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RELIGION AND ACADEMIC ACHIEVEMENT
AMONG ADOLESCENTS

by

Benjamin A. McKune

A thesis submitted to the faculty of

Brigham Young University

in partial fulfillment of the requirements for the degree of

Master of Science

Department of Sociology

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BRIGHAM YOUNG UNIVERSITY

GRADUATE COMMITTEE APPROVAL

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ABSTRACT

RELIGION AND ACADEMIC ACHIEVEMENT AMONG ADOLESCENTS

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Master of Science

This thesis examines the association between religiosity and academic achievement among adolescents. Recent research demonstrates a positive association between religiosity and academic success. However, some studies show that this is due to family and community factors; for example, variation in levels of family capital among religious affiliates may explain this association. Yet, whether religious factors affect academic achievement among adolescents may also be due to the concordance or discordance of religiosity among parents and their children. Using two years of data from the National Longitudinal Study of Adolescent Health (Add Health) (n=8,051), I examine the association between adolescent religiosity, parent religiosity, and academic achievement, in light of the effects of family and

community capital. The results indicate that the association between student religiosity and academic achievement is largely due to family social capital, but the association between academic achievement and religious homogeneity between parents and adolescents is largely independent of family and community social capital. In particular, the highest achievement is predicted when parents and adolescents report similar levels of religiosity; the lowest when parents report high religiosity and adolescents report low religiosity.

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Religiosity refers to various aspects of religious devotion, activity, and belief. Previous research has mostly focused on the effects of religiosity among adults, yet its effect on adolescent behaviors has also earned significant attention. Much of this attention has addressed delinquency and other forms of deviant behavior, such as drug use and premarital sexual activity; few studies have assessed the association between religiosity and academic achievement. Given the effect that academic achievement during adolescence can have on future education, occupational success, and socioeconomic status, it is unfortunate that more research has not addressed this area. The few studies that have addressed this topic show that adolescents' church participation is associated with greater educational expectations; these then lead to higher math and reading scores on standardized tests (Regnerus 2000; Regnerus, Smith, and Fritch 2003). In addition, the religious involvement of adolescents in 10th grade is consistently and positively associated with subsequent academic achievement (Muller and Ellison 2001). This association held for African American (Brown and Gary 1991) and Latino youth (Sikkink and Hernandez 2003).

Some researchers suggest that the relationship between religiosity and academic outcomes is spurious and can be explained by variations in family income. In other words, adolescents who live with affluent parents are more likely to be religious and have more academic success. However, this idea of a spurious relationship has been refuted by research that examines broader measures of academic achievement, family income and neighborhood income levels (Regnerus, Smith and Fritch 2003).

There is, nonetheless, evidence that fundamentalist affiliation and belief has a significant negative influence on educational attainment (Darnell and Sherkat 1997). Proponents of this position claim that many Fundamentalists or Evangelicals are

suspicious of the utility of secular education because it "...serves to undermine both secular and divine authority by promoting 'humanism' and denigrating faith" (Darnell and Sherkat 1997:307). However, Beyerlein and Smith (2004) have demonstrated that the negative association between fundamentalist beliefs and educational attainment does not persist when thorough measures of religious beliefs and a sufficient number of Protestant denominations are examined.

A more compelling argument is that the effect of religiosity on academic achievement is explained by variations in family and community capital (Muller and Ellison 2001). The evidence that family social capital positively influences academic achievement is persuasive (e.g., Parcel and Dufur 2001). Moreover, students who come from favorable family and community backgrounds are not only more likely to earn better grades, but also tend to be more religious. Muller and Ellison (2001), in a comprehensive assessment of this view, found that religiosity's effects on educational expectations, time spent on homework, the number of mathematics courses taken, and the probability of graduation are partially mediated by family and community capital.

Nevertheless, there were several shortcomings to their analysis that raise questions about these results. First, their measures of family and community capital were limited. For example, the measure of family social capital was based on questions about the following three issues: (1) what parents expected of their children, (2) how often they discussed school with their children, and (3) how often they discussed things studied in class. Although these were solid elementary measures of family capital, they looked simply at how involved a parent was in their child's education, and not at the overall quality of the relationship between the parent and the child (Coleman 1988). Muller and Ellison's measure of community capital was also limited. They used questions that asked

about the following issues: (1) how well the parents knew their teens' friends' parents and (2) how much the adolescents' peer group valued academic success. It is clear that these were assessments of peer associations rather than community capital.

