

Running head: PARENTING STYLES AND ACHIEVEMENT

The effects of parenting styles on adolescent achievement test scores: Ethnic and gender
differences (and similarities)

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(under review)

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SYNOPSIS

Objective. The purpose of this study was to assess the effects of parenting styles on Black, White, and Hispanic adolescents achievement test scores. *Design.* A total of 3290 adolescents and their mothers from the National Longitudinal Survey of Youth were assessed on various measures of parenting, math and reading achievement, SES, cognitive stimulation, and child motivation and health. The study also used different measures of demandingness, less extreme classification criteria, more control variables, and a higher proportion of Black and Hispanic youth than in previous studies. *Results.* Authoritative parenting was associated with high scores for all race and gender groups, even after the background factors were controlled. Authoritarian parenting was not as beneficial to African Americans or as detrimental to European Americans as in previous studies. Permissive and neglectful parenting styles were associated with lower test scores for all groups, especially for African Americans. Consequently, the race gap in achievement was non-existent for those with authoritative parents, but was rather dramatic for those with non-authoritative parents. *Conclusion.* Baumrind's conception of authoritative parenting is optimal for all American race and gender groups' achievement. Parenting interventions that teach this conception of authoritative parenting should be the focus of family-based prevention interventions.

INTRODUCTION

The effects of parenting styles on adolescent achievement test scores: Ethnic and gender differences (and similarities)

African American and Hispanic American youth tend to receive lower grades and achievement test scores, and they are less likely to graduate from college than European American youth (Cheeseman Day & Bauman, 2000; Fan, 2001). Furthermore, a recent analysis of census data estimates that their underachievement is likely to increase over the next few decades (Cheeseman Day & Bauman, 2000). Although many social factors such as living in poverty (Duncan, Yeung, Brooks-Gunn & Smith, 1998; McLoyd, 1998), tracking and low teacher expectations (Ferguson, 1998; Kershaw, 1992), under-performing schools (Lankford, Loeb & Wyckoff, 2002), and under-achieving peer groups (Bankston & Caldas, 1998) contribute to these trends, parenting and family functioning may be among the most important factors (Brooks-Gunn, Klebanov, & Duncan, 1996; Burchinal, Campbell, Bryant, & Wasik, 1997; Mandara, 2006). However, the empirical literature on African American and Hispanic American parenting styles is too limited and riddled with too many inconsistencies to guide the development of parenting interventions (Gorman-Smith, Tolan, Henry, & Florsheim, 2000; Mandara, 2006). To work towards a better understanding of parenting in these groups, the current study used data from the National Longitudinal Survey of Youth (NLSY) to assess the effects of parenting styles on African American, European American, and Hispanic American adolescents' achievement test scores.

Parenting Styles

Baumrind's (1991) famous parenting styles typology has been integral to the development of family psychology. It has produced the most important understanding of

dispositional patterns of parenting in European American families to date. Based on several studies (Baumrind, 1967; 1971; 1989; 1991), and other critical contributions (e.g., Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh 1987; Lamborn et al., 1991; Maccoby & Martin, 1983; Steinberg, Mounts, Lamborn, & Dornbusch, 1991), Baumrind theorized that families could be reliably classified into variations of four prototypical family types based on parental demandingness (control and restrictiveness) and responsiveness (warmth and noncoerciveness). The four family types are (a) authoritative, (b) authoritarian, (c) permissive, and (d) neglectful.

Authoritative parents are high on both demandingness and responsiveness, and are thus characterized by an effort to direct their children in an issue-oriented and rational manner (Baumrind, 1991). They value independence in their children, but maintain firm control. The authoritarian parents, in contrast, are defined as being high on demandingness but low on responsiveness. Authoritarian families do not encourage discussions of parent-child disputes, believing that a child should accept the rules without necessarily understanding them. Permissive parents are low on demandingness and high on responsiveness. They tend to, “behave in a nonpunitive, accepting, and affirmative manner toward their children’s impulses, desires, and actions” (Baumrind, 1989, p. 354). Neglectful parents are low on both demandingness and responsiveness, and are often described as neglecting their childrearing duties altogether (Baumrind, 1991).

Most studies show that European American children in authoritative homes have fewer internalizing and externalizing problems, and higher academic achievement than those in other family types (Baumrind, 1967; 1971; 1989; 1991; Pomerantz & Ruble, 1998; Steinberg, Lamborn, Darling, Mounts, & Dornbusch, 1994; Weiss & Schwarz, 1996). European American boys in authoritarian homes tend to be hostile and girls tend to be low in independence and

dominance (Baumrind, 1971). Youth raised in permissive European American families tend to have low achievement and externalizing problems, and neglectful European American parents tend to produce children with low levels of academic achievement, social responsibility, and social assertiveness (Baumrind, 1989; 1991; Lamborn et al., 1991; Steinberg et al., 1994).

Although the literature on European American parenting styles has uncovered several important findings, the research on non-White families is more sparse and inconsistent (Chao, 1994; Mandara, 2006). Many of the early parenting styles studies assumed that because authoritative parenting styles are associated with higher achievement in European American families, Hispanic and African American youth must receive less authoritative parenting, as they are on average lower in achievement compared to their European American peers (Steinberg, Dornbusch & Brown, 1992). Some support for this notion was found. The typical African American and Hispanic American parents were less likely than European American parents to be authoritative, and slightly more likely than European American and Asian American parents to be authoritarian (Dornbusch et al., 1987; Radziszewska, Richardson, Dent, & Flay, 1996; Steinberg et al., 1991). However, these studies did not provide decisive evidence for the effects of parenting styles on non-White students' achievement.

