ABSTRACT

ACADEMIC SUCCESS OF APPALACHIAN ADOLESCENTS: THE IMPACT OF PARENTAL AUTHORITY AND FAMILISM

By Melissa Jo Deaton

The purpose of this study was to explore how measures of academic success were predicted by familism and five dimensions of perceived parental authority (referent, legitimate, expert, reward, and coercive) in a sample of rural Appalachian adolescents. 707 students from two rural Appalachian high schools in northern Kentucky and southern Ohio participated. Multiple linear regression analysis was used to determine predictive significance of referent authority, legitimate authority, expert authority, reward authority, coercive authority, and familism on academic achievement and educational aspirations. Legitimate authority was the strongest predictor of academic success, confirming previous studies that found adolescents believe parents have legitimate authority over current and future educational plans. Referent authority was found to be significant, but negative, in the paternal model and expert authority was found to be a negative predictor of boys' educational aspirations in the maternal model. Familism failed to predict academic success in any of the statistical models.

ACADEMIC SUCCESS OF APPALACHIAN ADOLESCENTS: THE IMPACT OF PARENTAL AUTHORITY AND FAMILISM

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Introduction

Throughout the twentieth century, the Appalachian region was identified as an isolated culture within the United States, deficient in terms of education and economic resources, but rich in family bonds. Stretching from the southern states of Alabama, Mississippi, and Georgia up to New York, the Appalachian region encompasses 410 counties in thirteen states (Appalachian Regional Commission, n.d.; Thorne, Tickamyer, & Thorne, 2004).

The Appalachian region is made up of both distressed and thriving economic communities. Several metropolitan areas are in this region (in West Virginia, Kentucky, Virginia, and Tennessee) that exceed the 13.1 percent national poverty rate, reaching anywhere from 16 to 27 percent of their populations being in poverty (Appalachian Regional Commission, n.d.; Billings & Blee, 2000; Thorne et al., 2004). Frequently characterized by high unemployment and lower income levels, Appalachia often has been studied in recent times primarily in terms of distinctive traditions of familial and community collectivism (Abbott, 1992; Keefe, 1988; The Rural and Appalachian Youth and Families Consortium, 1996; Wilson & Peterson, 2000). Specifically, the close ties that Appalachian adolescents are supposed to experience with parents derive from a long historical pattern of family cohesiveness. Gaining an understanding of these cohesive family patterns may be critical when examining the various factors influencing educational success. Central features of Appalachian culture are family loyalty and support, and it is likely that this unique family centric environment plays a defining role in the education of Appalachian adolescents (Triandis, 1995; Updegraff, McHale, Whiteman, Thayer, & Delgado, 2005; Wilson & Peterson, 2000).

Education in Appalachia has improved through research and intervention endeavors implemented during the last fifty years. However, disparities persist in the educational achievements of various Appalachian regions and a gap remains between the educational achievement of the larger United States and many Appalachian regions (Shaw, DeYoung, & Rademacher, 2004). The average high school completion rate in impoverished regions of Appalachia is only 68 percent, whereas the national average is around 75 percent, with wide variation occurring within this region (Appalachian

Regional Commission, n.d.). These results reveal that Appalachia is a diverse region that requires further research on the dynamics of failures and successes in education.

Based on studies conducted with a variety of samples, substantial evidence exists that parents, both within and outside Appalachia, have a considerable influence on the educational success of adolescents (Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Gotts & Purnell, 1986; Lamborn, Mounts, Steinberg, & Dornbusch, 1991; Paulson, Marchant, & Rothlisberg, 1998; Peterson, Stivers, & Peters, 1986; Steinberg & Lamborn, 1992). However, previous research on Appalachian adolescents has not explored how aspects of family relationships such as perceived parental authority (or the perceived credibility or competence of parents) predict the *academic success* of adolescents, which is defined here as measures of academic achievement and the aspirations for higher education.

Academic success involves trying hard in school, valuing good grades, getting good grades, tolerating negative aspects of school, and anticipating the completion of higher education. Parental influences on adolescents' educational aspirations are important when studying Appalachian populations because of the impact that education has on economic achievement and the quality of life for young people. These variables are especially unique to Appalachian populations since this region is renowned for historically tight-knit families, geographical isolation, and high levels of poverty. Consequently, *the purpose of this study is to examine how academic achievement and educational aspirations are predicted by measures of familism and perceived parental referent authority, legitimate authority, expert authority, reward authority, and coercive authority in a sample of rural Appalachian adolescents.*

Previous research has demonstrated that parental authority exerts significant influence over adolescent conformity, identification and autonomy in reference to parents (Baumrind, 1971, 1991; Collins, Laursen, Mortensen, Luebker, & Ferreira, 1997; Darling, Armsile, Pena-Alampay, 2005; McDonald, 1980; Peterson, 1986; Peterson, Rollins, & Thomas, 1985; Peterson, Bush, & Supple, 1999; Smith, 1970). However, despite considerable logic that links the efficacy of parental authority to academic success, specific studies on this topic have not been conducted. Instead, the vast majority of research has focused on how parents influence adolescent educational

accomplishments through the use of parental styles and behaviors (Cavanaugh, Schiller, & Riegle-Crumb, 2006; Gonzalez, Doan Holbein, & Quilter, 2002; Kwok-wai & Siu-mui, 2005; Lee, Daniels, & Kissinger, 2006; Simons & Conger, 2007). As a result, the present hypotheses were developed based largely on underlying theoretical logic found in limited literature that addresses both the unique qualities of Appalachian families and the dimensions of parental authority in separate literatures. Although some theoretical speculation is necessary, these inferences do suggest some tentative hypotheses about the extent to which perceived parental authority will predict (or influence) the perceived academic success of Appalachian adolescents.

Distinct Characteristics of Appalachian Families

Some of the logic for the hypotheses of this study is based, in part, on special qualities of Appalachian families, such as high levels of family and parental influence that require consideration when investigating the academic success of Appalachian adolescents. One of the most important features of rural Appalachian families is their hypothesized subcultural quality of cohesiveness or *collectivism*, a concept that places significant importance on the well-being of the group in mountaineer family life (Abbott, 1992; Keefe, 1988; The Rural and Appalachian Youth and Families Consortium, 1996; Wilson & Peterson 2000). An aspect of collectivism known as *familism* provides the view that family groups and family elders (e.g., parents) are central aspects of society and socialization influence (Hofstede, 1980; Triandis, 1995). The centrality of close family bonds in the everyday lives of Appalachian adolescents contrasts to some degree with the greater connection that adolescents from the urban mainstream have with cultural individualism. Societies that are individualistic value adolescent autonomy and encourage adolescents to pursue personal goals, a view that contrasts with the much discussed perspective of many rural Appalachian families to place greater value on family responsibility and cohesiveness than families from the urban mainstream (Triandis, 1995; Wilson & Peterson, 2000). Appalachian families have been found to espouse greater patterns of collectivism by accentuating the importance of family responsibilities rather than personal success and autonomous behavior (Triandis, 1995; Updegraff et al., 2005; Wilson & Peterson, 2000). These values are likely to be

translated into greater perceived parental authority and have an impact on how Appalachian adolescents attain academic success.

The prominence of strong family bonds and collectivistic values may influence Appalachian families' perceptions of educational institutions, which may be regulated by a different, more individualized, set of ideals from urban America (Triandis, 1995; Wilson & Peterson, 2000). Many Appalachian families are reputed to experience tension between the competing values and priorities of schools and families (Howley, 2004). Furthermore, Appalachian families may regard organizations, such as schools, with suspicion, and Appalachian adolescents must learn to negotiate some form of balance or compromise among these competing values.

Various institutions, such as schools (or the mass media), often teach values from urban America that are more consistent with individualism rather than collectivism (Triandis, 1995). These sources of external influence may encourage adolescents to give up parts of their local culture to secure employable skills and other qualities that make them adaptable beyond traditional Appalachian culture. A significant number of these youth may choose more individualistic values over a collectivistic belief system and learn to successfully perform roles for social environments that are different from the collectivistic values of Appalachia (Christopher & Bickhard, 2007; Tamis-LeMonda, Way, Hughes, Yoshikawa, Kalman, & Niwa, 2008).

Learning to identify with individualistic ideals focused more on personal goals and success may cause Appalachian adolescents to look beyond and leave their communities in pursuit of careers and higher education in the larger society. Appalachian families are likely to be threatened by the possibility of having their members become geographically mobile and schools may be blamed for initiating a schism in their familial identities based, in part, on distinctive traditions.

Appalachian parents, as central figures in cohesive family systems, are crucial agents in helping adolescents internalize values and eventually make career decisions (Baumrind, 1991; Peterson, et al., 1986; Wentzel, 1999). The negotiations of Appalachian adolescents' concerning individual versus collective ideals and of mainstream U. S. versus Appalachian culture (Triandis, 1995; Wilson & Peterson, 2000) may be greatly influenced by the authority that parents are perceived to have. As in most

cultures, the extent to which parents are viewed as having authority is defined by the existing norms that define family life and beliefs about the degree of influence that parents are expected to exercise over the lives of adolescents. The close bonds commonly described to be characteristic of Appalachian adolescents and their parents strongly suggest that the perceived interpersonal resources of parents play a vital and perhaps extraordinary role in the socialization of Appalachian adolescents (Hicks, 1992; Peters, Wilson, & Peterson, 1986). Perceived parental resources or authority, in turn, may have considerable affect, either negative or positive, on the academic success of Appalachian adolescents.