Second, their operationalization of religious involvement was not sufficient. They assessed religious involvement based on three questions about (1) the frequency of religious attendance, (2) participation in religious activities, and (3) whether or not students considered themselves to be religious. These give a truncated view of religiosity; other variables such as prayer or views of scripture were not available in their data set.¹ Moreover, this measurement scheme provides only a limited picture since it ignored the issue of parental religiosity. Yet, it is clear that adolescent religiosity is affected in a large degree by parental religiosity; religious parents provide an environment that socializes adolescents to family norms and practices. Research demonstrates the parents' religiosity has a direct effect on children's religiosity (Myers 1996; Regnerus, Smith, and Smith 2004).

There are other reasons for presuming that religiosity ought to have an effect on academic achievement, regardless of family and community social capital. First, religious involvement provides opportunities for youth to gain skills that help them succeed in school, such as discipline and respect for authority. Similarly, religious institutions, in the main, "largely reinforce traditional paths to success" (Regnerus 2000:364). Religious involvement also provides a context in which students may develop social contacts that help them in their education and puts them in contact with religious leaders and youth group coordinators who often serve as positive role models (Gardner 2004). Religious involvement also deters involvement in deviant activities. Students who spend more time in religious activities tend to spend less time involved in deviant activities (Johnson et al.

2000), which may foster conventional behaviors such as working on school projects, doing homework, seeing education as a worthwhile pursuit, and avoiding deviant peer networks.

In addition, religion has a causal influence on the morals and actions of adolescents that is not entirely reducible to nonreligious explanations involving social control, solidarity, deterrence or other social phenomena (Nonnemakera 2006: 3086). Indeed, “there is something particularly religious in religion, which is not reducible to nonreligious explanations” (Smith 2003:19). Perceived relationships with the divine exert “pro-social influences in the lives of youth not by happenstance or generic social process, but precisely as an outcome of American religions' particular theological, moral, and spiritual commitments” (Smith 2003:20). These observations about academic achievement and adolescent religiosity lead to the first hypothesis:

Hypothesis #1: Religiosity and academic achievement are associated even when adjusting for the effects of family and community social capital.

A recent study helps illuminate some additional ways that religiosity may promote academic achievement among adolescents. Although this study focused on delinquency, the consistent negative association between delinquency and academic achievement suggested that its results may inform studies of the latter outcome as well (Maguin and Loeber 1996; McGloin, Pratt, and Maahs 2004). Pearce and Haynie (2004) demonstrated that higher levels of mother *and* child religiosity by themselves had modest attenuating effects on delinquency. Nonetheless, their key finding was that the concordance between parent and child religiosity was negatively associated with delinquency. This occurred regardless of whether the concordance favored religiosity or irreligiosity. In particular, they found that mother-child religious homogamy was as

strongly and as consistently associated as an adolescent's own religiosity on subsequent delinquency.

One might be tempted to assume that the connection between parent-child religious homogamy and positive adolescent outcomes was the result of an increase in the quality of the parent-child relationship. However, the negative relationship between religious homogamy and delinquency was shown to hold even when dimensions of family well-being were taken into account (Pearce and Haynie 2004).

In my analysis, I drew on Muller and Ellison's (2001) model as a baseline, but utilized more complete measures of religiosity, family capital, and community capital than those used in their study. I also considered the model of religious homogamy to further explore the association between religiosity, social capital, and academic achievement. In addition, I examined change in academic achievement over time to ensure the reliability of my findings and to carefully specify the temporal nature of religion and academic achievement.

Hypothesis #2: Religious homogamy between parents and children is positively related to increasing levels of academic achievement among adolescents, even after adjusting for the effects of family and community social capital.