For instance, a few large sample studies with small percentages of Hispanics and African Americans examined the effects of parenting styles on academic achievement. One of the earliest found no relationship between parenting style and African American high school students' grade point average (Dornbusch, et al., 1987). Another found that across various family structures and socioeconomic backgrounds, African American children in authoritative homes did much better on all well-being variables except for academic achievement (Steinberg et al., 1991). In a one-year follow-up, they confirmed the earlier studies and found that parenting style was a major

predictor of grade point average for all adolescents except African Americans (Steinberg, Lamborn, Darling, Mounts & Dornbusch, 1994).

These findings made it clear that the relationship between parenting styles and the academic achievement of African American children was much more complex than researchers previously thought. Another interesting finding was that Asian American children were also less likely to come from authoritative homes than European American children, even though Asian Americans almost always had the highest levels of academic achievement. Thus, the differential effect of authoritative parenting on academic achievement was difficult to explain (Radziszewska et al., 1996; Steinberg et al., 1991).

Several researchers suggested that authoritarian parenting is not as detrimental to African American youth's academic achievement as it is to European American youth, because firm parental control may be adaptive in the inner city (Baumrind, 1996; Florsheim, Tolan & Gorman-Smith, 1996; Mason, Cauce, Gonzales & Hiraga, 1996; Ogbu, 1981; Steinberg et al., 1992). Consequently, firm parental control and discipline in African American communities may not be perceived as parental rejection, but parental love and concern (Mcloyd & Smith, 2002). However, there are limitations in these studies that restrict our ability to make any statements about the effects of parenting styles on academic achievement.

The major limitations of the parenting styles studies are related to the conception and measurement of parental responsiveness and, especially, demandingness. One problem of previous studies, especially those studies that used the measure developed by Lamborn et al. (1991), is that the items used to measure the two dimensions seem to overlap and do not necessarily coincide with Baumrind's original theory. Pushing children to succeed (i.e., high academic expectations) is clearly a component of demandingness in Baumrind's (1996) theory,

but is used to measure responsiveness in the Lamborn et al. (1991) instrument. Furthermore, the item, “How much do your parents really know who your friends are?” is used to measure responsiveness, but similar parental monitoring items (e.g., “How much do your parents REALLY know. . .where you go at night?”) are also used to measure demandingness.

Probably the most significant limitation of the previous parenting style studies is that their conception of demandingness may not accurately reflect underlying differences between the prototypical parents of each style. The most fundamental difference between authoritarian and permissive parents, the two groups with the most philosophical differences about parenting, may not be having a curfew for children and after school parental monitoring. Rather, it may be the degree to which parents’ demand that children comply with parental rules and authority and the degree to which children have say in the rules. In other words, the degrees to which parents control their children and the parent-child relationship. For instance, in Baumrind’s (1971) early work, authoritarian and permissive parents differed on the factor “firm enforcement.” Items of this factor related to disapproval of child defiance, confronting of child disobedience, lack of parental coercion by child, and parental insistence that children defer to parental expertise. From this perspective, authoritarian parents are thought to have firm rules that children have little control over, whereas permissive parents indulge their children’s impulses and desires. Permissive parents, therefore, tend to argue with their children about rules and decisions and often give in to their children’s demands (Baumrind, 1996). Authoritarian parents, on the other hand, due to their extreme focus on order and child obedience, are less likely to have such arguments with their children (Baumrind, 1971). The Lamborn et al. (1991) instrument would likely not capture these fundamental differences.

Because the classification and definition of parenting styles depends on the measurement of demandingness and responsiveness, such measurement problems may obfuscate the concept of parenting styles. This is especially the case given the limitations of the bivariate approach that is used to classify families in these studies. Changes in measurement can have dramatic effects on study results using this method (see Mandara, 2003, for a discussion of typological methods).

The extreme classification criteria used in previous parenting style studies may also be due in part to these measurement problems. In most of the previous studies, only those parents who scored in the upper and lower thirds of each dimension were classified and used in the studies. This method eliminates over half of the sample, implying that parenting styles can only be assessed in the most extreme families. It is likely that much of the inconsistency in the research on African American parenting styles results from these measurement problems, which may have given a false impression of parenting styles in other families as well.

Another limitation of the parenting styles research is that they failed to consider the possibility that the meaning of some parenting practices may be culturally specific (Chao, 1994; Mandara & Murray, 2002; Mandara, 2006). Since African Americans and Hispanic Americans were a small percentage of each sample, and since families were classified according to their standings on parental responsiveness and demandingness relative to the sample's means, the standards and norms of the largest group in the sample (i.e., European American families) were essentially juxtaposed on the non-European American families. Very few studies have in fact assessed parenting styles and their consequences in predominantly non-European American samples.