Despite the prominence of these collectivistic themes about Appalachian families and parental influence, an alternative perspective is that much of Appalachia has become modernized and increasingly has adopted mainstream urban values that are more consistent with individualism (Wilson & Peterson, 2000). In recent times, Appalachia's historic geographic isolation has greatly diminished (i.e., through mass media, access to formal education, geographic mobility, and vastly improved transportation systems) and values about family life, parental influence, and formal education may have become quite similar to the urban mainstream. Instead of distinctive patterns of parental influence on educational success, therefore, Appalachian child-rearing influences may increasingly fit the pattern in the larger society rather than being distinctive in a manner consistent with traditional conceptions of mountaineer families.

Given such general comments about the collectivistic and individualistic perspectives on Appalachian socialization for formal education, it is possible to develop hypotheses about how several dimensions of parental authority predict academic achievement and educational aspirations. In doing so, however, though both the individualistic and collectivistic traditions provide insight for making predictions, most of the following hypotheses (with the exception of hypothesis 6) conform to expectations based on logic from studies conducted on mainstream socialization patterns rather than from the limited scholarship on distinctive Appalachian patterns that are often thought to be unique.

Hypothesis 1: Referent authority will be positively related to academic achievement and educational aspirations.

The first dimension of perceived parental resources, referent authority, assesses the perception that a parent's qualities are admired and sought after by an adolescent. This dimension of parental authority expresses the extent to which an adolescent is predisposed to seek the parent as someone with whom they identify (McDonald, 1980). Adolescents from Appalachia may be more likely to make decisions based on cohesive bonds with their parents instead of their affinities with friends, the media, or mainstream U. S. social norms.

In regions that stress the extraordinary predominance of family values, Appalachian adolescents also may be likely to make decisions based on the influence of parents rather than principles taught in formal educational settings. Standards in school that do not coincide with those articulated in the home are apt to become secondary to adolescents' behavioral and academic actions. For example, although fighting is prohibited in school, a student may not obey the rule if they have learned from a parent that it is excusable to fight under certain circumstances (i.e., defending one's family honor). Many Appalachian families are keenly aware of the difference in values taught in their homes and in the schools their children attend (Howely, 2006). Because there may be different social rules that govern Appalachian households and how they relate to Appalachian schools, it is theorized here that this exceptional degree of parental influence may be based, in part, in perceived referent authority that mothers and fathers may have. A contrasting view and the prevailing view in U.S. society, in turn, is that parents will transcend their own localistic (i.e., collectivistic) values and recognize that they must increasingly prepare their young for modern (i.e., individualistic) society and success in formal education.

The decision-making skills of Appalachian adolescents seem to be highly dependent on the values of their familial and cultural heritage. Although educational institutions may pose some threat to traditional Appalachian beliefs, adolescents are likely to translate their positive view of parents as referent authorities into beliefs that foster constructive ideals regarding both achievement and higher education. Consequently, it is hypothesized that referent authority will be a positive predictor of academic achievement and educational aspirations.

Hypothesis 2: Legitimate authority will be positively related to academic achievement and educational aspirations.

The dimension of legitimate authority assesses the perceived "right" of a parent to control circumstances and/or exercise influence based on social norms (Henry, Peterson, & Wilson, 1989). This type of parental authority is the extent to which adolescents believe they must follow their parents' rules and the normative social structures that sustain these rules. Strong perceptions of legitimate authority also influence adolescent beliefs about parental disclosure and autonomy-granting, both of which affect academic success (Smetana, Metzger, Gettman, & Campione-Barr, 2006).

Previous research has shown that adolescents are more likely to talk to their parents about school, their future, and social issues than to disclose personal information, such as dating and relationships (Youniss & Smollar, 1985). Whereas adolescents reject parents' legitimate authority to regulate personal issues, studies have shown that adolescents believe parents *should* have legitimate authority over issues implicating moral, conventional, and long-term life consequences (i.e., educational plans) (Fuligni, 1998; Smetana, 1988, 2000; Smetana & Asquith, 1994). Traditional values and school accomplishments are included in the issues over which parents are perceived to have legitimate authority.

An adolescent's perception of considerable legitimate authority by parents also may correlate with having respect for authority figures in other institutions beyond family boundaries. If an adolescent believes that a parent or elder community member has the "right" to have authority over particular circumstances, then they also may be more likely to respect teachers, school administration, and school rules. Thus, adolescents with strong perceptions of parental legitimate authority may be better prepared to succeed in school if they also believe that authority figures outside of their families have the right to set rules for them to follow. This acknowledgement of parental authority tends to carry over into the structured school environment where adolescents comply with rules even though their parents are not present (Elder, 1963), which is likely to encourage academic success.

Traditional values found among Appalachian families, such as respect for elders, may have an impact on adolescents' perceptions of legitimate authority and its affect on

school success. As previously mentioned, there may be a carry over effect from the perceived right of parents to other authority figures in social institutions such as the schools. Appalachian adolescents instilled with traditional beliefs of respect for their elders and community leaders may be more successful in school. Therefore, it is hypothesized that legitimate authority will be a positive predictor of academic achievement and educational aspirations.

Hypothesis 3: Expert authority will be positively related to academic achievement and educational aspirations.

Expert authority assesses the perception by adolescents that a parent has credible expertise that is useful for the young. This type of authority involves the extent to which parents have the potential to provide adolescents with specialized knowledge or information on pertinent issues (Henry et al., 1989). Such areas of proficiency may include knowledge of careers, higher educational institutions, and academic subjects.

High school graduates are more likely to go on to college if their own parents went to college. Parents who have an advanced degree will be more credible than less educated parents when encouraging their adolescent to continue their formal education. They are more likely to understand what is needed when selecting a school and what their children can expect when they leave home to pursue studies. Research has provided evidence that less educated, diverse samples may not be prepared to be involved in adolescents' academic lives or deal with school personnel and processes (Eamon, 2005). This lack of parental school expertise about educational matters makes it difficult for the students to succeed academically.

Socioeconomic status also affects educational aspirations, because adolescents from families in poverty are less likely to have parents with college degrees and who have values that sustain the pursuit of advanced education (Hossler, Schmit, & Vesper, 1999). Parents who are economically disadvantaged often lack the expert knowledge concerning higher education, and they are less optimistic about their adolescents' educational opportunities (Crosnoe, Mistry, & Elder, 2002). This academic pessimism by parents is likely to affect the achievement of adolescents in poverty because parental support, especially in a culture based on cohesive family values, is important when adolescents are making the decision to go on to higher education (Moogan & Baron,

2003). Research has indicated that adolescents are more likely to attend a postsecondary institution particularly when their aspirations are aligned with their parents' goals for them (Kim & Schneider, 2005). Thus, it would be more difficult for an Appalachian adolescent to succeed academically or to pursue higher education without parental support and perceived expert knowledge.

Expert authority, however, covers more areas than higher education. All parents are experts within their own occupation or profession, from housewife to construction worker to lawyer. Expert knowledge passed on to adolescents is likely to be relative to parents' specific occupations, educational attainments, everyday life issues, and belief systems (Csikszentmihalyi & Schneider, 2000; Medved, Brogan, McClanahan, Morris, & Shepherd, 2006). Traditional values found to be prevalent within many Appalachian regions may function to influence educational aspirations and career selections. A component of Appalachian parental expert authority also may include knowledge of job opportunities in Appalachian communities and realistic perceptions of what their adolescents are capable of achieving within their culture.

Parents equipped with knowledge about higher education and academia, regardless of geographic residence, are more likely to encourage their adolescents to do well in high school and go on to college. Parents who are perceived to have expert authority in terms of understanding what is needed to be successful in formal education settings may have influence on the young that transcends subcultural differences. They are aware of what adolescents must accomplish in high school in order to be successful in formal educational settings. Consequently, adolescents who perceive this type of authority in their parents may be more likely to seek educational success. Therefore, it is tentatively hypothesized that <u>expert authority will be a positive predictor of academic achievement and educational aspirations</u>.

Hypothesis 4: Coercive authority will be positively related to academic achievement and educational aspirations.

Coercive authority assesses perceptions of adolescents that parents have the *potential* to bring about aversive consequences for them (Henry et al, 1989). These aversive consequences may include, but are not limited to, physical punishment, suspended social privileges, or various degrees of other disciplinary actions and excessive

forms of control. The perceived *potential* to be punitive, or coercive, might be associated with the punitive behavior of authoritarian parenting but differs in the sense that parents may be perceived to have the potential to be punitive or coercive but may *not actually choose to use* this capacity. Consequently, coercive authority differs from authoritarian behavior by referring to the *capacity* to bring about aversive consequences rather than the *actual* use of coercive behavior to influence the young. Parents who actually implement authoritarian styles use harsh measures to enforce obedience and conformity to their rules and expectations. Studies have shown, however, that adolescents raised in authoritarian households are dependent and submissive, and they possess less self-confidence and social abilities than other adolescents (Fuligni & Eccles, 1993; Lamborn et al., 1991). Thus, authoritarian parenting impedes the development of prosocial behavior, which is a positive predictor of social competence, the larger social outcome that encompasses academic achievement and school adjustment (Dornbusch et al., 1987; Ginsburg & Bronstein, 1993; Peterson, 2005; Peterson & Hann, 1999; Rosenzweig, 2000; Steinberg, 1999).

