly increased from ages 17 to 19. As shown in Table 2, a significant gender by ethnicity interaction revealed that African American boys (3.30) reported more positive identification with their parents than did European American boys (3.07), whereas European American girls (3.19) reported slightly less than African American girls (3.22) at age 15. For the average adolescent, perceptions of positive identification decreased over time. A significant gender by ethnicity interaction indicated that European American boys (−.10) reported a greater decrease in positive identification than European American girls (−.05), African American boys (−.05), and African American girls (−.06). There was also a significant, positive quadratic slope that was greater for European Americans than for African Americans. As shown in Figure 3, European American boys experienced a decline in positive identification from ages 13 to 19 that was greatest from 13 to 15 years, whereas European American girls

experienced a slight decline from ages 13 to 17 and then a slight increase from 17 to 19 years. African American boys and girls experienced a slight decline from ages 13 to 17 that stabilized somewhat from 17 to 19 years.

Adolescent Outcomes

Depression. The average adolescent experienced an increase in depression from ages 15 to 17 and then experienced a decrease from 17 to 19 years (see Figure 4). As shown in Table 3, girls had a higher level of depression than boys at age 15. On average, depression increased over time, but there was a significant negative quadratic trend.

Self-esteem. For the average adolescent, self-esteem increased from ages 13 to 17 and then decreased from 17 to 19 years (see Figure 5). As shown in Table 3, a significant gender by ethnicity interaction revealed that European American boys (4.01) reported the highest self-esteem, followed by African American boys (3.93), African American girls (3.80), and European American girls (3.60) at age 15. Self-esteem increased over time for the average adolescent, but there was a significant negative quadratic trend.

Delinquent problems. For the average adolescent, delinquent problems remained stable from ages 13 to 15 and then decreased from ages 15 to 19. As shown in Table 3, boys reported more delinquent problems than girls at age 15. Delinquent problems decreased over time for the average adolescent, and this decrease was greater for African American adolescents. For European American adolescents, there was a slight increase over time. There was also a significant negative quadratic trend that was more

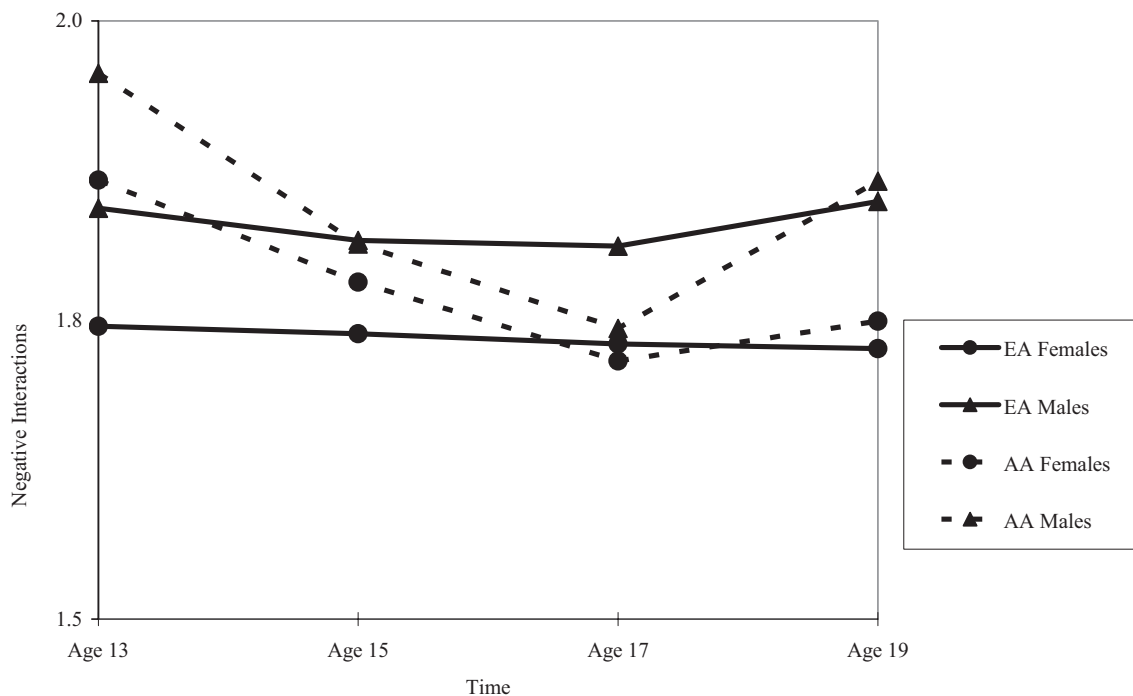


Figure 2. Growth curves for negative interactions for European American (EA) and African American (AA) male and female adolescents.