One such study, that used a national sample of 5 – 18 year old African Americans, found that those whose parents used an authoritative style had higher grades than those who used an

authoritarian or permissive parenting style (Taylor, Hinton, & Wilson, 1995). These different findings may be due to the fact that European Americans and African Americans have different means on parental responsiveness and control. African Americans tend to be higher on control and lower on responsiveness overall (Bradley, Corwyn, Pipes McAdoo, Garcia Coll, 2001; Steinberg et al., 1991; 1994). Therefore, most of those African American parents who are authoritative in predominantly African American samples will be considered authoritarian in predominately European American samples. Thus, it is likely that authoritativeness is as important to African American youth as it is to European American youth, but they have qualitatively different meanings in each group (Mandara & Murray, 2002).

Previous studies also did not account for many differences in social resources. Because social resources are so highly correlated with parenting practices (Bradley et al., 2001), they may contribute to the different probabilities of racial groups using various parenting styles, as well as any differences in the effects of parenting styles. For instance, in previous studies using the NLSY and other large scale data set, various measures of SES, mother's achievement test scores, child's test-taking motivation and health, and the cognitive stimulation of the home accounted for most of the race differences in achievement test scores, as well as for the effects of mothers responsiveness on test scores (Brooks-Gunn, Klebanov, Smith, Duncan, & Less, 2003; Chan, Schmitt, DeShon, Clause, & Delbridge, 1997; Orr, 2003; Mandara, Greene, & Varner, 2006). Thus, controlling for these factors may give a more accurate picture of the unique effect of parenting styles on adolescents' academic achievement.

The Current Study

Data from the 1979 to 2000 NLSY was used to assess the effects of parenting styles on African American, European American, and Hispanic American adolescents' achievement test

scores. The current study differed from previous studies in four important ways. First, the measurement of parental responsiveness and demandingness were somewhat different. In the current study, highly reliable measures of emotional support from parents, parental involvement in academics, the say adolescents have in family rules, and adolescents' ability to talk back or argue with their parents about family rules were subjected to factor analysis to derive measures of responsiveness and demandingness.

In addition, less extreme classification criteria were used. Instead of labeling the upper third of a dimension's distribution as "high" and the lower third as "low", those who were .2 standard deviations above or below the means on each variable were considered high or low on each dimension. This procedure has the advantage of eliminating only those who are on the borders between the groups, as opposed to over 50% of the sample as in previous studies. This will undoubtedly reflect the nature of the population more accurately.

The longitudinal and multigenerational nature of the NLSY also allowed for several important background factors to be controlled before assessing the direct effects of parenting styles. Many factors that had unique effects on achievement test scores and parenting in previous studies using the NLSY (e.g., Brooks-Gunn, et al., 1996; Mandara, et al., 2006) were used in the current study. Finally, because the NLSY over sampled Hispanic and African American youth, the classification scheme used in the current study was less dominated by the norms and standards of the European American families.

METHODS

Participants

The participants included 3290 children from 2184 mothers of the NLSY who have data on all of the study variables. Hispanic children comprised 21% of the sample, African Americans

comprised 32%, and European Americans comprised 47%. Fifty percent of the children were females. The average age of the children in year 2000 was 15 (sd = 2.6). However, most of the children were between the ages of 5 and 15 at some point in the study. The mothers' averaged 39 (sd = 2.2) years of age and averaged 12.9 years of education (sd = 2.1) in/by the year 2000. During the time the children were involved in this study, their median family income in 1999 dollars was \$35,042 (sd = \$50,115). Their families averaged 4.3 members (sd = 1.2) during this same period.

Procedure

In 1978, the National Opinion Research Center (NORC) identified all individuals aged 14 to 21 from a larger list of over 150,000 people. A supplemental group of over 5,000 Hispanic and African American youth from this same age range was also randomly sampled. Yearly, one-hour personal interviews of the respondents by trained personnel occurred from 1979 through 1986. Beginning in 1986, all the available children of the female respondents were assessed every other year with a variety of interview and survey methods. The respondents were paid \$10 for each completed interview from 1979 to 1994. They were paid \$20, plus \$5 per child, for each assessment since 1994. They were also paid \$50 for the ASVAB testing in 1980.

Design

The current study was designed around three groups of variables: (a) parenting style, gender, and race; (b) the control variables, and; (c) the achievement test scores. The supplemental child survey that began in 1986 did not include sufficient parenting questions until the 1990 round of assessments. Thus, the current study includes parenting style data from the child surveys between the years of 1990 and 2000. Most of the children were between the ages of 10 and 13 during these assessments. Although the children had been assessed with

achievement tests since the age of 5, only their scores between the ages of 10 and 15 were used, to help reduce the overlap between the independent and dependent variables of the study.

Likewise, although many of the control variables continued to be assessed even after the age of 13, only the assessments that occurred between the ages of 5 and 13 were included in the current study. However, mothers' achievement test scores were assessed in 1980, before many of the children were born. Since multiple children from the same family were studied, sibling order was controlled in all analyses.

One problem of the NLSY data is significant missing data from year to year for individual family members. However, to take advantage of the longitudinal nature of the data, increase the overall sample size, and increase the reliabilities of each construct, composite variables were created by averaging scores for the control variables between the ages of 5 and 13, the parenting variables between the ages of 10 and 13, and the test scores between the ages of 10 and 15.

Instruments

Parenting Variables. Four sets of parenting variables were used in the current study. The first three were taken from the self-report survey discussed above. The first variable, which had to do with parental involvement in schoolwork, was derived from the question, "Within the last week, have you and your parents worked on schoolwork together?" Participants answered yes or no. The scores at each year were averaged to create the final variable.