DATA AND MEASURES

I examined the hypothesis with two years of data from The National Longitudinal Study of Adolescent Health (Add Health). These data were collected in the 1994-95 and 1995-96 academic years and included information from approximately 20,000 adolescents in grades 7 through 12. The students were asked a number of questions concerning their background, general health, schoolwork, community, home life, social

relationships, and religious beliefs and practices. Their parents were also asked a number of questions about relations with their children and their community, family, and religious lives. After omitting adolescents who did not participate in Wave 2 of the study (either because they were in 12th grade in Wave 1 and then graduated, dropped out of school between Wave 1 and Wave 2, or were otherwise unavailable) and those adolescents whose parents had not participated in the study, I was left with a sub-sample of approximately 14,000 adolescents. Further, after removing cases representing respondents who did not respond to the complete battery of questions regarding grades, religiosity, family and community social capital, and demographic characteristics, I was left with an analytic sub-sample of 8,051. Approximately 4,000 cases were lost because of the large amount of missing data on the variable that measured family income. It is feared, then, that a major drawback of the data is that they disproportionately exclude those at the bottom of the socioeconomic strata, who are more likely to drop out of school and are more reluctant to report their income.²

The outcome variable, academic achievement in the 1995-96 school year, was gauged by students' self-reported grades in mathematics, science, history/social sciences, and English/language arts. The possible responses were "A," "B," "C," and "D or lower." The variables were recoded to a scale ranging from zero to three, where higher scores indicated that students had reported receiving a higher grade. The means of the four variables were used to create an overall measure of academic achievement. The scale had a Cronbach's alpha score of .75. Although some research has recommended the use of standardized scores to assess academic achievement (or ability), several studies have indicated that the reliability of self-reported grades is high and is generally a valid assessment of differences in academic achievement among adolescents. Moreover,

students' self-reported grades were strongly associated with other objective academic outcomes across groups, such as test scores (Pace, Barahona, and Kaplan 1985; Pike 1995, 1996; Anaya 1999). However, it should be noted that the Add Health data set did not include test scores, so I could not determine the validity of this claim in this study.

The first independent variable included in the model, academic achievement in the 1994-95 school year, was measured in the same way as academic achievement in the 1995-96 school year. The scale had a Cronbach's alpha of .75. By including Wave 1 academic achievement in the statistical model, I assessed changes over time in academic achievement and specified more clearly the association between the predictor variables and the outcome variable.

I assessed various aspects of religiosity based on questions that inquired about the following: (1) how often the student attended religious services, (2) how important religion was to the student, (3) how often the student prayed, and (4) whether or not the student agreed that the sacred scriptures of their religion were the work of God and were completely without mistake. Although recent research suggests that public and private religiosity may have different effects on adolescent outcomes (Nonnemaker, McNeely, and Blum 2003), I chose to combine these four measures of religiosity into one scale for three main reasons. First, the only other aspect of public religiosity that could be included in the scale besides the frequency of religious service attendance was how often the adolescent attended youth groups. However, not all congregations provided this service for their adolescent members. Second, to make the adolescent religiosity scale directly comparable to the parent religiosity scale, the measure of youth group attendance had to be dropped from the analysis, since there was no equivalent measure of religiosity in the parent survey. Third, a factor analysis revealed that the four remaining measures of

religiosity loaded onto a single factor, with component matrix coefficients of .750, .822, .772 and .537 for church attendance, importance of religion, frequency of prayer, and biblical inerrancy, respectively. The scale had a Cronbach's alpha of .67. When the variable measuring public religiosity was removed from the scale, the overall scale alpha was reduced to .58.

The first two variables of the religiosity scale, religious service attendance and importance of religion, ranged from one to four but were recoded to a scale that ranged from zero to three where higher numbers were indicative of higher levels of religiosity. This was to make the measures consistent, so that a student who reported no religious behavior or beliefs had a score of zero on the scale. The third variable, frequency of prayer, was measured on a scale from one to five but was recoded to a scale of zero to three where the responses "at least once a month" and "less than once a month" were combined (moreover, few respondents selected these options). The final religion variable was a dichotomous variable that was recoded so that a score of three indicated that a student believed that the sacred scriptures of their religion were the work of God and were completely without mistake, and a score of zero indicated that the student did not hold this belief. Students who reported belonging to a religion that had no sacred scriptures were assigned a score of 2.4, the average score reported by students belonging to religions that had sacred scriptures. The mean of the four variables was then used as the measure of religiosity. I used the same items – with identical coding procedures – to measure parental religiosity. The resulting scale for parents had a Cronbach's alpha of .86.³