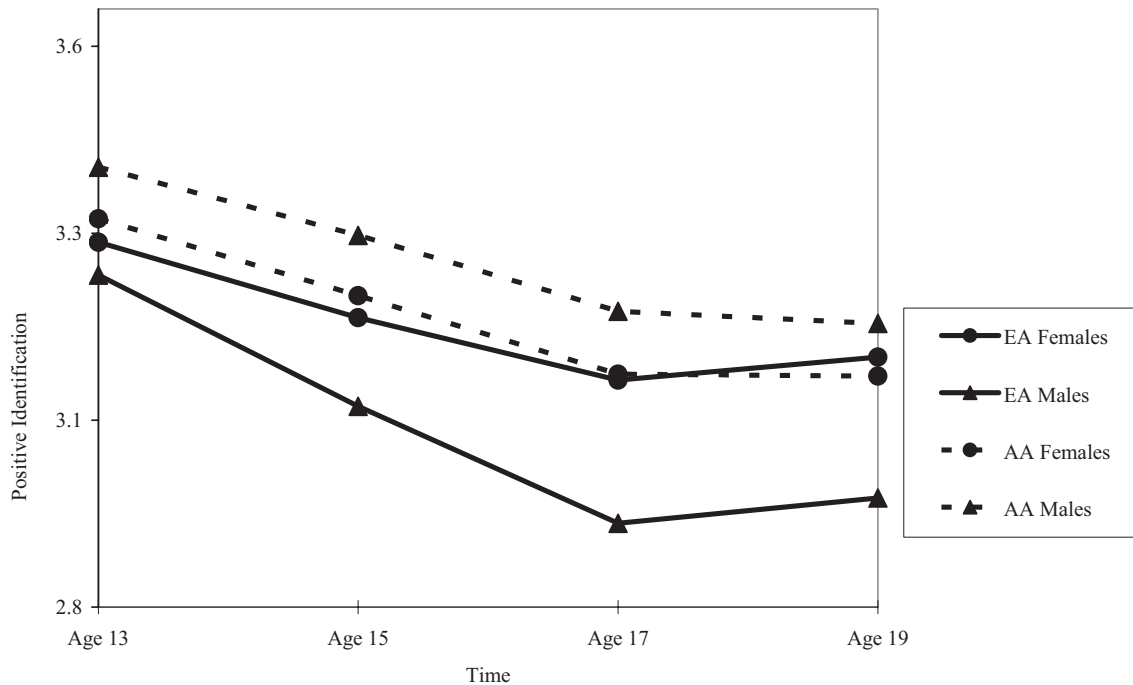


Figure 3. Growth curves for positive identification for European American (EA) and African American (AA) male and female adolescents.

negative for boys and European Americans than for girls and African Americans. As shown in Figure 6, European American adolescents experienced a slight increase in delinquent problems from ages 13 to 15, whereas African Americans experienced a

slight decrease. Both experienced a decrease from ages 15 to 19, but the decline was greater for European Americans from ages 17 to 19 than for African Americans. Boys experienced a sharper decline in delinquent behaviors from ages 17 to 19 than did girls.