The second variable was derived from a set of questions that used the stem, "How much say do you have in making the household rules about. . ." The participants were to answer four questions on a 4-point Likert-type scale from "No say at all" to "A lot of say" using this stem question. The questions were a) "watching television?"; b) "keeping your parents informed

about where you are?"; c) "doing your homework?"; and d) "dating and going to parties with boys and girls?" Principal components and reliability analyses found that the questions about watching television and dating did not correlate well with the other two items or each other. Thus, only the other two items about parental monitoring and homework rules were averaged and used to form a "Say in rules" variable at each year. Each yearly value was then averaged to form the final variable.

On the same survey, participants were asked the stem question, "How often do you argue with your parent(s) about the rules about. . ." Using a 3-point Likert type scale from "Hardly ever" to "Often", they were to answer this question for the same four items as above. Just as with the "Say in rules" items, principal components and reliability analyses found that the questions about watching television and dating were not strongly correlated with any other items. Thus, the variable, "Argue with parents" was created by averaging the questions regarding the adolescents' whereabouts and doing their homework at each year. The scores from each year were then averaged across the ages 10 to 13.

The final variable was the emotional support subscale derived from a short form of the Home Observation for the Measurement of the Environment (HOME). Starting in 1986, and continuing every other year, interviewers completed the short version of the HOME for each family. The parental emotional support subscale contained 12 items that assessed the degree of the mother's responsiveness and physical closeness to the target child (i.e., Did the mother encourage the child to contribute to the conversation?). Each assessment between the ages of 10 and 13 were averaged to match the ages when the other parenting variables were measured.

Childs' Achievement Test Scores. Children's cognitive ability was estimated with the reading recognition, reading comprehension and mathematics subtests of the Peabody Individual

Achievement Test (PIAT). The children took the PIAT battery every other year beginning in their first year in the study. For the current study, the scores from each subtest were averaged between the ages 10 and 15.

Mothers' Standardized Test Scores. The achievement of mothers was estimated in 1980 with the Armed Forces Qualification Test (AFQT) raw scores. The AFQT is composed of the arithmetic reasoning, numerical operations, word knowledge, and paragraph comprehension sections of the Armed Services Vocational Aptitude Battery. The mother's took the test in 1980.

Grandparents' Socioeconomic Status. This variable was a composite of four standardized variables measured when the mothers were adolescents and lived with their parents. Dividing the base-10 logarithm of the average family incomes in 1979 and 1980 by the average family sizes in 1979 and 1980 created the first variable. The second and third variables were the grandmothers' and grandfathers' highest levels of education up to 1979. Whether the mother lived with one or both parents at age 14 was the final variable. These four variables were standardized and averaged to create the first generation SES composite variable.

Family Socioeconomic Status. The SES of the mothers' own families were estimated by averaging four standardized variables between the ages of 5 and 13 for each individual child. The first variable was the base-10 logarithm of the average family income (in 1999 dollars) divided by the average number of people in the family for each year. The second variable was the family's average wealth during these years in 1999 dollars. During the yearly interviews, respondents were asked to estimate the value of assets such as their home, car, other property and assets over \$500. They were also asked to estimate the debt remaining on each of these items, or other debt. Summing the value of known assets and subtracting the value of known debts each year created wealth for each year. The values were averaged across each of the available years

and the base -10 logarithm of that value was taken. As has been customary with studies on wealth (i.e., Orr, 2003), negative wealth values were given the value of 1 so that the base-10 logarithm could be calculated. The third variable was the mothers' highest level of education by the time the child was age 13. The final variable was the percent of time the mother was married between the child's ages of 5 and 13. Each of the four variables were standardized and then averaged to form the composite.

Cognitive Stimulation. Fourteen items from the short version of the HOME were used by the interviewer to rate the degree of learning experiences in the home (i.e., "Did the mother provide toys or interesting activities for the child?") and the conduciveness of the physical environment to learning (i.e., "Is the interior of the home dark or perceptually monotonous?"). These items were averaged within each year, and the final variable was the average of their scores between the ages of 5 and 13 for each child.

Child Health Status. Mothers were asked whether or not the target child had any health problems that limited their school attendance, schoolwork, and/or physical activities, and any other health problems. These variables were entered into a series of Factor and Principle Components Analyses. One strong childhood health status factor and 2 to 3 much smaller and unreliable factors emerged. The following six items consistently loaded highly on the first factor or principle component for each year and were summed to create the health status for each year: (a) health problems that limited school; (b) learning disabilities; (c) brain problems; (d) hyperactivity; (e) emotional disorders; and (f) mental retardation. Childhood health status was the average of each year between the ages of 5 and 13.

Childs' Test-Taking Motivation. Interviewers rated each child on five items using a 5-point scale (poor to excellent). The five items were (a) the attitude of the child towards the test,

(b) the child-interviewer rapport, (c) the child's perseverance, (d) cooperation with the interviewer, and (e) the child's general motivation. These items were used in Principle Components and Factor Analyses and one strong factor consistently emerged for each year. For the current study, child's test-taking motivation was measured as the average of each year's testing motivation between the ages 5 and 13.

RESULTS

The results section was divided into three main sections. The first section outlined the procedures used to classify adolescents' parents into one of the four parenting style groups. The next section assessed the demographic and control variable differences between the parenting style groups. The third major section examined the effects of parenting style, race, gender, and the control variables on the reading and math achievement test scores.