I also included a product term in the model consisting of the child religiosity scale multiplied by the parent religiosity scale. This allowed me to examine the relationship

between parent and child religiosity and allowed a direct test of the question of parent/child religious homogeneity. Previous research has indicated a strong interaction between parent religiosity and child religiosity. Therefore, it was believed that the inclusion of this product term in the model would account for the interaction between parent and child religiosity and avoid specification error in the form of omitted variable bias. Along the same lines, the inclusion of the product term offered a more accurate estimation of the relationship between the dependent and independent variables, and explained more of the variation in the dependent variable. Although it may have been feasible to examine the absolute value of religious heterogeneity between parent and child, it was more instructive to examine whether the religious homogeneity score was positive or negative, in order to determine whether the parent or child was more religious. Hence, the product term approach was used.

I also examined family social capital and community social capital. Social capital, in general, refers to the resources one gains from various networks of relationships. In this context, family social capital refers to the resources that the adolescent gains from their relationship with their parents. Family social capital is distinguished from family financial capital (the family's income or wealth) and human capital (the cognitive environment that parents provide for their children). According to Coleman (1988), family social capital may be measured by examining "the strength of the relations between parents and children" (p. 110). Therefore, the variables I used to gauge family social capital came from a scale developed by Ward and Laughlin (2003). This was based on 18 questions that asked respondents about issues such as (1) how close they felt to their mother figure, (2) how much they felt their mother figure cared about them, (3) how close they felt to their father figure, (4) how much they felt their father figure cared about

them, (5) how often they talked to their mother or father about school, and so on (see Appendix A for a complete list). The variables were coded so all of them were on a scale from zero to four with a higher score indicating a higher level of family social capital. The mean of the 18 variables was used to create the measure of family social capital (Cronbach's alpha = .80).

Community social capital refers to resources that one gains from relationships with members of the local community. To gauge this issue, I examined variables that measured the quality of adolescents' relationships in the community and adolescents' and parents' perception of the overall cohesiveness of the local community (Ward and Laughlin 2003). I used six questions asked of the adolescents and eleven questions asked of their parents. These questions included (1) how happy they were overall living in their neighborhood, (2) how happy or unhappy they would be if they had to move from their neighborhood, (3) whether or not they knew most of the people in their neighborhood (adolescents); (4) if they lived in their current neighborhood because there was less crime there than there was in other neighborhoods, (5) if they lived in their neighborhood because it was closer to their relatives or friends, (6) if they lived in their neighborhood because the schools were better there than they were in other neighborhoods (parents), and so forth (see Appendix A for a complete list). All the variables were coded so that higher values indicated greater community capital. The mean of the 17 items was then used to assess community social capital (Cronbach's alpha = .69).

I also incorporated several control variables into my model, including parental education, sex, race/ethnicity, family structure, family income, religious denominational group, urbanity, and grade level. Parental education was measured on a nine point scale where higher values indicated higher levels of education. If both parents reported their

education, I used the highest level reported. The race/ethnicity categories included white, black, Hispanic, Asian/Pacific Islander, Native American, and other. Total family income was measured in thousands of dollars per year. Family structure included two parent families, single parent families, stepfamilies and other families. Consistent with recent studies of religious affiliation, religious preference categories included mainline Protestant, Evangelical, Black Protestant, Catholic, and other (Steensland et al. 2000).⁴ Urbanity was measured by three dummy variables: rural, suburban and urban. Grade level was measured using a continuous variable ranging from seven to twelve.

Since self-reported grades closely followed a normal distribution⁵, I used ordinary least squares regression to examine the empirical model. However, I adjusted for the multistage, clustered sampling design of Add Health using software that allowed for post-stratification adjustment and weighting. Hence, the standard errors in the regression model were corrected for the sampling design.