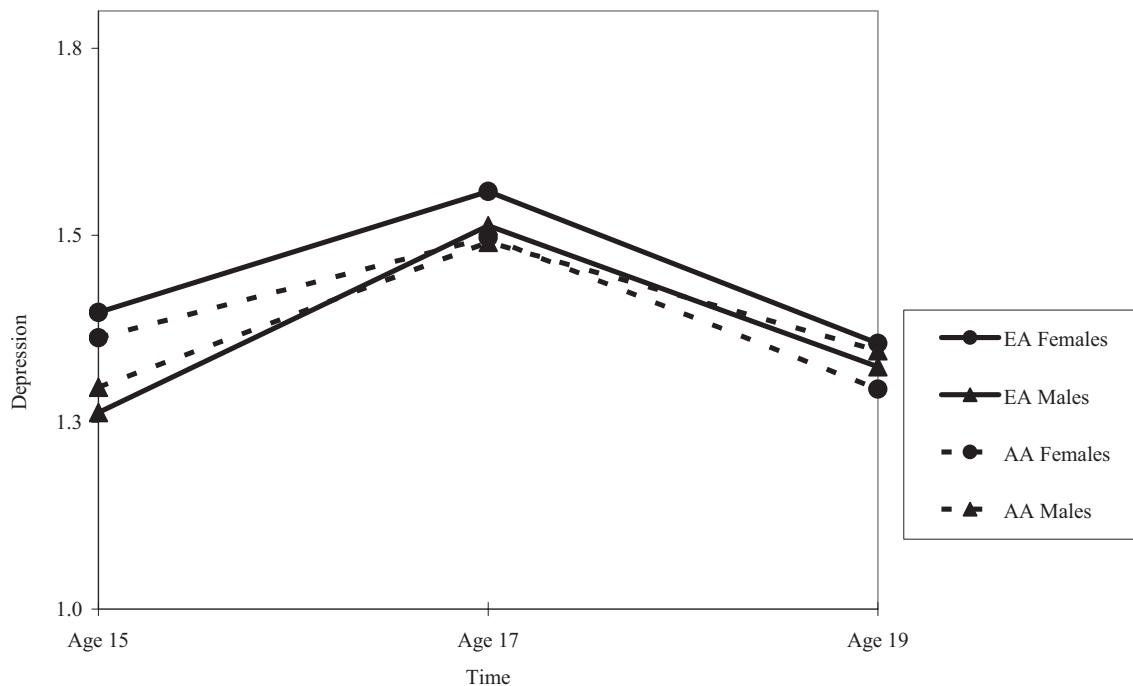


Figure 4. Growth curves for depression for European American (EA) and African American (AA) male and female adolescents.

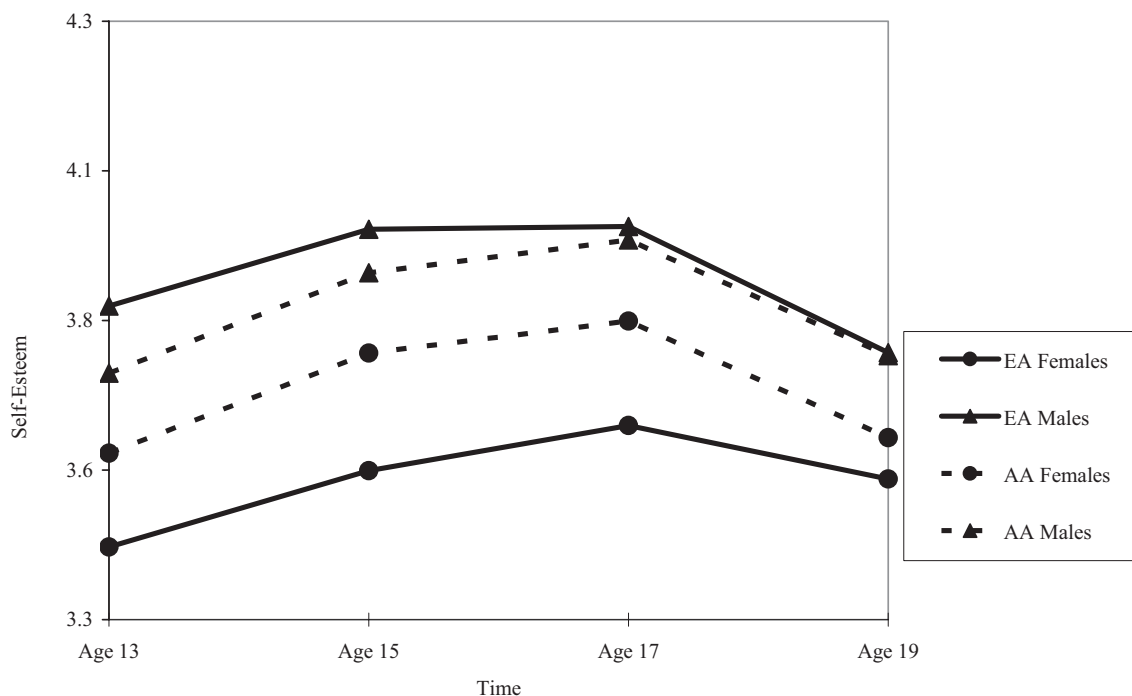


Figure 5. Growth curves for self-esteem for European American (EA) and African American (AA) male and female adolescents.