Measurement of Parenting Styles

To measure parental responsiveness and demandingness, the four parenting variables were standardized and then subjected to Principal Components Factor Analysis with varimax rotation. The scree plot and percent of variance explained clearly revealed two strong components. The factor loadings showed that, "parental involvement in schoolwork," "child's say in rules," and "how much the child argues about the rules," all loaded highly on the first component. This was considered the demandingness factor. The home emotional support composite loaded highly on the second component. The two factor scores were standardized.

Families were classified into parenting styles based on their demandingness and responsiveness z-scores. Those families with a factor score of .2 and above on responsiveness and demandingness were considered authoritative. Authoritarian families had scores of -.2 and below on responsiveness and .2 and above on demandingness. Permissive parents had scores of

.2 and above on responsiveness and -.2 and below on demandingness. Neglectful parents had scores of -.2 and below for both factors. Using this method, only the 26% of families on the borders between groups were eliminated from the study. The authoritative group comprised 29% of the sample, the authoritarian group 25%, the permissive group 23%, and the neglectful group comprised the remaining 23%.

Demographic and Control Variable Differences by Parenting Style.

One-way ANOVA and χ^2 were used to assess differences among the parenting style groups on the demographic and control variables. Table 1 shows that the likelihood of being in a parenting style significantly differed by race, $\chi^2(6) = 374.21$, $p < .001$, and gender, $\chi^2(3) = 28.24$, $p < .001$. Specifically, African Americans were much less likely to have authoritative parents than were Hispanics, who were less likely than European Americans. African Americans were also less likely to live in permissive homes than Hispanics or European Americans. African Americans were more likely to live in authoritarian and neglectful homes than Hispanics or European Americans. Hispanics were also more likely to live in neglectful homes than European Americans. The boys were equally divided amongst the four parenting styles, but girls were more likely to have authoritative parents than permissive or neglectful parents.

The one-way ANOVAs for the control variables show that parenting style was significantly related to each control variable (see Table 2). Tukey HSD post hoc tests showed that those with authoritative parents were significantly higher than the other three groups on all control variables except for child's health, age and birth order. Those with permissive parents were higher on grandparent and parental SES, home cognitive stimulation, and test motivation than those with authoritarian or neglectful parents. Permissive and authoritarian mothers had higher test scores than neglectful mothers. In general, those with neglectful parents tended to

have the poorest and least educated parents and grandparents. They were also least motivated to take the tests and they were less likely to be the first-born child than any of the other groups.

Reading Test Score Differences by Parenting Style, Race, and Gender

To assess the effects of parenting styles on achievement test scores, separate 4 (parenting style) X 3 (race) by 2 (gender) Factorial ANCOVAS for reading and math scores were computed using the General Linear Model facility in SPSS 12.0. This facility is useful because it combines typical regression and ANOVA output (SPSS, 2000). All the control variables were entered as covariates in the models.

In the first set of analyses, reading scores served as the dependent variable. Results showed that all of the factors and control variables except for grandparents SES and child gender had significant unique impacts on reading scores (see Table 3). Overall, almost half of the variance in reading scores was explained by the variables in the model. The most important control variables were child's health ($\eta^2 = .04$), mother's test scores ($\eta^2 = .04$), and test taking motivation ($\eta^2 = .07$). Even after these important variables were controlled, parenting style still had a relatively large effect on reading scores ($\eta^2 = .07$). The unique effect of race was significant but small ($\eta^2 = .01$). However, a significant three-way interaction between parenting style, race and gender was found, $F(6, 2326) = 2.19, p = .04$.

Post Hoc Tests by Gender. To assess these interactions, separate ANCOVAS for boys and girls were performed. The results for boys showed that parenting style and race had significant main effects on their reading scores, $\eta^2 = .05$ & $.01$ respectively, but the interaction between the two was also significant, $F(6, 1177) = 2.3, p = .03, \eta^2 = .01$. To further understand this interaction, the boys' file was split by parenting style and ANCOVAS by race were conducted. These results showed that there were no race differences for those with authoritative

parents, $F(2, 294) = .09$, $p = .9$, or authoritarian parents, $F(2, 275) = 2.7$, $p = .07$ (see Figure 1). However, for those with permissive parents, race had a large impact, $F(2, 309) = 9.0$, $p < .001$, $\eta^2 = .06$. Hispanic and European American boys with permissive parents scored a significant .5 standard deviation units ($p < .001$) higher than African American boys with permissive parents. Race had a significant effect on reading scores for those with neglectful parents as well, $F(2, 275) = 4$, $p = .02$, $\eta^2 = .03$. Hispanic boys in this group scored significantly higher than African American boys in this group, $p < .05$.

ANCOVAS were then computed by parenting style for boys in each racial group separately. These results showed that parenting style did not have a significant impact on the reading scores of the 275 Hispanic boys in the study, $F(3, 263) = .84$, $p = .47$. However, a large effect was found for African American boys, $F(3, 358) = 9.9$, $p < .001$, $\eta^2 = .08$, and European American boys, $F(3, 540) = 7.6$, $p < .001$, $\eta^2 = .07$. For both groups, those with authoritative and authoritarian parents scored significantly higher than those with permissive or neglectful parents. For African American boys, those with authoritative parents also scored significantly higher than those with authoritarian parents, but this difference was not found for European American boys (see Figure 1).

