

**Participation in Religious Activities as a Protective and Exacerbating Factor in the
Development and Continuity of Aggressive Behavior across the Lifespan and Generations**

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Abstract

Regular exposure to religious activities in early childhood has been shown to have some ameliorative effects on antisocial and aggressive behavior (Huesmann et al., 2002; Ellis & Peterson, 1996). The theoretical explanations for such effects are varied including that regular church attendance is simply a marker of generally good parenting, that religious organizations provide social support when problems occur, or that religious exposure helps build strong self-regulating internal standards. In the current analysis, using data from a 40-year prospective longitudinal study, we first examine the extent to which parental religiosity when a child is 8 years old is related to the child's religiosity concurrently and 10, 20, and 40-years later. It is. Then we examine the extent to which both childhood religiosity and adult religiosity act as long-term protective factors against adult aggression and the aggression of offspring. The results reveal that frequency of church attendance is highly related to other forms of spirituality and has a statistical continuity across the life course and across three generations. More importantly, participation in religious services is generally predictive of lower aggression both concurrently and in the future through the indirect effects on future religiosity. However, the protectiveness of religiosity is limited by the youth's already existing aggression. In particular, high religiosity seems to exacerbate the tendencies of low aggressive youth to grow up to be low aggressive adults but also exacerbates the tendency of high aggressive youth to grow up to be more aggressive. These results are discussed in terms of the potential processes that could explain the effects.

During the past decade, there has been a burgeoning theoretical and empirical interest in the role of religiosity in family functioning and child and adolescent adjustment (e.g., for reviews, see Bridges & Moore, 2002; Mahoney, Pargament, Swank, & Tarakeshwar, 2001), and as a resource for adults coping with stress and mental health problems (Pargament, 1997; 2007). The focus of the present chapter is on the role of religiosity across the life span in predicting adulthood aggressiveness. We use data from a 40-year prospective longitudinal study to examine: 1) the extent to which parental religiosity when a child is 8 years old is related to the child's religiosity at ages 19, 30, and 48, and the grandchild's religiosity; and 2) the extent to which grandparental, parental and child religiosity act as long-term protective factors against aggressive behavior in childhood, youth, and adulthood.

The Importance of Religiosity

According to the Gallup Consulting Organization (2008), 93% of Americans 18 years of age and older reported that they believe in God or a universal spirit; 54% reported that religion is "very important" in their lives, and another 26% reported that religion is "fairly important" in their lives; 61% said that they are a member of a church or synagogue, and 38% said that they had attended religious services in the past 7 days; and 57% agreed that religion can answer all or most of today's problems. In a nationally representative sample of 8th through 12th graders, Wallace, Forman, Caldwell, and Willis (2003) found that 60% of adolescents reported that religion is an important part of their lives and 50% said they attend religious services regularly. Thus, religiosity is worthy of study in terms of its potential role as a resource promoting adjustment across the life span.

In extensive reviews of the literature on the role of religion in child and adolescent adjustment, Bridges and Moore (2002) and Mahoney et al. (2001) reported that high levels of parent and child religiosity (most often measured by parental or self-reports of frequency of church attendance, frequency of prayer, and importance of religion to one's life) were linked to

lower levels of delinquency, externalizing and internalizing behavior problems, and substance use, and higher levels of adolescent responsibility. These authors noted a few limitations to the extant research. First, there is a dearth of prospective longitudinal studies, so it is unclear how religiosity and adjustment transactionally affect each other across the life span. Second, religiosity has been measured in a multitude of ways across studies. The most common measures are frequency of church/synagogue/mosque attendance, frequency of prayer, and self-rated importance of religion (religious salience). Pargament (1997) and Mahoney et al. (2001) argued for a more fine-grained approach to understanding the role of religion. These authors proposed measures that assess the level of cognitive and behavioral integration of religion into one's life (e.g., the degree to which family members jointly participate in religious activities; the degree to which individuals perceive aspects of their lives as "sanctified," or imbued with a spiritual significance). This novel approach has yielded stronger effects in some areas of study (e.g., the role of religion in marital satisfaction, Mahoney et al., 2001).

Empirical Studies of the Relation between Religiosity and Aggression and Delinquency

Johnson, De Li, Larson, and McCullough (2000) reviewed 40 studies published from 1985-1997 on the relation between religiosity and delinquency. Thirty of the 40 studies showed a negative relation between religiosity and delinquency. Only 5 studies had a longitudinal design.