Contribution of Family Relations to Adolescent Outcomes

For the final set of analyses, our original HLM was modified by adding the time-varying covariate of the family relation variable to the Level 1 equation of the baseline model:

$$Y_{it} = \beta_{0i} + \beta_{1i}(\text{Age}_{it} - 15) + \beta_{2i}(\text{Age}_{it} - 15)^2 + \beta_{3i} + e_{it}.$$

The individual mean of the family relation variable was added to the X_{it} Level 1 intercept to restrict the Level 1 relation to within-individual change. Both the time-varying covariate and the individual mean of the family relation variable were grand mean centered, which ensured that adding these variables did not change the meaning of the other coefficients in the model. The predictor variables were also included in β_{3i} to examine how gender and ethnicity moderate these associations:

$$\beta_{3i} = \gamma_{30} + \gamma_{31}\text{SES}_i + \gamma_{32}\text{Gender}_i + \gamma_{33}\text{Ethnicity}_i + \gamma_{34}\text{Gender} * \text{Ethnicity}_i.$$

Two sets of analyses were examined. First, we examined the concurrent associations between family relations and adolescent outcomes. To do this, the time-varying covariate of the family relation variable from 13 to 19 years was matched to the corresponding age of the adolescent outcome from 13 to 19 years. Second, we examined the longitudinal association between change in family relations and later change in adolescent outcomes. To do this, we matched the time-varying covariate of the family relation variable from 13 to 17 years to the corresponding time-lagged adolescent outcome from 15 to 19 years. Because of the restriction in degrees of freedom, we did not include the residual variance components of the Level 1 family relation variables in the model.

Only significant concurrent and longitudinal models are presented (see Tables 3, 4, and 5). When significant, β_{3i} is presented by itself because the other coefficients in the models with the time-varying covariate are similar to the models without the time-varying covariate. For the longitudinal models, we present the residual variance without the time-varying covariate for the intercept and slope in the text only.

Concurrent analyses of depression. Adolescents were less likely to experience depression when they perceived fewer negative family interactions and more positive identification from early to late adolescence. Depression increased by .064 and decreased by -.123 for each unit increase in negative interactions and positive identification, respectively (see Table 4). For decision-making opportunities, African American adolescents experienced less depression with greater decision making, whereas European American adolescents experienced more depression. Decision-making opportunities, negative interactions, and positive identification explained 2%, 10%, and 8% of the previously unexplained variance in stable individual differences in depression (i.e., residual variance for the intercept), respectively. Decision-making opportunities, negative interactions, and positive identification explained 7%, 10%, and 14% of the variance in change over time in the form of individual differences in the slope, respectively.

Longitudinal analyses for depression. There was a significant ethnicity by gender interaction effect for negative interactions (see Table 4). With each unit increase in negative interactions, European American girls (.027) experienced an increase in depression, whereas African American girls (−.031), European American boys (−.051), and African American boys (−.009) experienced a de-