The same sets of post hoc tests were then computed for girls. The first ANCOVA found that the race differences for girls were significant but small, $F(2, 1141) = 5.0$, $p < .001$, $\eta^2 = .01$, (see Figure 2). The main effect of parenting style was also significant, but the effect size was much larger, $F(3, 1141) = 46.0$, $p < .001$, $\eta^2 = .11$. Further post hoc tests showed that girls with authoritative parents scored significantly higher than girls with authoritarian, $b = .21$, $p = .01$, permissive, $b = .44$, $p < .001$, and neglectful parents, $b = .6$, $p < .001$. Those with authoritarian parents also scored higher than those with permissive, $b = .23$, $p = .02$, and neglectful parents, b

= .38, $p = .001$. There were no reading score differences between girls with permissive or neglectful parents. Unlike the boys, no significant interaction between race and parenting style was found for the girls, $F(6, 1141) = 1.9$, $p = .08$. However, as with African American boys, African American girls in permissive homes tended to do poorly on the reading test.

Post Hoc Tests by Race. To assess gender and parenting style differences within each race, separate ANCOVAs were run for Hispanic, African American, and European American adolescents. The results for Hispanics showed that the factors and control variables explained 35% of the reading test score variance. There was a main effect for parenting style, $F(3, 478) = 11.34$, $p < .001$, $\eta^2 = .07$, but not for gender. But the interaction between the two was also significant, $F(3, 478) = 3.71$, $p = .01$, $\eta^2 = .02$. The results presented earlier found that the effects of parenting style were much greater for Hispanic girls than they were for Hispanic boys. Hispanic girls in authoritative and authoritarian homes did extremely well on the reading tests, but those in the permissive and especially neglectful homes did poorly. The Hispanic boys in Authoritative homes were only about .3 standard deviation units above those in neglectful homes, while this same difference was over .8 standard deviation units for Hispanic girls. Furthermore, boys had significantly higher scores in the neglectful homes than did girls, $b = .34$, $p = .04$. They did not significantly differ in the other parenting style groups.

For African Americans, 44% of the variance was explained overall, but there was no significant gender difference or interaction between gender and parenting style. However, parenting style had a very strong unique effect, $F(3, 768) = 26.10$, $p < .001$, $\eta^2 = .09$. For European Americans, the variables explained 39% of the variance in their reading test scores. No significant gender difference was found. As with the other race groups, a large effect of parenting style, $F(3, 1064) = 26.33$, $p < .001$, $\eta^2 = .07$, was observed. The interaction between

gender and parenting style was not significant either, but boys did score higher than girls in authoritarian homes, $b = .26$, $p = .01$.

Math Test Score Differences by Parenting Style, Race, and Gender

The same sets of analyses were then repeated with math test scores serving as the dependent variable. The results of the first ANCOVA showed that the factors combined to explain over 40% of the variance in math scores (see Table 4). All of the factors and control variables had unique impacts on math scores except for grandparent and parental SES. However, among the covariates, only child's health, $\eta^2 = .05$, test motivation, $\eta^2 = .04$, and mother's test scores, $\eta^2 = .03$ accounted for an important amount of unique variance. Race had a significant but small main effect, $F(2, 2323) = 11$, $\eta^2 = .01$, indicating that European Americans held a small to moderate effect size advantage at each level of parenting style. There was also a gender main effect, $F(1, 2323) = 44$, $\eta^2 = .02$, which indicated that boys scored higher than girls overall. A significant parenting style main effect was also found, $F(3, 2323) = 34.2$, $\eta^2 = .04$, but it was smaller than the effect it had on their reading scores. Unlike with the reading scores, none of the interactions between factors were significant (see Figures 3 and 4).

Post hoc tests showed that even after controlling for several important variables, children with authoritative parents scored significantly higher on math achievement tests than those with permissive, $b = .44$, $p < .001$, or neglectful parents, $b = .44$, $p < .001$. Those in the authoritarian group also scored higher than those in the permissive, $b = .28$, $p = .008$, or neglectful group, $b = .29$, $p = .03$. There was no significant difference between the authoritative or authoritarian groups.

DISCUSSION

The purpose of this study was to assess the effects of parenting style on adolescent reading and math achievement test scores. As in prior studies, demographic differences were found between the parenting style groups. Authoritative parents tended to have higher SES, promote more cognitively stimulating home environments for their children, had higher test scores when they were younger, and came from homes with more educated parents and higher incomes than the parents in the other groups. Those parents classified as neglectful tended to be at the opposite ends of the SES and test score spectrums. They were the least educated, least likely to be married, had the lowest incomes, and came from poorer homes than the parents in the other groups. Furthermore, their children were less motivated to take the tests, less healthy, and less likely to be an older sibling than the youth in other groups. However, even with these important differences controlled, parenting style still had a relatively large impact on math and reading scores for almost all race and gender groups.

As with almost all previous parenting style studies, Hispanic and European American adolescents who scored average to very high on the reading and math achievement tests had authoritative parents. However, counter to many previous studies, African Americans also did very well on the achievement tests when they had authoritative parents. In fact, the difference between African Americans in authoritative homes and the other African American adolescents was larger than the difference between European American adolescents in authoritative homes and European Americans with other types of parents, once the background factors were controlled.