RESULTS

To assess the first hypothesis, I first estimated a linear regression model where academic achievement was the dependent variable and religiosity was the independent variable (as well as the control variables previously mentioned). Given the cross-lagged panel design, this model examined the effects of student religiosity on changes in self-reported grades. The results are shown in Table 1:

Table 1. Regression Coefficients for Religiosity Predicting Academic Achievement (partial model), Add Health, 1994-96

	Unstandardized coefficient	Standard error	<i>p</i>-value
Intercept	.388	.069	<.001
Grades – wave 1	.606	.012	<.001
Student religiosity	.025	.012	.045

Adjusted R²=.441

Note: The model controls for the effects of parental education, gender, race/ethnicity, religious group, family structure, grade level, and urbanity.

The results showed that religiosity had a significant, positive relationship with changes in self-reported grades. Next, family and community social capital were added to the model.

Table 2. Regression Coefficients for Religiosity Predicting Academic Achievement (full model), Add Health, 1994-96

	Unstandardized coefficient	Standard error	<i>p</i>-value
Intercept	.282	.080	.001
Grades – wave 1	.601	.013	<.001
Student religiosity	.020	.012	.106
Family capital	.054	.013	<.001
Community capital	-.022	.0266	.410

Adjusted R²=.443

Note: The model controls for the effects of parental education, gender, race/ethnicity, religious group, family structure, grade level, and urbanity.

While the unstandardized coefficient for religiosity remained positive, it decreased from .025 to .020 and became less significant, with the *p*-value increasing from .045 to .106. These results failed to support the first hypothesis, which was that student

religiosity and academic achievement would be significantly related, even when controlling for family and community social capital.

In order to test the second hypothesis in an elementary fashion, I regressed grades during Wave 2 on the following variables: Wave 1 grades, adolescent religiosity, parent religiosity, and a religiosity product term (adolescent religiosity \times parent religiosity). I also included several control variables to determine if these results depended on parents' education, student gender, race/ethnicity, religious group, grade level, or urbanity. This model examined the effects of religiosity on changes in self-reported grades. Table 3 provides the results of this model.

Table 3. Religious Homogamy and Academic Achievement (partial model), Add Health, 1994-96

	Unstandardized coefficient	Standard error	<i>p</i>-value
Intercept	.579	.101	<.001
Grades – wave 1	.607	.013	<.001
Parent religiosity	-.073	.037	.051
Student religiosity	-.073	.039	.064
Religiosity product term	.044	.017	.010

Adjusted R^2 = .445

Note: The model controls for the effects of parental education, gender, race/ethnicity, religious group, family structure, grade level, and urbanity.

The significant religiosity product term indicated that the highest grades were reported by those adolescents whose religiosity scores were concordant with their parents' scores; the lowest occurred among those whose religiosity scores were most discrepant. The religiosity coefficients were only modestly attenuated by the inclusion of the control variables, with a product term that continued to be significantly different from zero.

Table 4 shows the results of the model after including not only the control variables, but also family and community capital. Recall that earlier research suggested that these sources of social capital partially mediate the effects of religiosity on academic achievement. However, our results failed to support these findings. Rather, even though family social capital had the expected positive association with self-reported grades, the religiosity effects remained at roughly the same levels as in the previous model.⁶

Table 4. Religious Homogamy and Academic Achievement (full model), Add Health, 1994-96

	Unstandardized coefficient	Standard error	p-value
Intercept	.477	.109	<.001
Grades – wave 1	.603	.013	<.001
Parent religiosity	-.069	.037	.062
Student religiosity	-.078	.039	.048
Religiosity product term	.044	.017	.011
Family capital	.048	.015	.001
Community capital	-.017	.029	.555