Parents who are perceived to have coercive and punitive capacities (i.e., coercive authority) are viewed as having the ability to thwart adolescent independence and decision-making. Often these efforts are counter-productive, with adolescents developing resentment or hostility toward their parents and becoming influenced more extensively by deviant peers (DeBaryshe & Patterson, 1993). Excessive use of coercion or punitiveness may foster academic achievement based only in externally sustained control (i.e., the watchful eyes of others) rather than achievement based on commitment to internalized educational aspirations (Deci & Ryan, 1985; Ginsburg & Bronstein, 1993). Moreover, perceived punitive capacities of parents are more likely to cause adolescents to rebel rather than foster academic achievement based in aspirations for educational attainment that are internally driven.

A key idea, however, is that the consequences of being perceived to have *potential* to be coercive may be less severe than the *actual use* of coercion. That is, the potential to be coercive may be viewed as being more benign, as evoking less hostility from the young, and as leading to less negative consequences in the young than the actual use of coercion. Parents who are viewed by adolescents as having high coercive

authority, but do not necessarily make actual use of punitive behavior very frequently, are less likely to be perceived as being arbitrary and more likely to be viewed as being fair (Elder, 1963). Consequently, Appalachian parents who refrain from actual physical punitiveness, despite being perceived as having coercive authority (Taylor, Vargas, & Tseng, 1973; Wiehe, 1990) may be less likely to elicit resistance and to have less aversive consequences for adolescent academic achievement and school adjustment (Henry et al., 1989). Thus, although there is some speculation that the parenting styles of Appalachian families are somewhat more punitive and physical (i.e., the *use* of coerciveness) than parents from the urban mainstream, coercive authority (i.e., *potential* coerciveness) may have considerably less, if any, negative influences on academic achievement and educational aspirations. Appalachian parents who are perceived as potentially coercive, but refrain from actually using coercion, may be viewed in a positive light by the young consistent with the tentative hypothesis that coercive authority will be a positive predictor of academic achievement and educational aspirations.

Hypothesis 5: Reward authority will be positively related to academic achievement and educational aspirations.

Reward authority assesses an adolescent's perception of the ability of parents to supply gratifications. Gratifications come in many forms, ranging from material objects to social privileges and parental support. No matter the type of reward, adolescents with parents who provide rewards for positive behaviors are likely to do well academically.

Adolescents who perceive their parents as potential sources of reward also are likely to view this circumstance as encouragement for them to achieve academically. Reward authority encompasses many possible incentives that adolescents may perceive their parents as being capable of providing. Parents sometimes are perceived as having the potential to provide money, privileges, resources, or are simply being desirable people to be around. Perceived reward authority also may be viewed by adolescents as intrinsic and/or extrinsic reinforcing capacities.

Extrinsic, or external rewards, are manifested by the parents' perceived capacities to provide physical objects, such as money, cars, or electronic devices. Parents can be perceived as having the capacity to provide external rewards to adolescents in exchange for achieving high grades or maintaining good behavior in formal school settings.

Intrinsic, or internal rewards, are more likely to be synonymous with parental support and encouragement. An adolescent who perceives their parents as having the potential to provide intrinsic rewards (e.g., parental support) from their parents may gain a sense of self-satisfaction from both seeking to please their parents and actually succeeding in school environments. Intrinsic rewards have been found to be more predictive of (or as promoting) academic achievement than extrinsic rewards (Deci & Ryan, 1985; Ginsberg & Bronstein, 1993). Another possible reward may be parental support, which could indicate that the parents are viewed by adolescents as having inclinations to be nurturing and encouraging in reference to their adolescents' achievements. Supportive parents are likely to help their adolescents succeed in high school by directing supportive behavior at adolescents to promote higher education. The influence of the parents' abilities to be supportive of high goals may result in higher academic achievement, higher education aspirations, and a greater sense of overall school success (Entwisle & Hayduk, 1988; Natriello & McDill, 1986; Patrikakou, 1996; Wilson & Wilson, 1992).

Rewards of money or material objects are less likely than other dimensions of authority to cultivate and sustain academic success in a long-term sense (Deci & Ryan, 1985; Shaw & White, 1965; Steinberg & Lamborn, 1992). Rather, intrinsic, positive rewards, such as praise, support, or recognition, may foster active educational pursuits over the long-term. If adolescents perceive that their parents as being able to observe and reward good behavior, then greater adolescent conformity often occurs, which may then lead to academic success (Henry et al., 1989). Consequently, it is tentatively hypothesized that reward authority is a positive predictor of academic achievement and educational aspirations.

Hypothesis 6: Familism will be negatively related to academic achievement and educational aspirations.

Mainstream society in the U. S. embodies an individualistic philosophy as a central feature, which involves valuing personal independence and self-sufficiency. However, families in the rural Appalachian region of the U.S. often are characterized as being more collectivistic, placing greater importance on the group over the individual, than their urban U. S. counterparts (Abbott, 1992; Keefe, 1988; The Rural and

Appalachian Youth and Families Consortium, 1996; Wilson & Peterson 2000). An aspect of collectivism known as *familism* conceptualizes the family group as being perhaps the most central component in society and requires that group needs should take precedence over individual concerns (Hofstede, 1980; Triandis, 1995; Wilson & Peterson, 2000). Family support, obligations, and involvement are all characteristics of familism, as are family loyalty and community reputation (Updegraff et al., 2005; Wilson & Peterson, 2000).

Wilson and Peterson (2000) suggest that, compared to the collectivism of Appalachian family life, more individualistic expectations are present in the mass media from the larger culture and the schools. This disparity in philosophy between the Appalachian collectivism (i.e., familism) and individualism may be detrimental for the academic achievement of adolescents from Appalachian families. Subcultures that emphasize distinctive levels of familism may display strong distrust of and suspicion about government agencies, including schools (DeYoung, Glover, & Herzog, 2006; Wilson & Peterson, 2000). Consequently, adolescents who feel unusually strong loyalties and obligations toward their families and local communities may be more willing to sacrifice their personal achievements in an academic environment (Abbott, 1992; Keefe, 1988; Wilson & Peterson, 2000). Extensive cohesiveness has been found in mainstream U. S. samples to inhibit adolescent autonomy (Douvan & Adelson, 1966; Steinberg, 1990). Such restraints on youthful autonomy, a central socialization value in mainstream culture, may have negative consequences for personal efforts to achieve academic success. As a result, strong familism may function to inhibit educational success based in individualism and may receive less emphasis with Appalachian culture than in the urban mainstream.

Given the possibility that Appalachian families may be unusually cohesive, parents are likely to encourage their adolescents to find jobs close to home instead of pursuing careers and educational attainment at great distance from the family. Geographic mobility associated with educational attainment often threatens the closeness of tight-knit families, and may adversely effect the academic achievement and educational aspirations of Appalachian adolescents. Hence, the final hypothesis predicts

that familism is a negative predictor of academic achievement and educational aspirations.

Finally, it is important to mention that current research on Appalachian families has diminished in recent years, and there is speculation that the distinctive cultural aspects of Appalachian families are no longer as prominent as they once were (Couto, 2002; Newsome, Bush, Hennon, Peterson, & Wilson, 2007). Modern technologies in the form of advanced communication systems, mass media, and modern transportation capabilities have ended much of the geographic isolation that previously characterized rural Appalachia, and it is likely that these factors have had considerable influence on present day Appalachian families and the academic success of adolescents from this region. One possibility is that Appalachian families are no longer very distinctive from families in the urban mainstream. It is important to keep this caveat in mind because the present study attempts to elucidate greater insight into how aspects of parental and family influence may predict academic achievement and educational aspirations of adolescents in Appalachian families.

Methodology

Participants

The participants in this study were a convenience sample of adolescents from two rural Appalachian high schools in northern Kentucky and southern Ohio. These schools were from areas identified within the parameters of a depressed county, which is characterized by high unemployment, poverty rates, and a low median income. Of the 707 participants, 358 were male and 349 were female. Ages ranged from 14 to 19, with a mean age of 16 years old, and the participants were in grades 9 through 12 at the time of data collection. An overwhelming majority (698; 96%) of the participants were white. On average, the education level was similar for both mothers and fathers. The typical Appalachian mother had completed high school and some additional training. The typical Appalachian father had completed high school or had taken the General Educational Development (GED) exam. Parents of students involved in this study completed informed consent procedures. Participation in this study was voluntary and no incentives were given to the participants.

Procedures

The data for this study were gathered by means of surveys given to a convenience sample of 707 high school students in two Appalachian high schools. School administrators gave permission to the researchers to administer the questionnaires in the classrooms, and the procedures were the same in both high schools. The self-report questionnaires were completed in approximately 35-45 minutes, and they were conducted within the school classrooms during the students' English classes.