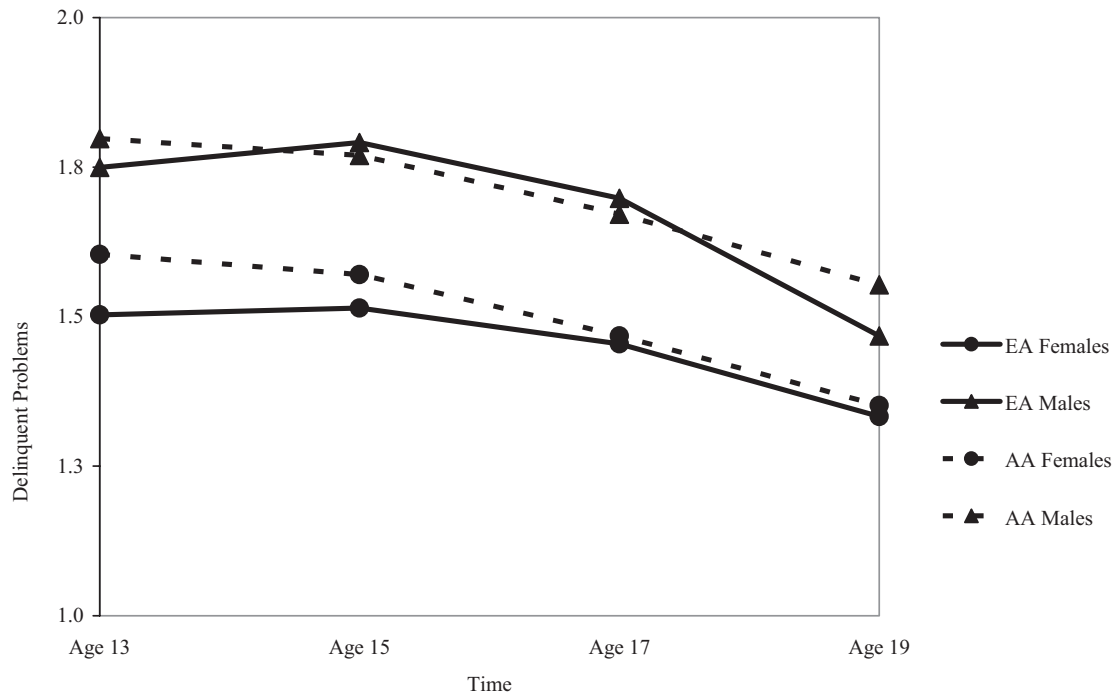


Figure 6. Growth curves for delinquent problems for European American (EA) and African American (AA) male and female adolescents.

crease in depression (see Table 3). The residual variance for the intercept was reduced from .0071 to .0067, thereby explaining 6% of the previously unexplained variance. The residual variance for the slope remained unchanged.

Concurrent analyses for self-esteem. Adolescents had more self-esteem when they perceived more decision-making opportunities and fewer negative interactions from early to late adolescence. Self-esteem increased by .056 and decreased by $-.114$ per unit of decision-making opportunities and negative interactions, respectively (see Table 5). With each unit increase in negative interactions, girls experienced a greater decrease in self-esteem

than did boys. Decision-making opportunities explained only a small proportion of the previously unexplained variance in self-esteem: 2% and 0.5% of the intercept and slope, respectively. For negative interactions, 8% and 13% of the previously unexplained variance in the intercept and slope of self-esteem were explained, respectively.

Longitudinal analyses for self-esteem. Negative interactions had a significant longitudinal effect on self-esteem. With each unit increase in negative interactions, self-esteem decreased by $-.05$ (see Table 5). When negative interactions were taken into account, the residual variance for the intercept was reduced by 5%, from

Table 4
Significant Concurrent and Longitudinal Models for Depression

Measure	Concurrent decision-making model		Concurrent negative interactions model		Concurrent positive identification model		Longitudinal negative interactions model	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Intercept	-.007	.010	.064***	.016	-.123***	.018	-.016	.010
Socioeconomic status	.002	.011	.015	.016	.008	.013	.008	.010
Gender	-.030	.018	.033	.026	-.013	.023	.028	.018
Ethnicity	.063*	.023	.004	.027	.046	.028	.008	.018
Gender \times Ethnicity	-.031	.037	-.038	.052	.049	.047	.100**	.036
Residual variance	Variance		Variance		Variance		Variance	
For intercept	.0700***		.0642***		.0657***		.0067***	
For linear slope	.0027***		.0026***		.0025***		.0027***	

Note. Coef. = coefficient.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 5
Significant Concurrent and Longitudinal Growth Models for Self-Esteem

Measure	Concurrent decision-making model		Concurrent negative interactions model		Longitudinal negative interactions model	
	Coef.	SE	Coef.	SE	Coef.	SE
Intercept	.056***	.016	-.114***	.024	-.050*	.020
Socioeconomic status	.009	.019	-.068*	.025	.022	.025
Gender	.019	.033	-.187*	.046	-.006	.048
Ethnicity	-.025	.034	.015	.047	-.079	.050
Gender × Ethnicity	.098	.066	.090	.093	-.143	.097
Residual variance	Variance		Variance		Variance	
For intercept	.0454***		.0427***		.5300***	
For linear slope	.0181***		.0159***		.0180***	

Note. Coef. = coefficient.