Adolescents with authoritarian parents scored average (for African Americans and girls) to high (for European American boys) on the reading and math achievement tests, but the trends

observed for African Americans and European Americans in the current study were in the opposite direction from previous studies. Previous studies found that authoritarian parenting was not as detrimental to the achievement of African Americans as it was for European Americans (e.g., Steinberg, et al. 1994). In this study, African American adolescents in authoritarian homes did better than those in permissive or neglectful homes, but they scored lower than those with authoritative parents. For European Americans, those with authoritarian parents scored about the same as those with authoritative parents. The fact that a small percentage of the European American group was really Asian Americans may account for some of the high scores of the authoritarian group, given previous studies (Chao, 1994). However, the trends certainly would not change much if the Asian American adolescents were excluded. It is more likely the case that authoritarian parenting, even for European Americans, can facilitate achievement through strict monitoring and behavioral control over children. However, once the children are older, they may rebel against their parents' often over-bearing authority, and their long-term achievement may suffer. Furthermore, this study did not assess other important outcomes such as mental health, which may be more of a problem for children with authoritarian parents (Mandara & Murray, 2002). Nevertheless, these findings cast doubt on the arguments that authoritarian parenting is not as detrimental to, and authoritative parenting is not as useful for African American adolescents achievement as they are for other American adolescents.

As would be expected, permissive and neglectful parenting styles were associated with lower than average test scores for all race and gender groups. However, an important finding of this study was that African American adolescents with permissive parents did much worse than African Americans with authoritative or authoritarian parents, while the differences were not as

large for European Americans. For European Americans, permissive parenting was not as detrimental as it was for African Americans or Hispanic girls.

One possible explanation for this finding is that European Americans have more protective resources they can draw upon that help to mitigate the negative consequences of permissive parenting. For instance, studies have found differential treatment by teachers for the same behaviors by students of different racial backgrounds (Jackson, 2002; Lambert et al., 2001; Skiba et al., 2002), as well as differential teacher expectations for students of different ethnic and racial backgrounds (Ferguson, 1998; Murray & Jackson, 1999). Teachers may be less likely to punish or relate negatively to European Americans with the self-regulatory problems that often accompany permissive parenting than to African Americans or Hispanic girls with the same problems. Other social resources that were not captured in this study, such as higher achieving peers and generally higher educational expectations may also help to buffer European Americans from the potentially negative consequences of permissive parenting more than African American or Hispanic youth.

It is also possible that permissive parenting has a different meaning for European Americans than it does for the other groups. Because European Americans were more likely to have permissive parents, especially compared to African Americans, it may be a more accepted form of parenting in European American culture. Because it is still relatively rare among African American parents, their adolescents may perceive permissive parents as unconcerned or unloving. In fact, African Americans in permissive homes scored slightly lower than those in neglectful homes. Thus, permissive parenting may mean about the same as neglectful parenting in African American culture.

Another interesting finding was that parenting style was not related to Hispanic boys' test scores. Although the other variables were important predictors for Hispanic boys, those in authoritative homes scored less than .3 standard deviation units above those in neglectful homes, after the other background factors were controlled. This is very interesting considering the relatively large impact parenting styles had on the test scores for all other groups. For instance, this same difference was over .8 standard deviation units after the background factors were controlled for Hispanic girls. It is not clear why parenting styles had such little direct impact on Hispanic boys' test scores, but it is clear that future research needs to examine this finding in more detail.

Although some findings in this study differed from previous studies, it should be noted that this study also differed methodologically from previous parenting style studies in fundamental ways. First, the parenting variables were slightly different than in previous parenting style studies. Demandingness was not measured as overly abusive or a watered down version of responsiveness. Demandingness in this study was based on adolescent perceptions the degree to which they had say in the house rules and the degree to which they could talk back to their parents. This alone probably contributes significantly to the contrast. Second, the classification criteria were altered from previous studies, so that much more of the sample was used. This may not only account for differences between this and previous studies, but also increase the generalizability of these results. Third, African American and Hispanic American youth constituted a greater proportion of the sample than in previous multi-race studies. This allowed for their standards and norms to weigh in more heavily on the overall classification of parents. Finally, previous studies did not control for as many important background factors as in

the current study. By addressing these limitations of previous studies, a slightly different, but maybe more accurate picture of parenting styles may have emerged.

Limitations

As with all studies, the findings of this study should be interpreted in light of its limitations. One potential problem of this study is that achievement test scores do not have the practical importance of grades or graduation rates. Although they are correlated, it is possible that many adolescents who perform poorly on the achievement tests still work hard enough in school to get good grades and graduate from college. Another limitation is that the results should only be generalized to youth between 10 and 15 years of age, as it is possible that the findings may not hold for those younger or older. Future studies should examine the effects of parenting styles on different measures of academic achievement in different age groups.

Another potential limitation of the current study is that even with the use of relatively reliable measures of demandingness and responsiveness, the bivariate classification scheme used in this, and most parenting style studies, is still less desirable than advanced multivariate techniques (Henry, Tolan, & Gorman-Smith, 2005; Mandara, 2003). Unfortunately, multivariate techniques require many more variables than the few used in the current study to be reliable (Mandara, 2003). However, we should still be confident in the generalizability in these results because of the similarities of the findings in this study to the few that used multivariate techniques (e.g., Baumrind, 1971; Gorman-Smith et al., 2000; Mandara & Murray, 2002).