The questionnaire contained 181 self-report items regarding behavioral and psychosocial issues. All items were completed by the adolescents participating in this project during class time, and the teachers were present at the time of data collection. Assent forms were given to the students, and the parents were sent passive consent letters stating that they should return the forms if they did not want their children to participate in the study. The University of Kentucky human subjects review board approved the research methodology prior to the data collection in 2002.

Measurements

The following measurements were obtained from adolescent self-report questionnaires. Measures will be used to assess the dependent variables of academic achievement and educational aspirations as well as the independent variables of referent authority, legitimate authority, expert authority, reward authority, coercive authority, and familism. Measures of adolescent gender, adolescent age, adolescent ethnicity, parents' socioeconomic status and marital status (i.e., intact, separated, divorced, single parent) were also included in the analysis as control variables.

Academic achievement was measured with six items that assessed adolescent effort exerted in school, the importance of grades and education, the extent of finishing homework on time, liking school, and self-reported grades. Adolescents' responses to the first five items were in terms of a four-point Likert scale varying from "strongly agree" (4 points) to "strongly disagree" (1 point). The sixth item asked the participant to best describe the grades they got in school, ranging from (1) "mostly A's" to (9) "mostly F's." Factor analysis was used to determine the items that are most highly associated with academic achievement. Five items from the academic achievement measure were used. Those items consisted of trying hard in school, the importance of grades to the

participant, finishing homework on time, the importance of education, and liking school. Cronbach's alpha for the scale was .84 for this study.

The second dependent variable, educational aspiration, was measured with one item that assessed the adolescent's educational goals. There were eleven possible responses, ranging from "some grade school" to "graduate degree," including M.D., M.A., Ph.D., J.D., etc."

Adolescents' perceptions of parental authority were measured by a 23-item revised version of a previously developed measure of parental power bases and authority (Henry et al., 1989; Peterson et al., 1985; McDonald, 1977, 1980; Smith, 1970). This scale assessed adolescents' perceptions of their parents' interpersonal resources. The scale was composed of items measuring referent authority, legitimate authority, expert authority, reward authority, and coercive authority. The participants' responses were recorded in terms of a four-point Likert scale varying from "strongly agree" (4 points) to "strongly disagree" (1point). The higher scores indicated higher levels of perceived authority.

A four-item subscale of the parental authority scale measured parental referent authority, or the extent to which adolescents perceived their parents as having the capacity to provide guidance and advice (McDonald, 1977, 1980; Smith, 1970). Examples of this measure include how much a parent's wishes, opinions, and/or ideas influence the adolescent's decisions about friendships, education, and careers. For this study, Cronbach's alpha for parental authority was .46 for mothers and .47 for fathers.

Parental legitimate authority was measured by a six-item subscale of the parental power scale that assesses the perceived "right" to control circumstances and/or exercise influence based on social norms (McDonald, 1977, 1980; Smith, 1970). Examples of legitimate authority include how much perceived "right" a parent has regarding influencing and/or counseling adolescents about friendships, romantic relationships, education, and occupations. Cronbach's alpha for legitimate authority was .84 for mothers and .86 for fathers.

Parental expert authority was measured by an eight-item subscale that assesses the perception that a parent has credible expertise useful for the adolescent (McDonald, 1977, 1980; Smith, 1970). Examples of expert authority include adolescent perceptions of

parental knowledge concerning friendships, education, job training, and occupations. It assesses both the perceived knowledge of the parent and the perceived ability of the parent to convey this expertise to the adolescent in various areas (friendships, education, occupations, etc.). Cronbach's alpha for expert authority was .78 for both mothers and fathers.

Parental reward authority was measured by a three-item subscale of the parental power scale and assesses the perceived ability of parents to supply gratification (McDonald, 1977, 1980; Smith, 1970). Examples of this type of authority include the perceived ability of parents to make the adolescent feel good about following parental advice when choosing friends, educational paths, and occupations. Cronbach's alpha for reward authority was .79 for both mothers and fathers.

Parental coercive authority was measured by a six-item subscale of the parental power scale that assesses adolescents' perceptions that a parent has the potential to bring about aversive consequences (McDonald, 1977, 1980; Smith, 1970). Examples of coercive authority include the perceived ability of parents to make the adolescent feel badly about not following parental advice when choosing friends, educational paths, and occupations. It also includes the adolescent's perception of the parent's ability to make them "suffer the consequences" for not following their advice. Cronbach's alpha for this scale was .82 for mothers and .81 for fathers.

Adolescents' perceptions of familism were measured by a four-item scale derived from the Bardis Familism scale (1959). These items are intended to assess adolescents' feelings and loyalties, rights, and obligations connected to family bonds. Responses to these items were recorded with a four-point Likert scale ranging from "Strongly Agree" (4 points) to "Strongly Disagree" (1 point). Each of the items was summed for a total score of familism, with higher scores indicating higher levels of familism. Cronbach's alpha for familism was .59 in the present study.

The questionnaire also included standard fact sheet items that measured the control variables used in the statistical analysis for this study: adolescent age, adolescent gender, adolescent ethnicity or race, parents' marital status, and parent's educational attainment . A standard self-report item in the questionnaire was used for the adolescent respondents to report their age. Adolescent gender was scored with male = 1 and female = 2.

Adolescent ethnicity or race was scored as Black or African-American (1), White or Anglo-American (2), Asian (3), Native American Indian (4), Mexican-American (5), Other Hispanic (6), or Other (7). Parents' marital status was scored as Married (1), Divorced (2), Separated (3), Widowed (4), Single (5), and Other (6). Educational attainment of fathers and mothers as reported by participants ranged from Some Grade School (1) to Graduate Degree (11).

Analysis and Results

The hypotheses for this study were tested using multiple linear regression analysis. Separate statistical models were conducted and examined for (1) maternal influences on girls, (2) maternal influences on boys, (3) paternal influences on girls, (4) paternal influences on boys. Separate statistical models were used to examine the extent to which measures of two dependent (criterion) variables, academic achievement and educational aspirations, were predicted by measures of the variables parental referent authority, legitimate authority, expert authority, reward authority, coercive authority, and familism. This entails that 8 multiple regression models were needed to test the hypotheses for this study. Hierarchical multiple regressions were used for each model in which the predictor variables were inserted into the equation in two steps. Gender of adolescent was used as a selection variable (where 1 = male and 2 = female) to partition the sample into male and female adolescent groups that were analyzed separately with mothers and father. Conducting different models by gender of adolescent is relevant because Appalachian gender roles may be becoming less traditional (Bush & Lash, 2006). This trend has surfaced from the emergence of female-dominated service jobs and the reduction of male-dominated manufacturing employment in Appalachia (Bush & Lash, 2006), and this renegotiation of gender roles may have an influence on the academic achievement and educational aspirations of the Appalachian adolescents in this study.

The first step in the hierarchical multiple regression analyses consisted of inserting the following sociodemographic control variables: age of adolescent, gender of adolescent, ethnicity, marital status, level of education of the mother, and level of education of the father as potential predictors. The second step of the analyses involved entering the predictor variables referent authority, legitimate authority, expert authority, reward authority, coercive authority, and familism into the equation. Each statistical

model was evaluated for multicollinearity, (or excessive intercorrelation between the predictor variables) which may be an issue if the predictor variables correlate very highly above .80 or .90 (Field, 2005). Another way to detect multicollinearity is to determine that the average VIF (Variance Inflation Factor) is less than 10 and that the tolerance is below 0.2 (Field, 2005). None of the variables in the models for the present study were correlated above .80, had a VIF close to 10, or a tolerance below 0.2. Additional examinations of the intercorrelation among the predictor variables were conducted. None of the predictor variables were intercorrelated to a degree that would suggest that multcollinearity was a problem. Tables 1 through 8 contain descriptive statistics consisting of the means and standard deviations for each of the statistical models' independent and dependent variables.

Table 9 provides the results for the multiple regression analysis involving the maternal authority and family predictors on girls for academic achievement. Legitimate authority was found to be a positive predictor of academic achievement for maternal influences on girls ($\beta = .354$, $p = .001$). This indicated that an increased perception by adolescents of a maternal "right" to exert control was predictive of increased academic achievement for girls. Results for parental legitimate authority of this kind is consistent with previous findings regarding parental regulation of school success (Fuligni, 1998; Smetana, 1988, 2000; Smetana & Asquith, 1994). All other variables, both the sociodemographic control variables and the primary predictor varaiables, failed to demonstrate significant relationships with adolescent academic achievement.

Table 10 provides the multiple regression results for the maternal authority and family predictors of girls' educational aspirations. The sociodemographic variable mothers' level of education was found to be a positive predictor of educational aspirations for girls ($\beta = .182$, $p = .002$). Legitimate authority also was found to be a positive predictor of educational aspirations for girls ($\beta = .270$, $p = .011$). All other variables, both the sociodemographic and primary predictor variables, failed to be significant predictors of educational aspirations.