* $p < .05$. *** $p < .001$.

.558 to .530. The residual variance for the slope remained unchanged.

Concurrent analyses for delinquent problems. Adolescents who perceived more negative interactions with their family reported more delinquent problems from early to late adolescence. Each unit of negative interactions increased delinquent problems by .105 (see Table 6). Negative interactions explained 7% and 14% of the unexplained variance in the intercept and slope, respectively.

Longitudinal analyses for delinquent problems. Negative interactions had a significant longitudinal effect on delinquent problems. Each unit increase in negative interactions increased delinquent problems by .039 (see Table 6). Negative interactions reduced the residual variance in the intercept and slope by 2%, from .337 to .331, and by 14%, from .007 to .006, respectively.

Discussion

In the present study, we examined gender and ethnic differences in the growth-curve trajectories of family relations and adoles-

cents' developmental trajectories from early to late adolescence. Within the framework of stage-environment fit theory (Eccles & Midgley, 1989; Eccles et al., 1993), we also examined the contribution of family relations to adolescent outcomes both concurrently and longitudinally, as well as the moderating effects of gender and ethnicity in these associations. The results demonstrated that gender and ethnicity influenced both the level and rate of change in family relations and adolescent outcomes. Family relations contributed either concurrently or longitudinally to at least one of the adolescent outcomes. The effects of gender and ethnic moderation differed according to both the time frame and the outcome assessed.

Trajectories of Family Relations

Previous research has suggested that parental decision making is normative in African American families, particularly in early adolescence (Smetana et al., 2004). In support, we found that European American adolescents reported more decision-making opportunities than African American adolescents in middle adolescence.

Table 6
Significant Concurrent and Longitudinal Growth Models for Delinquent Problems

Measure	Concurrent negative interactions model		Longitudinal negative interactions model	
	Coef.	SE	Coef.	SE
Intercept	.105***	.014	.039*	.015
Socioeconomic status	.023	.015	.020	.019
Gender	.006	.030	-.016	.019
Ethnicity	.031	.032	.003	.036
Gender × Ethnicity	-.042	.059	.000	.066
Residual variance	Variance		Variance	
For intercept	.161**		.331***	
For linear slope	.0006		.006***	

Note. Coef. = coefficient.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Although there was a significant increase in decision-making opportunities from early to late adolescence for both African American and European American adolescents, both reported that, on average, decisions generally were made together with their parents rather than independently. This finding suggests that, although the developmental norm for the level of adolescent decision making in the family may differ according to ethnicity, both African American and European American parents provide similar increases in opportunities for decision making as adolescents mature, and decision making tends to involve parental input, even in late adolescence.

Similar to previous studies (Laursen et al., 1998; Paikoff & Brooks-Gunn, 1991; Smetana, 1989), negative family interactions, as well as positive identification with parents, were highest in early adolescence, highlighting the salience of family relations during this period. However, from early to middle adolescence, negative interactions remained fairly stable, as was the case for European Americans, or even decreased, as was the case for African Americans. Although negative interactions increased in late adolescence, they did not reach the previous levels reported in early adolescence. However, most adolescents also experienced a decline in positive identification from early to middle adolescence, which stabilized during late adolescence. This finding makes sense from a developmental perspective, as adolescents are in the process of forming their own identities separate from their parents and may spend more time away from home. Yet, it is important to note that adolescents, on average, had high levels of positive identification, indicating, as other scholars have found, that adolescents tend to report good relations with their parents (see Steinberg, 1990, for a review).