Several studies have assessed the relation between parental religiosity and child aggression and delinquency, and most have shown negative correlations between parental church attendance and risk for aggression, delinquency, or criminality of their children within one denomination (Ellis & Pettersson, 1996; Pettersson, 1991). Bartkowski, Xu, and Levin (2008) used data from the nationally representative Early Childhood Longitudinal Study-K sample (over 20,000 kindergarten and first graders in 1998-1999). Parental religiosity was measured by frequency of church attendance, religious homogamy (similarity between parents in terms of frequency of church attendance), and frequency of discussions of religion with the child. Higher

levels of each parent's frequency of attendance and religious homogamy were related to most parent- and teacher-rated measures of child development, including higher levels of self-control and lower levels of impulsiveness and externalizing behavior problems. Kim, McCullough, and Cicchetti (2009) examined a sample of maltreated and non-maltreated children. The authors found that among non-maltreated children, parents' importance of faith was related to lower levels of internalizing and externalizing behaviors in middle childhood, and that the parental religious influence seemed to be stronger when the child reported lower levels of importance of religion. These effects were not observed for maltreated children; however, in a separate study Kim (2008) found protective effects of religiosity on internalizing symptoms for maltreated females. Finally, using data from our Columbia County Longitudinal Study, we found that boys whose parents attended church more frequently when the boys were 8 years old were less at risk for criminality by age 30 than were equally aggressive 8-year old boys whose parents attended church less frequently (Huesmann, Eron, & Dubow, 2002). This finding held even after controlling for family interaction variables and the child's IQ.

Several recent studies were conducted with adolescents and assessed adolescents' self-reports of their own religiosity. Herrenkohl et al. (2003) used data from the Seattle Social Development Study. The participants were children who were high in teacher ratings of aggression at age 10. The authors examined predictors of violence when the youths were age 18. Lower probability of violence at age 18 was associated with several age 15 variables: attendance at religious services, good family management by parents, and school bonding. Pearce, Jones, Schwab-Stone, and Ruchkin (2003), in a sample of high-risk urban adolescents, found that religiousness assessed by church attendance and self-rated religiousness was associated concurrently with conduct disorder; but "private religiousness" (e.g., prayer, reading religious literature) was associated with decreases over one year in conduct disorder. Regnerus and Elder (2003) used data from the National Longitudinal of Adolescent Health to examine whether

religiosity would be most important for high-risk youth because religious support “provides functional communities amid dysfunction” (p. 635). The children were in grades 7-12 at time 1 and were assessed 1 year later as well. The authors found that under conditions of higher poverty, there was indeed a stronger relation between frequency of church attendance and “staying on track academically,” which included a composite of grade point average, getting homework completed, getting along with teachers, not being suspended/expelled, and not skipping school. Fowler, Ahmed, Tompsett, Jozefowicz-Simbeni, and Toro (2008) examined a sample of over 300 low-income African American and Caucasian emerging adults (average age 20 years old). The authors reported that public religious affiliation (i.e., the value the participants held in their church membership) buffered the relation between exposure to community violence and substance use. Private religiousness (i.e., the extent to which participants indicated that their religious beliefs provided them with personal meaning) buffered the relation between exposure to community violence and deviant behavior/conduct problems, but this finding was limited to African American participants.

Theoretical Explanations for Why Parental and Child Religiosity Should Protect Against Aggression and Delinquency

Researchers have reviewed multiple theoretical explanations for potentially positive effects of parental and child religiosity on family functioning and child and adolescent outcomes (e.g., Bridges & Moore, 2002; Mahoney et al., 2001; McCullough & Willoughby, 2009; Smith, 2003). We organize these explanations into three overarching categories: 1) Parents’ religiosity is a marker of more proximal factors that influence child outcomes (e.g., good parenting, family interaction patterns, the child’s developing religiosity); 2) Religious organizations provide social support when problems occur; and 3) Religious exposure builds strong internal self-regulating standards in a child, e.g., normative beliefs opposing aggression, or faith that this is God’s plan

and “things will get better,” and cognitive and behavioral religious coping strategies, such as benevolent religious reappraisals of a stressful situation (Pargament, 1997)

The first explanation, that religion is a marker for other structural characteristics in the home, such as good parenting, has received significant empirical attention. The notion here is that parents who care enough about spiritual issues to attend church regularly also devote more effort to dealing with their children's problems. Bridges and Moore (2002) and Mahoney et al. (2001) noted that religion may directly affect parenting by imbuing childrearing with a moral/spiritual significance leading the parent to see the child as a “holy gift from God” who requires special attention and care, or by offering specific childrearing guidance. The authors also noted indirect effects of religion on parenting; that is, religiosity may enhance the stability and quality of, and satisfaction with, the marital relationship, as well as parental mental health, which in turn can promote positive parenting. Mahoney et al. (2001) reviewed 94 studies on the effects of religion on marital and family functioning, and found broad support for these direct and indirect effects of parents’ religiosity. For example, Gunnoe, Hetherington, and Reiss (1999) found that parents’ religiosity (how religion is manifested in their interactions with others) predicted higher levels of observed authoritative parenting (a warm, supportive environment coupled with high age-appropriate demands), which in turn predicted adolescents’ and parents’ reports of the adolescents’ social responsibility (perseverance, self control, obedience to parents and teachers).