Table 11 provides the results for the multiple regression analysis involving the paternal authority and family variables as potential predictors of girls' academic achievement. Consistent with the results for maternal predictors of girls' educational

aspirations and academic achievement, paternal legitimate authority was a positive predictor of academic achievement for the paternal influences on girls ($\beta = .241$, $p = .022$). All other variables, both sociodemographic and primary predictor variables, failed to demonstrate significant relationships with academic achievement.

Table 12 provides the results for the multiple regression analysis involving the paternal authority and family variables as potential predictors of girls' educational aspirations. The sociodemographic variable, mothers' level of education, was a positive predictor of educational aspirations ($\beta = .176$, $p = .003$). Once again, paternal legitimate authority was a positive predictor of educational aspirations for girls ($\beta = .339$, $p = .001$). Distinctive from the results for maternal predictors, however, was the fact that perceived paternal referent authority was a negative predictor of girls' educational apirations ($\beta = -.232$, $p = .003$). This appears to indicate that the tendency for girls to respond to their fathers' referent authority (i.e., girls' tendencies to identify with their fathers) may inhibit rather than encourage the educational aspirations of their daughters. Another distinctive finding was that paternal coercive authority was a significant positive predictor of girls' educational aspirations ($\beta = .134$, $p = .019$), a result indicating that the perceived potential for fathers to bring about aversive consequences may be necessary to foster the educational aspirations of adolescent daughters. All other sociodemographic and primary predictor variables failed to relate significantly to educational aspirations.

Table 13 provides the results for the multiple regression analysis involving the maternal authority and family predictors of boys' academic achievement. Perceived maternal legitimate authority was found to be a positive predictor of boys' academic achievment ($\beta = .236$, $p = .008$). This indicated that the perceived "right" of mothers to exercise influence was predictive of increased academic achievement for boys. All other variables, both sociodemographic and primary predictors, failed to demonstrate significant relationships with academic achievement.

Table 14 provides the results for the multiple regression analysis involving the maternal authority and family predictors of boys' educational aspirations. The sociodemographic variables mothers' ($\beta = .136$, $p = .025$) and fathers' education ($\beta = .197$, $p = .001$) were positive predictors of boys' educational aspirations. In this case, maternal legitimate authority was not a significant predictor of boys' educational

aspirations but expert authority was a significant, negative predictor of boys' educational aspirations (β = -.208, p = .014), which indicated that increased maternal expertise was predictive of decreased educational aspirations. In contrast, reward authority was a significant, positive predictor of educational aspirations for boys (β = .194, p = .009), which indicated that mothers' perceived potential to provide rewards or incentives was predictive of higher educational aspirations by boys. All other variables in the hypothesized model failed to demonstrate significant relationships with educational aspirations for this model.

Table 15 provides the results for the multiple regression analysis involving the paternal authority and family predictors of boys' academic achievement. Referent authority was found to be a negative predictor of academic achievement for boys (β = -.173, p = .031), which indicates that greater identification with fathers by boys may inhibit their academic achievement. In contrast, paternal legitimate authority was a positive predictor of boys' academic achievement (β = .403, p = .000), which indicated that stronger perceptions of paternal "rights" to exercise control were predictive of increased academic achievement for boys. All other sociodemographic and primary predictor variables failed to demonstrate significant relationships with boys'academic achievement.

Table 16 provides results for the multiple regression analysis involving the paternal authority and family predictors of boys' educational aspirations. The sociodemographic variables mothers' (β = .139, p = .024) and fathers' education (β = .223, p = .000) were positive predictors of boys' educational aspirations. All other variables, including the other sociodemographic variables and the primary predictor variables, failed to demonstrate significant relationships with boys' educational aspirations.

Findings

The purpose of this study was to examine the degree to which several family and parent-adolescent relationship variables, consisting of referent, legitimate, expert, reward, coercive authority, and familism, were predictive of academic success (i.e., defined and measured here as academic achievement and educational aspirations) in a sample of Appalachian adolescents. A composite view of the results in regards to the six hypotheses for this study are as follows:

Hypothesis 1: Referent authority will be positively related to academic achievement and educational aspirations.

The first hypothesis predicted that a positive relationship would be evident between referent authority and adolescents' academic success. A surprising contrast to this prediction, however, was the finding that fathers' referent authority was a negative predictor of boys' academic achievement and girls' educational aspirations. Mothers' referent authority was not a significant predictor of either academic achievement or educational aspirations. Thus, contrary to Hypothesis 1, the present study found that boys who identified strongly with their fathers were less likely to achieve academically and that girls who identified strongly with their fathers were less likely to have higher educational aspirations.

Hypothesis 2: Legitimate authority will be positively related to academic achievement and educational aspirations.

The second hypothesis proposed that a positive relationship would exist between legitimate authority and academic success. Legitimate authority was a positive and significant predictor of school success in six of the eight statistical models. The significant relationships consisted of maternal influences on girls' academic achievement, maternal influences on girls' educational aspirations, paternal influences on girls' academic achievement, paternal influences on girls' educational aspirations, maternal influences on boys' academic achievement, and paternal influences on boys' academic achievement. Legitimate authority was not found to be a significant predictor of educational aspirations for boys within either the paternal or maternal models.

Hypothesis 3: Expert authority will be positively related to academic achievement and educational aspirations.

Hypothesis 3 proposed a positive relationship between expert authority and academic success. Only one of the statistical models, maternal expert authority as perceived by boys, was a significant predictor of educational aspirations. Moreover, maternal expert authority was found to be a negative rather than a positive predictor of the maternal influence on boys' educational aspirations. Expert authority was not found to be a significant predictor within any of the other models for academic achievement or

educational aspirations. Consequently, these findings indicated that no support existed for this hypothesis.

Hypothesis 4: Coercive authority will be positively related to academic achievement and educational aspirations.

The fourth hypothesis postulated that there would be a positive relationship between coercive authority and academic success. Coercive authority was found to be a positive predictor of academic success for the paternal influences on girls' educational aspirations. Thus, although some support existed for this hypothesis, coercive authority was not found to be a significant predictor within any of the other models of academic success.

Hypothesis 5: Reward authority will be positively related to academic achievement and educational aspirations.

Hypothesis 5 predicted a positive relationship between parents' reward authority and academic success. Reward authority was found to be a positive and significant predictor of the maternal influences on boys' educational aspirations. However, reward authority was not found to be a significant predictor within any of the other models. Consequently, only some support was found for this hypothesis.

Hypothesis 6: Familism will be negatively related to academic achievement and educational aspirations.

The final hypothesis proposed that a negative relationship would exist between familism and academic success. This theoretical variable was not found to be a significant predictor of academic achievement or educational aspirations in any of the statistical models. Consequently, no support was found for hypothesis 6.

Sociodemographic Control Variables

The sociodemographic control variables consisted of the age of the adolescent, ethnicity, parents' marital status, level of education of mother, and level of education of father. None of the control variables were found to be significant predictors of academic achievement; however, the level of parents' education was a significant predictor of educational aspirations for both boys and girls. The level of education of mothers was a positive predictor of educational aspirations for both boys and girls. Fathers' education was a positive predictor of educational aspirations for boys but not for girls. The

educational level of parents is a significant predictor of adolescents' pursuits of higher education. Students with parents who attained a higher level of education appear to serve as models and may have instilled values for higher education, which appears to have positive consequences for the aspirations of their sons and daughters.

Discussion and Conclusions

The results of this study indicate that significant relationships exist between adolescent perceptions of dimensions of parental authority and academic success (i.e., measures of academic achievement and educational aspirations). Legitimate, coercive, and reward authority yielded positive and significant results, thus possibly supporting the idea that parental influence in Appalachian families operates like it does in mainstream America to foster educational success. However, an alternative view suggested by these findings is that a strong perception of legitimate authority, or the perception that parents are perceived as authority figures, who have the "right" to exercise influence, may be used to encourage educational success based on the traditional values of Appalachia that may differ from mainstream America. Although adolescents in mainstream American schools are exposed to parental authority that often coincides with the educational institutions they attend, Appalachian adolescents and parents may possess a genuine distrust of schools that carries over into values about academic success. This ambivalent attitude toward schools as representatives of values external to Appalachia is suggested by findings from this study that are contrary to some of the current hypotheses. Specifically, results for referent and expert authority were negative, not positive, predictors of academic success in Appalachia, which suggests that adolescent perceptions of some forms of parental influence may be inhibiting academic success and adjustment in school.

The most substantial support for a current hypothesis was found in the positive relationship between legitimate authority and academic success. These findings are consistent with previous research indicating that adolescents view their parents as having legitimate authority (the "right" to control circumstances based on social norms) over important future life plans such as those dealing with educational attainment (Fuligni, 1998; Henry et al., 1989; Smetana, 1988, 2000; Smetana & Asquith, 1994). From the perspective of the urban mainstream, Appalachian adolescents who perceive their parents

as strong in legitimate authority are likely to be compliant in school settings and to follow a mainstream educational path. Yet these findings also may indicate that educational success by Appalachian adolescent are more strongly influenced by the perceived right of parents to view success in educational pursuits as being contrary to a mountaineer subculture which is based in collectivistic values rather than the individualist values of the American mainstream.