Trajectories of Adolescent Outcomes

Consistent with previous research, girls had higher levels of depression but lower levels of self-esteem than boys in middle adolescence (Hankin et al., 1998; Kling et al., 1999). European American girls also had the lowest levels of self-esteem in middle adolescence compared with the other groups. Yet, African American and European American male and female adolescents experienced similar trajectories in both measures of mental health, with increases in self-esteem and depression in middle adolescence and decreases in late adolescence. This suggests that, although there may be differences in mean levels according to gender and ethnicity, vulnerabilities to mental health problems may be evident for all groups at particular stages in adolescence. Our study reveals, for example, that youth may be more likely to experience increased depression during middle adolescence, whereas self-esteem may be more likely to suffer in late adolescence.

Similar to previous research (Hirschi & Gottfredson, 1983), we found that adolescents had higher levels of delinquent behaviors in early to middle adolescence that decreased in later adolescence. As hypothesized on the basis of previous research (Bongers et al., 2004), boys reported more delinquent problems than did girls in middle adolescence. European American adolescents also reported a greater increase in delinquent problems from early to middle adolescence than did African American adolescents. However, both boys and European Americans experienced a greater decrease in delinquent problems than did girls and African Americans in late adolescence, indicating that differences in trajectories of de-

linquent behavior among gender and ethnicity groups may converge as adulthood approaches.

Contribution of Family Relations to Adolescent Outcomes

On the basis of previous findings (Eccles et al., 1996; Lord et al., 1994; Yee & Flanagan, 1985), we expected that more decision-making opportunities would have positive effects on self-esteem and negative effects on depression as adolescents matured. Our results supported these predictions by demonstrating concurrent associations with self-esteem and depression. Adolescents who had more decision-making opportunities reported higher self-esteem than adolescents who had fewer decision-making opportunities. However, the relation between decision-making opportunities and depression varied according to the adolescent's ethnicity. In support of Smetana et al. (2004), more decision-making opportunities were related to less depression from middle to late adolescence for African American adolescents. However, the opposite pattern was found for European American adolescents: More decision-making opportunities were related to more depression. This may be the result of the difference in the mean level of decision-making opportunities between European and African American adolescents. Given that European American adolescents had significantly higher levels of decision-making opportunities compared with African American adolescents in middle adolescence, then more decision-making opportunities from middle to late adolescence, even at the same rate as African Americans, decision-making opportunities may provide inappropriate levels of autonomy for European American adolescents. Decision-making opportunities may have a curvilinear relation with adolescent outcomes—either too much or too little autonomy may not be beneficial. Therefore, when considering stage–environment fit, both the amount and the relative level of change need to be considered when examining the effects of decision-making opportunities on adolescent outcomes.

Similar to previous studies demonstrating that disruptions in family relationships relate to worse developmental outcomes for adolescents (e.g., Ge et al., 1996; Gutman et al., 2005), we found that more negative family interactions concurrently were related to more depression, whereas more positive identification concurrently was related to less depression for adolescents. Previous research also has suggested that family relationships have more significant effects on the mental health of girls than boys (Compton et al., 2003; Gutman & Sameroff, 2004). In support, we also found that more negative family interactions were related to less self-esteem concurrently for adolescents, but that this relation was stronger for girls than for boys. This finding indicates that family relationships and adolescent adjustment occur contemporaneously, and that the negative aspects of these interactions may have more detrimental effects on the self-esteem of girls than boys.

Negative family interactions had significant, longitudinal effects on depression and self-esteem during adolescence. For self-esteem, negative family relations had a maladaptive longitudinal effect. For depression, negative family interactions had a detrimental longitudinal effect for European American girls only, whereas they predicted less depression for the other three groups, particularly for European American boys. However, because the lagged effect of negative family interactions had detrimental effects on other adolescent outcomes examined in this study, and the

effects were similar across both gender and ethnic groups, we cannot conclude that negative interactions in the family are a risk factor for some adolescents but not for others. Rather, as our data demonstrate, adolescents may respond differently to negative family interactions according to their gender and ethnicity. With more negative interactions in the family, European American girls may be more vulnerable to experiencing depression than the other groups, whereas negative family interactions predict less self-esteem and, as will be discussed, more delinquency for adolescents, regardless of their gender or ethnicity.