The primary limitation of this study is clearly its correlational nature. Although several important background factors were statistically controlled, and other design features of the study helped to reduce any impact of achievement on parenting styles, it is still not possible to conclude that parenting style causes, either directly or indirectly, scores on academic

achievement tests. Research that randomly assigns non-authoritative parents to receive or not receive training in authoritative parenting could be used to examine the causal link between parenting style and academic achievement in more detail.

Conclusions and Implications

In spite of the limitations discussed above, important implications for research, interventions, and social policy could be derived from this study. Given that parenting style accounted for more variance in adolescents' achievement test scores than their family's SES, their mother's achievement test scores, or even the cognitive stimulation they received in the home, the need for parent training interventions is clearly one implication of this study. Although noteworthy interactions between parenting style, race, and gender groups were observed, the general trend suggested that Baumrind's conception of authoritative parenting is optimal for all youth. Thus, interventions that teach parents the necessity and skills for being both responsive and demanding, in the way they were measured in this study, should have an impact on adolescents' achievement.

It is also evident that interventions of this sort should be especially important for the parents of African American youth and Hispanic girls, because the effects of non-authoritative parenting seem to be especially problematic for them. In fact, the results of this study imply that much of the ethnic achievement gap could be reduced if more African American and Hispanic youth had authoritative parents. However, interventions guided by the belief that African American youth do best when their parents are authoritarian may do more harm than good.

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Table 1. Frequencies of parenting style by race and gender.

Demographics	Parenting Style			
	Authoritative	Authoritarian	Permissive	Neglectful
Race^a				
Hispanic	133 (.27)	100 (.20)	150 (.30)	112 (.23)
Black	98 (.13)	286 (.36)	110 (.14)	291 (.37)
White	458 (.42)	207 (.19)	289 (.27)	128 (.12)
Gender^b				
Male	305 (.25)	286 (.24)	321 (.27)	286 (.24)
Female	384 (.33)	307 (.26)	228 (.20)	245 (.21)

Note. Percentages within race and gender are in parentheses.

^a $\chi^2 (6) = 374, p < .001$. ^b $\chi^2 (3) = 28, p < .001$.

Table 2. Control variable differences by parenting style.

Control Variables	Parenting Styles				<i>F</i>	η^2
	Authoritative (n = 689)	Authoritarian (n = 593)	Permissive (n = 547)	Neglectful (n = 529)		
Age in 2000	15.01	15.40	14.79	15.11	5.43	.01
Birth Order	1.56	1.78	1.63	1.87	22.62	.03
Grandparents SES	.42	-.17	.10	-.46	95.93	.11
Family SES	.47	-.27	.18	-.50	135.04	.15
Mother's Achievement	.45	-.07	.06	-.57	120.94	.13
Childhood Health	-.10	.04	-.08	.17	9.59	.01
Cognitive Stimulation	.59	-.39	.26	-.60	241.76	.24
Test Taking Motivation	.34	-.12	.04	-.34	53.72	.06

Note. $p < .001$ for all *F*-tests. All variables are standardized except for age and birth order.

Table 3. ANCOVA summary table showing the effects of parenting style, race and gender on reading test scores while controlling for background variables.

	F	p-value	η^2
Control Variables			
Age in 2000	24.96	.00	.01
Birth Order	33.11	.00	.01
Grandparents SES	3.28	.07	.00
Family SES	4.79	.03	.00
Mother's Achievement	86.88	.00	.04
Childhood Health	106.29	.00	.04
Cognitive Stimulation	27.63	.00	.01
Test Taking Motivation	180.60	.00	.07
Factors			
Parenting Style	58.99	.00	.07
Race	12.90	.00	.01
Gender	.83	.36	.00
Interactions			
Parenting Style X Race	2.31	.03	.01
Parenting Style X Gender	1.43	.23	.00
Race X Gender	2.18	.11	.00
Parenting Style X Race X Gender	2.19	.04	.01

Note: $R^2 = .47$. $N = 2358$. Effect sizes are partial eta squares.

Table 4. ANCOVA summary table showing the effects of parenting style, race and gender on math test scores while controlling for background variables.

	F	p-value	η^2
Control Variables			
Age in 2000	37.69	.00	.02
Birth Order	5.67	.02	.00
Grandparents SES	2.13	.14	.00
Family SES	1.55	.21	.00
Mother's Achievement	72.14	.00	.03
Childhood Health	125.96	.00	.05
Cognitive Stimulation	29.76	.00	.01
Test Taking Motivation	105.58	.00	.04
Factors			
Parenting Style	34.16	.00	.04
Race	10.98	.00	.01
Gender	43.95	.00	.02
Interactions			
Parenting Style X Race	.47	.83	.00
Parenting Style X Gender	1.82	.14	.00
Race X Gender	.77	.46	.00
Parenting Style X Race X Gender	1.14	.34	.00

Note: $R^2 = .40$. $N = 2355$. Effect sizes are partial eta squares.

Figure Caption

Figure 1. Reading Scores by Parenting Style and Race Adjusted for Control Variables for Boys.

Figure 2. Reading Scores by Parenting Style and Race Adjusted for Control Variables for Girls.

Figure 3. Math Scores by Parenting Style and Race Adjusted for Control Variables for Boys.

Figure 4. Math Scores by Parenting Style and Race Adjusted for Control Variables for Girls.