Two variables, referent authority and expert authority, were found to be significant, but they were negative predictors of academic success. Referent authority, the extent to which adolescents identify with and admire the qualities of their parents (McDonald, 1980), was found to be a negative predictor of boys' academic achievement and girls' educational aspirations in the paternal model. This suggests that developing a strong identification with Appalachian fathers may be detrimental to academic success by the young. A possible explanation for these findings may be that Appalachian parents, who themselves lack higher education and success in schools, may not have the same high regard for educational success to a degree that is prevalent in mainstream America. Some Appalachian parents may even possess antagonistic attitudes towards institutions that are viewed as representing values from urban America that are inconsistent with those of Appalachia, which may contribute to a social rift between school and home for many adolescents. Youth, who feel they must choose between their families and schools, may cling to close relationships with their parents to a degree that may hinder the young from succeeding academically.

Expert authority, the extent to which parents have the potential to provide specialized knowledge or information (Henry et al., 1989), was found to be a negative predictor for boys' educational aspirations in the maternal model. This finding is contrary to the view that Appalachian culture has simply become part of American mainstream and reinforces the idea that these parents may use their authority to create distance between home and school by representing educational success as endemic to the outside culture. A strong degree of perceived expert authority for Appalachian parents may promote negative views of academic achievement among adolescents and discourage higher educational goals in the young. Less educated parents of Appalachian adolescents may not have the conventional expertise needed to guide their students

toward academic success. Adolescents who are cognizant of these cultural differences may be compelled to identify more with the external mainstream values and to break away from their family ties, both geographically and socially.

Some support was found for coercive authority as a positive predictor of academic success. Fathers' coercive authority was a positive predictor for girls' educational aspirations, which suggests that *the potential* of parents to be coercive may function differently than the *actual use* of coerciveness by parents as a predictor of academic success. Previous research has indicated that the actual use of coerciveness (or punitiveness) is a negative predictor of (or inhibits) the development of such dimensions of youthful social competence as academic success (Peterson & Hann, 1999). Coercive authority may contribute to positive forms of parental influence, without eliciting the tendencies of adolescents to resist the arbitrary use of force by parents. The perception that parents have coercive authority without using it may be a source of positive influence on Appalachian adolescents. Compared to the actual use of force in a regular manner, the perceived threat of, or simple ability to punish, may be a more powerful source of influence that demonstrates restraint and caring.

Gender roles also may play a role as evidenced by the fact that fathers' but not mothers' coercive authority was predictive of daughters' educational aspirations. An underlying component in traditional Appalachian gender roles expectations is that men often function as heads of household and breadwinners, while women are often primarily responsible for domestic and childrearing duties (Wilson & Peterson, 1993). As the Appalachian job market has declined due to factory and mine closings, women have increasingly entered the labor force (Oberhauser, 1995). These results may indicate that Appalachians are replacing their traditional gender role ideas with more egalitarian roles similar to mainstream American families. Higher education becomes more important as Appalachian women increasingly find places in the workforce. Perhaps the potential of fathers to be coercive with females is a relationship mechanism that is needed to foster greater educational success by their daughters.

Some support was found for maternal reward authority as a positive and significant predictor of boys' educational aspirations. Previous studies have found fathers to be more forceful than mothers and mothers more rewarding than fathers (Power

& Shanks, 1989). Power and Shanks (1989) also found that parents are less rewarding for same-sex children. These findings may be due, therefore, to the different techniques mothers and fathers use to elicit social behaviors from their children. Fathers are more likely to encourage self care behaviors, such as assertiveness and independence, whereas mothers are more likely to promote interpersonal behaviors (Lindsey, Mize, & Pettit, 1997; Power & Shanks, 1989). Gender roles and parenting techniques may be influencing the results for maternal reward authority and boys' educational aspirations, because mothers may be providing critical interpersonal or intrinsic rewards that support boys' educational aspirations.

No support was found for a relationships between familism and both academic achievement and educational aspirations. However, parental authority might be a way of measuring a specific facet of familism among some Appalachian families that accounts for variation in educational success outcomes. Familism is a concept that encompasses the strength of family loyalties and obligations, whereas parental authority measures the extent to which adolescents perceive their parents as influential social agents for making their life choices and daily decisions. A strong sense of parental authority may compete with and account for the variance that would otherwise be explained by familism.

Some methodological limitations of the present study must be considered as conclusions are drawn from these findings. First, the data for this study were provided by a convenience sample from Appalachian high schools located in depressed, rural counties. These areas were characterized by high unemployment, high poverty rates, and a low median income. Consequently, these results can only be applied with moderate confidence to the larger population of adolescents who live in depressed counties of Appalachia and should not be generalized to larger, more diverse populations of adolescents.

A second limitation of this study is the low reliability found for familism and referent authority. Low internal consistency reliability for these measures may account for the lack of significant results and findings contrary to the present hypotheses across the models. No significant results were found for familism and two negative predictions were found for referent authority. These low reliabilities may indicate that the currently used measures of referent authority and familism are very weak and may not accurately

assess what they intend to measure. Future research should devise more reliable measures of familism and referent authority to better examine hypotheses similar to those for this study.

Third, although each regression model was evaluated for multicollinearity and none of the variables had a VIF close to 10, a tolerance below 0.2, or predictor variables with correlations above .80 (Field, 2005), the possibility of multicollinearity was not entirely ruled out. The parameters used in this study to determine multicollinearity may have been too broad (e.g., Bowerman & 0'Connell (1990) suggest that a VIF over 1 may bias the regression model), and, therefore, additional regressions were conducted in which one of the variables (i.e., legitimate authority) was dropped from the regression models. However, these results did not result in any significant changes that differed substantially from those presented in the current study. Although multicollinearity is not absolutely ruled out, therefore, the evidence presented here substantially reduces the likelihood that the current findings are distorted by this problem.

Finally, academic achievement and educational aspirations were measured by self-reported responses, which may be less accurate than using the actual grades of students and their real transitions to adult life after high school (i.e., whether or not they went to college, technical school, etc.). Future research using measures of these variables may need to use more complex assessments for academic achievement and educational aspirations that are not as subject to adolescent self-reports.

This study set out to examine how academic success was influenced by five dimensions of parental authority and familism in a sample of rural Appalachian adolescents. Legitimate authority was the strongest predictor of academic success in this study, confirming previous studies stating that adolescents believe parents have legitimate authority over current and future educational plans. Gender socialization appeared to play a role in many of the models, especially for coercive authority and reward authority. Differences between the perceived authority of mothers and fathers also differ among sons and daughters, with varying results affecting school success. The influences of relationships between fathers, mothers, sons and daughters on academic success within Appalachian families require further investigation.

Appalachian families, on the one hand, may be becoming more like mainstream American families as the historical geographic isolation and lack of educational resources cease to be dominant forces that shape Appalachian culture. However, traditional Appalachian values may still have a significant impact on school success and family life. Appalachian communities may retain some of their distinctiveness and display their traditions with pride and resilience. Yet attitudes about traditional gender roles, parental authority, and adolescent academic success still need to be addressed in future research on Appalachia in order to discern if mountaineer families have become more akin to mainstream American culture. It is important to continue this research in order to dispel misconceptions and generate accurate information about modern family life in rural Appalachia.

Maternal Model of Influences on Girls for Academic Achievement

Table 1: Descriptive Statistics

Variables	Mean	SD
Academic Achievement	16.286	3.018
Age of Adolescent	16.02	1.247
Ethnicity	2.13	.753
Parents' Marital Status	1.48	.849
Level of Education of Mother	7.07	1.557
Level of Education of Father	6.58	1.845
Referent Authority	11.094	2.251
Legitimate Authority	18.444	3.920
Expert Authority	22.845	4.899
Reward Authority	9.128	2.176
Coercive Authority	13.003	4.295
Familism	13.553	2.887

Note. N=329

Maternal Model of Influences on Girls for Educational Aspirations

Table 2: Descriptive Statistics

Variables	Mean	SD
Educational Aspirations	9.65	1.610
Age of Adolescent	16.01	1.245
Ethnicity	2.14	.756
Parents' Marital Status	1.48	.845
Level of Education of Mother	7.06	1.551
Level of Education of Father	6.58	1.844
Referent Authority	11.108	2.248
Legitimate Authority	18.466	3.907
Expert Authority	22.898	4.870
Reward Authority	9.126	2.188
Coercive Authority	12.979	4.304
Familism	13.556	2.889

Note. N=333

Paternal Model of Influences on Girls for Academic Achievement

Table 3: Descriptive Statistics

Variables	Mean	SD
Academic Achievement	16.237	3.010
Age of Adolescent	16.00	1.252
Ethnicity	2.14	.820
Parents' Marital Status	1.45	.820
Level of Education of Mother	7.09	1.581
Level of Education of Father	6.60	1.863
Referent Authority	10.861	2.282
Legitimate Authority	17.763	4.331
Expert Authority	21.991	5.063
Reward Authority	8.823	2.257
Coercive Authority	12.950	4.185
Familism	13.549	2.873

Note. N=317

Paternal Model of Influences on Girls for Educational Aspirations

Table 4: Descriptive Statistics

Variables	Mean	SD
Educational Aspirations	9.63	1.619
Age of Adolescent	15.99	1.246
Ethnicity	2.14	.762
Parents' Marital Status	1.45	.816
Level of Education of Mother	7.08	1.574
Level of Education of Father	6.59	1.862
Referent Authority	10.847	2.284
Legitimate Authority	17.748	4.346
Expert Authority	22.003	5.045
Reward Authority	8.816	2.270
Coercive Authority	12.910	4.183
Familism	13.555	2.870