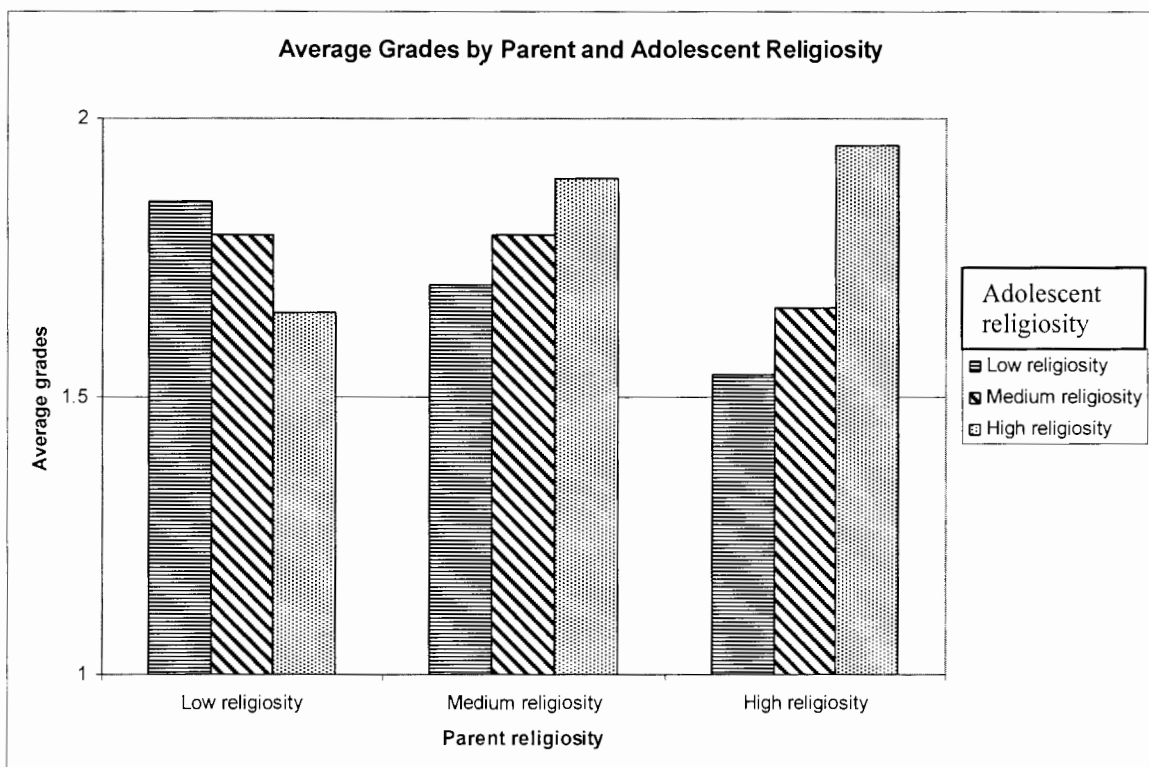
Adjusted R²=.446

Note: The model controls for the effects of parental education, gender, race/ethnicity, religious group, family structure, grade level, and urbanity.

In order to understand the association between religiosity and academic achievement, I computed predicted scores based on variations in parental and adolescent religiosity. Figure 1 shows these predicted scores that corresponded to low (one or more standard deviations below the mean), medium (at the mean), and high (one or more standard deviations above the mean) levels of religiosity. These results showed that the highest expected grades occurred when there was correspondence between religiosity scores, whether on the high or low end. The lowest expected grades occurred when there

was a discrepancy between the religiosity of parents and their adolescent children. This supported Pearce and Haynie's (2004) result, but extended it to academic achievement.

Figure 1. Predicted Average Grades, by Parent and Adolescent Religiosity



DISCUSSION

The results appear to provide evidence against the first hypothesis, which is that student religiosity and academic achievement are related even when controlling for family and community social capital. However, the results do provide support for the second hypothesis: that the association between religiosity and academic achievement depends on the concordance or discordance of religious involvement among adolescents and their parents. Moreover, this association is not mediated by variations in family or community social capital. In fact, although family capital has a strong and consistent positive association with academic achievement (cf. McNeal 1999), its effects are

relatively independent of the effects of religiosity. Additional analyses using the Add Health data indicate a positive association between family capital and religiosity among parents and adolescents, but this association does not affect the direct effects of religious homogamy on academic achievement.