Previous research has found that the relation between negative parenting and delinquent behavior operates similarly across both European and African American families (Kim et al., 2003), whereas other studies have suggested ethnic moderation in these processes (Deater-Deckard & Dodge, 1997). In this study, we extended these previous studies by examining this relation both concurrently and longitudinally across adolescence. As predicted, we found that negative family relations were positively related to delinquency both contemporaneously and longitudinally for adolescents without significant effects of gender or ethnicity. This suggests that, when examining delinquent behavior from early to late adolescence, the effects of negative family interactions operate similarly for African American and European American boys and girls.

It is also noteworthy that only negative interactions had both concurrent and longitudinal effects on mental health and delinquent problems. This suggests that there may be transactional processes involved in negative family interactions and adolescents' outcomes. For example, adolescents who experience more negative family interactions may engage in more delinquent behaviors, which may increase family negativity, which, in turn, may lead to increased delinquency. As our findings suggest, the reciprocal nature of negative family interactions may lead to a greater escalation of adolescent maladjustment not typical of other family relationship dynamics.

Limitations and Conclusions

A number of limitations need to be noted. First and foremost, we focused our examination solely on family relations. As stated in the introduction, there are many other contexts of development, such as peers and school environments, that are important correlates of change during the adolescent period. Second, we based our investigation on adolescents' perceptions of family relations and their own reports of their mental health and delinquent behaviors. However, the purpose of this study was to examine how adolescents' perceptions of their environment fit with their developmental stage. Moreover, results of previous studies have indicated that the effects of parenting on adolescent outcomes are influenced by adolescents' perceptions of the particular parenting behaviors examined (e.g., Smetana & Daddis, 2002). Yet, parental perceptions do matter, and an interesting future study would be to examine how differences in parents and adolescents' perceptions of the family environment contribute to adolescent trajectories. Third, a few of our measures had lower reliabilities, and the items included were somewhat limited because of the constraint that requires exactly the same measures across waves. For example, decision-making opportunities consisted of a single item only. As evidence has indicated that the rate and effect of decision making on

adolescent outcomes vary according to the type of decisions involved (Smetana et al., 2004), different patterns may emerge when using differential measures of decision making and, thus, should be investigated in future studies. Fourth, we assumed that family relations predict adolescent outcomes. Yet, it is likely that family relations may change as a result of the adolescents themselves. For example, parents may give their adolescents more decision-making opportunities if adolescents appear to have more self-esteem and handle more responsibility. Although using the time-lagged procedure provides some assurance regarding directionality, a future study may wish to examine how adolescents' mental health and behaviors influence the nature of family relations across adolescence. Finally, there are some disadvantages to using a time-lagged procedure. The time lags used in this study were quite large, thereby making these tests quite conservative. The method was also constrained by assuming that a prediction exists only from one wave to the next. Other studies examining the effects of earlier family relations may predict outcomes at a much later time. For example, decision-making opportunities in early adolescence have been found to predict greater depression for girls during young adulthood (Gutman & Sameroff, 2004).

Nevertheless, the present study contributes to previous research by investigating growth-curve trajectories of family relations and developmental outcomes from early to late adolescence and, more notably, how family relations relate to adolescent outcomes both contemporaneously and longitudinally from early to late adolescence. Several important patterns emerged. First, decision making and positive identification had only concurrent associations with mental health outcomes, but they did not have any longitudinal effects. Second, negative interactions had both concurrent and longitudinal effects on mental health and delinquent problems, suggesting a transactional process involved between negative family interactions and adolescents' outcomes. Last, the contribution of family relations to the pathways of mental health varied according to gender and ethnicity, but there were no differences for delinquent behavior.

In conclusion, this study supports the framework of stage-environment fit theory. By and large, our results indicate that developmentally appropriate family relations relate to positive developmental outcomes. However, the significance of the results depended on whether the analyses were concurrent versus longitudinal and on the specific outcome being assessed. More important, the meaning of "developmentally appropriate" differed according to the gender and ethnicity of the adolescents. For example, although European Americans had higher levels of decision-making opportunities in early adolescence than African Americans, increased decision-making opportunities related to increased depression for European American adolescents but related to decreased depression for African American adolescents. Therefore, when considering stage-environment fit theory, researchers should examine the definition of *fit* in light of the characteristics of the adolescents themselves, as well as the amount and level of change in their family environments.

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