Note. N=321

Maternal Model of Influences on Boys for Academic Achievement

Table 5: Descriptive Statistics

Variables	Mean	SD
Academic Achievement	14.689	3.370
Age of Adolescent	16.25	1.237
Ethnicity	2.08	.637
Parents' Marital Status	1.54	1.012
Level of Education of Mother	7.12	1.531
Level of Education of Father	6.73	1.900
Referent Authority	11.673	2.218
Legitimate Authority	18.362	3.978
Expert Authority	23.160	4.672
Reward Authority	9.315	2.171
Coercive Authority	14.019	4.090
Familism	14.368	2.589

Note. N=318

Maternal Model of Influences on Boys for Educational Aspirations

Table 6: Descriptive Statistics

Variables	Mean	SD
Educational Aspirations	9.00	1.886
Age of Adolescent	16.24	1.241
Ethnicity	2.08	.637
Parents' Marital Status	1.54	1.013
Level of Education of Mother	7.14	1.539
Level of Education of Father	6.73	1.900
Referent Authority	11.673	2.211
Legitimate Authority	18.352	3.990
Expert Authority	23.126	4.662
Reward Authority	9.299	2.196
Coercive Authority	13.950	4.076
Familism	14.390	2.594

Note. N=318

Paternal Model of Influences on Boys for Academic Achievement

Table 7: Descriptive Statistics

Variables	Mean	SD
Academic Achievement	14.724	3.355
Age of Adolescent	16.24	1.230
Ethnicity	2.10	.681
Parents' Marital Status	1.53	1.012
Level of Education of Mother	7.11	1.516
Level of Education of Father	6.71	1.896
Referent Authority	11.428	2.362
Legitimate Authority	18.254	4.127
Expert Authority	22.981	4.602
Reward Authority	9.071	2.196
Coercive Authority	14.190	4.162
Familism	14.370	2.556

Note. N=311

Paternal Model of Influences on Boys for Educational Aspirations

Table 8: Descriptive Statistics

Variables	Mean	SD
Educational Aspirations	9.03	1.885
Age of Adolescent	16.23	1.233
Ethnicity	2.10	.681
Parents' Marital Status	1.53	1.012
Level of Education of Mother	7.13	1.524
Level of Education of Father	6.71	1.896
Referent Authority	11.396	2.409
Legitimate Authority	18.206	4.198
Expert Authority	22.920	4.683
Reward Authority	9.071	2.204
Coercive Authority	14.125	4.198
Familism	14.392	2.562

Note. N=311

Multiple Regression Analysis of Predictors of Academic Achievement

Table 9: Maternal Influences on Girls Model

Predictive Variables	Standardized Coefficients Beta	t	Sig.
Model 1			
Age of Adolescent	.058	1.045	.297
Ethnicity	.033	.589	.556
Marital Status	-.121	-2.201	.028*
Level of Education of Mother	.011	.188	.851
Level of Education of Father	.065	1.106	.270
Model 1 Summary			
Multipe Correlation R	.156		
Adjusted R Square	.009		
Sig. F Change	.155		
Model 2			
Age of Adolescent	.061	1.129	.260
Ethnicity	.025	.467	.641
Marital Status	-.076	-1.420	.156
Level of Education of Mother	.005	.081	.936
Level of Education of Father	.028	.487	.627
Theoretical Variables			
Referent Authority	-.090	-1.234	.218
Legitimate Authority	.354	3.388	.001***
Expert Authority	-.095	-1.004	.316
Reward Authority	.085	1.074	.283
Coercive Authority	.024	.443	.658
Familism	.054	.932	.352
Model 2 Summary			
Multiple Correlation R	.347		
Adjusted R Square	.090		
Sig. F Change	.000		

*Note. *p<.05; **p<.01; ***p<.001*

Multiple Regression Analysis of Predictors of Educational Aspirations

Table 10: Maternal Influences on Girls Model

Predictive Variables	Standardized Coefficients Beta	t	Sig.
Model 1			
Age of Adolescent	-.106	-1.49	.052
Ethnicity	-.002	-.033	.974
Marital Status	.005	.101	.919
Level of Education of Mother	.175	3.007	.003**
Level of Education of Father	.051	.371	.711
Model 1 Summary			
Multipe Correlation R	.208		
Adjusted R Square	.029		
Sig. F Change	.012		
Model 2			
Age of Adolescent	-.094	-1.706	.089
Ethnicity	-.001	-.025	.980
Marital Status	.030	.547	.585
Level of Education of Mother	.182	3.081	.002**
Level of Education of Father	.006	.102	.919
Theoretical Variables			
Referent Authority	-.081	-1.094	.275
Legitimate Authority	.270	2.555	.011*
Expert Authority	-.156	-1.642	.102
Reward Authority	.047	.593	.554
Coercive Authority	.038	.683	.495
Familism	-.017	-.295	.768
Model 2 Summary			
Multiple Correlation R	.267		
Adjusted R Square	.039		
Sig. F Change	.147		

*Note. *p<.05; **p<.01; ***p<.001*

Multiple Regression Analysis of Predictors of Academic Achievement

Table 11: Paternal Influences on Girls Model

Predictive Variables	Standardized Coefficients Beta	t	Sig.
Model 1			
Age of Adolescent	.039	.692	.489
Ethnicity	.040	.710	.478
Marital Status	-.131	-2.334	.020*
Level of Education of Mother	.022	.369	.712
Level of Education of Father	.069	1.145	.253
Model 1 Summary			
Multipe Correlation R	.166		
Adjusted R Square	.012		
Sig. F Change	.120		
Model 2			
Age of Adolescent	.040	.723	.470
Ethnicity	.062	1.118	.265
Marital Status	-.108	-1.963	.051
Level of Education of Mother	.017	.291	.771
Level of Education of Father	.017	.281	.779
Theoretical Variables			
Referent Authority	-.065	-.823	.411
Legitimate Authority	.241	2.309	.022*
Expert Authority	-.082	-.937	.349
Reward Authority	.109	1.425	.155
Coercive Authority	.049	.856	.393
Familism	1.06	1.801	.073
Model 2 Summary			
Multiple Correlation R	.318		
Adjusted R Square	.069		
Sig. F Change	.000		

*Note. *p<.05; **p<.01; ***p<.001*

Multiple Regression Analysis of Predictors of Educational Aspirations

Table 12: Paternal Influences on Girls Model

Predictive Variables	Standardized Coefficients Beta	t	Sig.
Model 1			
Age of Adolescent	-.117	-2.112	.035*
Ethnicity	.016	.289	.773
Marital Status	-.006	-.116	.907
Level of Education of Mother	.182	3.079	.002**
Level of Education of Father	.025	.419	.676
Model 1 Summary			
Multipe Correlation R	.219		
Adjusted R Square	.033		
Sig. F Change	.008		
Model 2			
Age of Adolescent	-.093	-1.687	.093
Ethnicity	.036	.648	.517
Marital Status	.005	.095	.925
Level of Education of Mother	.176	3.017	.003**
Level of Education of Father	.028	.461	.645
Theoretical Variables			
Referent Authority	-.232	-2.968	.003**
Legitimate Authority	.339	3.275	.001***
Expert Authority	-.147	-1.695	.091
Reward Authority	-.005	-.064	.949
Coercive Authority	.134	2.350	.019*
Familism	.000	-.015	.988
Model 2 Summary			
Multiple Correlation R	.317		
Adjusted R Square	.068		
Sig. F Change	.007		

*Note. *p<.05; **p<.01; ***p<.001*

Multiple Regression Analysis of Predictors of Academic Achievement

Table 13: Maternal Influences on Boys Model

Predictive Variables	Standardized Coefficients Beta	t	Sig.
Model 1			
Age of Adolescent	-.076	-1.362	.174
Ethnicity	.056	.992	.322
Marital Status	-.101	-1.794	.074
Level of Education of Mother	.023	.383	.702
Level of Education of Father	.031	.508	.612
Model 1 Summary			
Multipe Correlation R	.150		
Adjusted R Square	.007		
Sig. F Change	.214		
Model 2			
Age of Adolescent	-.053	-.979	.329
Ethnicity	.052	.958	.339
Marital Status	-.073	-1.332	.184
Level of Education of Mother	.019	.313	.754
Level of Education of Father	.071	1.185	.237
Theoretical Variables			
Referent Authority	-.022	-.276	.783
Legitimate Authority	.236	2.665	.008**
Expert Authority	.001	.012	.990
Reward Authority	.047	.623	.534
Coercive Authority	-.016	-.270	.787
Familism	.096	1.583	.114
Model 2 Summary			
Multiple Correlation R	.331		
Adjusted R Square	.077		
Sig. F Change	.000		