The results also suggest that Pearce and Haynie's (2004) model of religious homogamy among parents and adolescents provides an interesting explanation not only for delinquency, but also for prosocial outcomes such as school success. As they speculate, "...religious similarity may be important because it brings about the type of parent-child closure described in social control and differential association theories, and perhaps this closure is necessary to provide adolescent religiosity its protective power through dimensions such as moral order, learned competencies, and social and organizational ties" (2004:1567). Consistent with these findings, Carbonaro (1998) identifies a positive association between parent/child closure and academic achievement that holds even when controlling for social and background characteristics.

However, it is also possible that religious homogamy provides a form of social capital that general measures of family relations or involvement fail to assess. For example, religious homogamy may indicate additional resources available to adolescents, such as trusting relationships and a network of positive peer and adult ties. These arguments are attractive explanations because both networks of positive ties and trusting relationships have been shown to be related to higher levels of academic achievement (Bank and Slavings 1990; Goddard 2003). Networks of positive ties "provide opportunities for the exchange of information that can facilitate outcomes desirable to group members" (Goddard 2003:60). Trusting relationships make the open exchange of information more likely and give group members the confidence that other members are

dependable and competent (Goddard 2003). Unfortunately, I was not able to examine trusting relationships and peer networks directly due to the design of the study.⁷

Another explanation is that low levels of religious homogeneity between parents and children may cause stress and strain, which then lead to lower academic outcomes. Some studies show that strain is more likely to occur in parent/child dyads where there is a low level of agreement on values, attitudes and religious beliefs (Pruchno, Burant, and Peters 1994). Importantly, mental strain and disagreement still occur in relationships characterized by high levels of social integration (Pruchno, Burant, and Peters 1994). In addition, it has been demonstrated that higher levels of stress and strain are associated with poorer academic performance both for whites and minority students (Smedley, Myers and Harrell 1993). It is also notable that the only part of our model where increased religious homogeneity does not follow the expected pattern of heightened academic achievement is in the medium parental religiosity category, where discrepancies between parent and child religiosity are less pronounced and the relationship is less likely to be strained.

In general, then, religiosity by itself does not necessarily benefit adolescents. Rather, it is the similarity of religious practices and beliefs among parents and children that most profoundly affects academic achievement and perhaps even other prosocial behaviors.

CONCLUSION

Although the convergence of our results with previous research offers persuasive evidence of the effects of religious homogeneity on adolescent behavior, additional research is needed to validate these results. Moreover, future research should consider

additional forms of social capital, such as school capital and resources, as well as networks of affiliations among adolescents (Parcel and Dufur 2001). Research should also consider additional academic outcomes such as high school graduation, college attendance, school drop-out, and educational expectations or aspirations. It is also not clear whether these results generalize to different gender or racial/ethnic groups. The role of family income should also be considered in more detail since the Add Health data are plagued with missing value problems on this key variable. Finally, although community capital does not have significant effects in the model, neighborhood-level characteristics may affect how religiosity or family capital is channeled into academic success.

The present study, however, contributes to the current literature in several respects. First, in analyzing the relationship between religiosity and academic achievement among adolescents, it uses more complete measures of family capital, community capital and religiosity than have been used in the past. Second, the analysis examines changes in academic achievement over time both to examine the temporal nature of academic achievement as well as ensure the reliability of the results. Third, I demonstrate that the relationship between religiosity and academic achievement is significantly attenuated when more thorough measures of family and community social capital are taken into account. Fourth, I examine and lend credence to Pearce and Haynie's (2004) study on the association between parent/child religious homogamy and delinquency by examining how adolescent academic achievement relates to intergenerational religious dynamics between parents and children. Consistent with Pearce and Haynie's conclusions, I find a positive association between academic achievement and parent/child religious homogamy. However, I also find that this relationship cannot be explained entirely by including measures of family and community

social capital, which examine the quality of the parent-child relationship as well as the resources available to students at home and in the community.

ENDNOTES

¹In their study, Muller and Ellison use the National Education Longitudinal Study (NELS) dataset, which includes limited measures of religiosity.

²Indeed, it is found that while families where neither parent has more than a high school education constitute only 33.0 percent of our sample, they make up 41.6 percent of those who refused to report their income.