*Note. *p<.05; **p<.01; ***p<.001*

Multiple Regression Analysis of Predictors of Educational Aspirations

Table 14: Maternal Influences on Boys Model

Predictive Variables	Standardized Coefficients Beta	t	Sig.
Model 1			
Age of Adolescent	-.062	-1.143	.254
Ethnicity	.024	.434	.664
Marital Status	-.067	-1.238	2.17
Level of Education of Mother	.121	2.028	.043*
Level of Education of Father	.205	3.454	.001***
Model 1 Summary			
Multipe Correlation R	.298		
Adjusted R Square	.074		
Sig. F Change	.000		
Model 2			
Age of Adolescent	-.053	-.988	.324
Ethnicity	.024	.441	.660
Marital Status	-.059	-1.091	.276
Level of Education of Mother	.136	2.259	.025*
Level of Education of Father	.197	3.324	.001***
Theoretical Variables			
Referent Authority	-.077	-.986	.325
Legitimate Authority	.144	1.641	.102
Expert Authority	-.208	-2.484	.014*
Reward Authority	.194	2.610	.009**
Coercive Authority	-.033	-.541	.589
Familism	-.073	-1.209	.227
Model 2 Summary			
Multiple Correlation R	.367		
Adjusted R Square	.103		
Sig. F Change	.015		

*Note. *p<.05; **p<.01; ***p<.001*

Multiple Regression Analysis of Predictors of Academic Achievement

Table 15: Paternal Influences on Boys Model

Predictive Variables	Standardized Coefficients Beta	t	Sig.
Model 1			
Age of Adolescent	-.072	-1.273	.204
Ethnicity	.034	.600	.549
Marital Status	-.088	-1.550	.122
Level of Education of Mother	.047	.762	.447
Level of Education of Father	.047	.752	.453
Model 1 Summary			
Multipe Correlation R	.148		
Adjusted R Square	.006		
Sig. F Change	.238		
Model 2			
Age of Adolescent	-.056	-1.032	.303
Ethnicity	.037	.686	.493
Marital Status	-.033	-.601	.548
Level of Education of Mother	.067	1.098	.273
Level of Education of Father	.049	.812	.418
Theoretical Variables			
Referent Authority	-.173	-2.174	.031*
Legitimate Authority	.403	4.445	.000***
Expert Authority	-.042	-.535	.593
Reward Authority	.058	.747	.455
Coercive Authority	-.020	-.328	.743
Familism	.069	1.154	.249
Model 2 Summary			
Multiple Correlation R	.370		
Adjusted R Square	.105		
Sig. F Change	.000		

*Note. *p<.05; **p<.01; ***p<.001*

Multiple Regression Analysis of Predictors of Educational Aspirations

Table 16: Paternal Influences on Boys Model

Predictive Variables	Standardized Coefficients Beta	t	Sig.
Model 1			
Age of Adolescent	-.055	-1.009	.314
Ethnicity	.017	.313	.755
Marital Status	-.046	-.848	.397
Level of Education of Mother	.145	2.433	.016*
Level of Education of Father	.230	3.843	.000***
Model 1 Summary			
Multipe Correlation R	.332		
Adjusted R Square	.095		
Sig. F Change	.000		
Model 2			
Age of Adolescent	-.059	-1.081	.280
Ethnicity	.018	.335	.738
Marital Status	-.036	-.658	.511
Level of Education of Mother	.139	2.276	.024*
Level of Education of Father	.223	3.679	.000***
Theoretical Variables			
Referent Authority	-.070	-.867	.387
Legitimate Authority	.138	1.501	.134
Expert Authority	-.144	-1.800	.073
Reward Authority	.115	1.489	.137
Coercive Authority	-.013	-.225	.822
Familism	-.098	-1.638	.103
Model 2 Summary			
Multiple Correlation R	.368		
Adjusted R Square	.104		
Sig. F Change	.187		

*Note. *p<.05; **p<.01; ***p<.001*

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Appendix

The following scales were used in the questionnaires filled out by adolescents.

Demographic Measurements

The sociodemographic control variables including the adolescent's age, gender, ethnicity or race, parents' marital status, and parents' educational level were assessed through the following questions:

How old are you? 9 10 11 12 13 14 15 16 17 18 19

Are you male or female? 1. Male 2. Female

What is your ethnicity or race?

1. Black or African-American 2. White or Anglo-American 3. Asian
4. Native American Indian 5. Mexican-American 6. Other Hispanic
7. Other _____

Are your parents: (circle answer)

1. Married 3. Separated 5. Single
2. Divorced 4. Widowed 6. Other

What is the highest educational level of the person who functions as your father most often on a daily basis?

1. Some grade school
2. Completed grade school
3. Some middle or junior high school
4. Completed middle or junior high school
5. Some high school
6. Completed high school or GED
7. Completed high school and also had other training, but not college (e.g., technical training, business school)
8. Some college
9. Completed college
10. Some graduate work
11. Graduate degree, including M.D., M.A., Ph.D., J.D., etc.

What is the highest educational level of your mother (or the person who functions as your father most often)?

1. Some grade school

2. Completed grade school
3. Some middle or junior high school
4. Completed middle or junior high school
5. Some high school
6. Completed high school or GED
7. Completed high school and also had other training, but not college (e.g., technical training, business school)
8. Some college
9. Completed college
10. Some graduate work
11. Graduate degree, including M.D., M.A., Ph.D., J.D., etc.

Educational Aspirations

Educational aspirations were measured using adolescent self-reports.

How much education do you plan to get? Select the highest level of education that you desire.

1. Some grade school
2. Complete grade school
3. Some middle or junior high school
4. Complete middle or junior high school
5. Some high school
6. Complete high school or GED
7. Complete high school and also have other training, but not college (e.g., technical training, business school)
8. Some college
9. Complete college
10. Some graduate work
11. Graduate degree, including M.D., M.A., Ph.D., J.D., etc.

Academic Achievement

Academic Achievement was assessed with five items measuring adolescent's effort exerted in school, importance of grades and education, extent of finishing homework on time, and liking school. The participants responded to the items in terms of a four-point Likert scale which varies from *Strongly Agree* to *Strongly Disagree*.

1. I try hard in school.
2. Grades are very important to me.
3. I usually finish my homework on time.
4. Education is so important that it's worth it to put up with things about school that I don't like.
5. In general, I like school.

Parental Authority

Adolescents' perceptions of parental authority were measured by a 23 item scale of parental power bases and authority (Henry, et al., 1989; Peterson, et al., 1985; McDonald, 1977,1980; Smith, 1970) This scale assesses adolescents' perceptions of their parents' referent, expert, legitimate, reward, and coercive authority. Responses were given in terms of a four-point Likert scale ranging from *Strongly Agree* to *Strongly Disagree*. Participants responded separately for mothers and fathers.

1. This parent's wishes should be considered as much as anyone else's when I am making decisions about my friends.
2. This parent has the right to give me advice about my relationships with members of the opposite sex.
3. This parent has a right to influence my decisions about the friends I choose.
4. This parent knows a lot about what it's like to be a teenager.
5. This parent knows a great deal about the friendships of teenagers.
6. This parent's ideas would not be very helpful to me in deciding what kind of friends I should or should not get involved with.
7. This parent is the kind of person who could make me feel very bad if I didn't follow his or her advice about the friends I choose.
8. This parent is the kind of person who could make me feel very good if I followed his or her advice about the friends I choose.
9. If I did not follow this parent's advice about the friends I choose, I would really suffer the consequences.
10. This parent's opinions should be given as much weight as those of anyone when I am making decisions about my education.
11. This parent has a right to give me advice about my education.
12. This parent has a right to influence me about my education.
13. This parent knows how to help me do well in my school work.
14. This parent has a great deal of knowledge about education.
15. This parent knows little or nothing about the names and activities of various academic fields and college departments.
16. This parent is the kind of person who could make me feel very bad if I didn't follow

his or her advice about studying and getting good grades.

17. This parent is the kind of person who could make me feel very good if I followed his or her advice about studying and getting good grades.
18. If I did not follow this parent's advice about my classroom behavior, I would really suffer the consequences.
19. This parent's opinions should be given as much weight as those of anyone when I am making decisions about my occupation.
20. This parent has the right to give me counsel and advice about selecting an occupation.
21. This parent has a right to influence my choices in planning for my occupation.
22. This parent is able to give me useful advice when it comes to choosing an occupation.
23. This parent has a great deal of knowledge about occupations.
24. This parent knows a lot about the training required and the type of work involved in the various types of occupations.
25. This parent is the kind of person who could make me feel bad if I did not follow his or her advice about preparing for an occupation.
26. This parent is the kind of person who could make me feel very good if I followed his or her advice about preparing for an occupation.
27. If I did not follow this parent's advice about preparing for an occupation, I would really suffer the consequences.

Familism

Familism was measured using a 4-item scale derived from the Bardis Familism Scale (1959) which measures adolescents' feelings, loyalties, rights and obligations associated with family bonds. Responses were given in terms of a 4-point Likert scale ranging from *Strongly Agree* to *Strongly Disagree*.

1. Family responsibilities should be more important than my career plans in the future.

2. Despite opportunities in other areas of the country, I should try to live near my parents (legal guardians) in the future.

3. Family ties are more important than friendships outside of the family.

4. It is important for the family name to be continued.

5. A person should always be completely loyal to his or her family.