³As a test of validity, I also tried creating the religiosity scale by means of a factor analysis. I also tried recoding the biblical inerrancy and frequency of prayer variables in different ways before creating the scale. In each case, the resulting scale was highly and significantly associated with the scale used in my analysis, indicating that different coding strategies did not change the nature of the latent variable being measured.

⁴Since previous research shows a strong correlation between an Evangelical religious affiliation and a belief in biblical inerrancy (one of the control variables) a cross-tabulation is run to ensure that the two variables are not in fact measuring the same thing. The percentage of Evangelical, mainline Protestant, Black Protestant, Catholic, and members of other religious groups who believe in the inerrancy of their sacred scripture(s) was 91 percent, 74 percent, 87 percent, 70 percent and 74 percent respectively, suggesting that variation in biblical literalism exists within the Evangelical religious affiliation.

⁵A kurtosis statistic of $-.654$ reveals that the variable has a slightly flat distribution which is nevertheless within normal limits. In addition, a skewness statistic of $-.251$ (with a mean of 1.79 and a standard deviation of $.76$) indicates an acceptable deviation from the normal curve.

⁶Since some previous research suggests that the results may vary depending on religious group affiliation (Darnell and Sherkat 1997), I also estimate differences by denominational group (e.g., Evangelical, mainline Protestant). However, I find no consistent patterns. For example, the results apply as much to Evangelical families as to the whole sample. I also examine whether discrepancies in the child and parent report of affiliation mattered, but determine that they do not.

⁷To gather peer network data, the designers of Add Health asked each student to name their five best male friends and their five best female friends. The students were then asked a few questions about each of the friends previously mentioned. I did not make use of this data for three main reasons: (1) Since the five questions relating to peer relationships could only be answered by checking a box or leaving it blank, I was unable to determine whether students who did not check the box intended to give a negative response or if they skipped the question, did not know the answer, or refused to answer the question altogether. (2) Many respondents did not have five friends of each sex and therefore could not be directly compared to those who did and (3) It is possible that many respondents had more than five friends of either given gender who had a significant effect on their behavior.

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Appendix. Items Used in Family and Community Capital Scales
Family Social Capital

- (1) How close do you feel to your mother (or mother figure)?
- (2) How much do you feel your mother cares about you?
- (3) How close do you feel to your father (or father figure)?
- (4) How much do you feel your father cares about you?
- (5) How warm or loving is your mother toward you most of the time?
- (6) How satisfied are you with your relationship with your mother?
- (7) How warm or loving is your father toward you most of the time?
- (8) How satisfied are you with your relationship with your father?
- (9) How much do you feel your parents care about you?
- (10) How much do you feel your family understands you?
- (11) How much do you feel your family pays attention to you?
- (12) How much has your mother encouraged you to be independent?
- (13) Have you talked to your mother about schoolwork or grades?
- (14) Has your mother worked with you on a school project?
- (15) Have you talked with your mother about what you were doing in school?
- (16) Have you talked to your father about schoolwork or grades?
- (17) Has your father worked with you on a school project?
- (18) Have you talked with your father about what you were doing in school?

Community Social Capital

Student responses

- (1) How happy are you overall living in your neighborhood?

- (2) How happy or unhappy would you be if you had to move away from your neighborhood
- (3) How many of the people in your neighborhood do you know?
- (4) Have you stopped to talk with someone on the street in your neighborhood in the last month?
- (5) Do you think that people in the neighborhood look out for each other?
- (6) Do you usually felt safe in your neighborhood?

Parent responses

“Do you live in this neighborhood because...”

- (1) There is less crime there than there is in other neighborhoods?
- (2) There is less drug use and other illegal activities there than there is in other neighborhoods?
- (3) You are closer to your relatives or friends?
- (4) The schools are better there than they are in other neighborhoods?
- (5) There are children who are the same age as your children?
- (6) You or your spouse was born in this neighborhood?
- (7) How much would you like to move away from this neighborhood?
- (8) How large a problem is litter or trash on the streets and sidewalks?
- (9) How large a problem are drug dealers and drug users in your neighborhood?
- (10) Would you tell a neighbor if you saw that neighbor’s child getting in trouble?
- (11) Would your neighbors tell you if they saw your child getting in trouble?