We note here that some researchers have argued that the correlations of parental religiosity and child outcomes are solely due to "structural relations" between church attendance and other factors that influence both parent’s religiosity and child outcome, such as family interaction patterns, socioeconomic status, or the child’s cognitive ability (Benda & Corwyn, 1997; Cochran, Wood, & Arnekley, 1994). Yet, across these studies, the fact that the correlation between parental religiosity and child outcomes persists even after controlling for many of these

factors (e.g., early aggression, SES, child IQ, family interaction in the Huesmann et al., 2002, study of predictors of criminality), makes this explanation seem less likely.

Parents also impart their religious beliefs and behaviors to their children; in turn, as reviewed earlier, the child's religiosity is related to lower levels of aggression and delinquency. Kirkpatrick and Shaver (1990) suggested that the child's developing religious beliefs and practices are influenced by those of their parents, and this transmission is affected by the quality of the parent-child relationship. If the child is securely attached to the parent, the child is more likely to adopt the parent's beliefs. Gunnoe and Moore (2002), using data from the National Longitudinal Survey of Youth, found that for late adolescents/early adults (ages 17-22), frequency of their church attendance and importance of religion were predicted by earlier parental religious influences such as attending church as a child, maternal importance of religion, and attending religious school. These findings held even after controlling for family socioeconomic status and the child's cognitive ability. Across studies, Flor and Knapp (2001) reported correlations in the .50 range between parent and offspring religiosity.

A second theoretical explanation for religion's potentially positive effects on child development is that the religious establishment provides support to help parents with problem children successfully deal with the problems. This explanation stems from social control theory (Hirschi & Stark, 1969), and also is consistent with research and theory on social capital (e.g., Coleman, 1988) and social support (e.g., Dubow & Ullman, 1989). The notion here is that adult role models in the religious community (but in other contexts as well) to which the child belongs provide monitoring of the child and portray prosocial behavior that is consistent with parental values. Smith (2003) suggested that the religious community is a form of social capital that can provide cross-generational relationships for the child and "network closure" (dense networks of individuals who know the child and the child's parents, so they can provide information to the parents about any negative child behaviors). Similarly, religious communities of peers and

religious leaders also can provide formal as well as informal social support to parents and children; for example, parents might seek guidance from clergy on handling child problems, while children might rely on peer networks through their religious institutions for advice or more nondirective forms of support. Thus, as reviewed earlier, several researchers have found that religiosity is protective against externalizing behaviors among at-risk youth (e.g., those growing up in poverty, those who are already high in aggression; Fowler et al., 2008; Herrenkohl et al., 2003; Regnerus & Elder, 2003); these authors posited that the social control function is likely a key mechanism accounting for this effect.

A third theoretical explanation of religion's positive effects on child development is that religious exposure builds strong internal self-regulating standards in a child, e.g., normative beliefs opposing aggression, or faith that this is God's plan and "things will get better" (e.g., Smith, 2003). McCullough and Willoughby (2009) reviewed studies published through July 2008 to test key propositions relevant to the relation between religion and self control (one's ability to "engage in behaviors designed to counteract or override a prepotent state"; p. 72) and self regulation ("the process by which a system uses information about its present state to change that state"; p. 72). Among their findings across studies: there were small but significant correlations between religiosity and personality traits indicative of self control (e.g., agreeableness, conscientiousness); religiosity influenced the types of goals that people selected; religion influenced self-monitoring; and self control mediated the relation between religiosity and substance use in one study (Desmond et al., 2008, cited in McCullough & Willoughby, 2009). In a series of five experiments, Koole (2007) showed that prayer had a salutary effect on affect regulation: praying for a person in need was shown to promote a more positive mood. The promotion of positive affect is hypothesized to be protective against aggression and antisocial behavior. Still, despite the important experimental evidence that has been obtained, examining the development through childhood of internalized standards that promote prosocial behavior

and reduce the likelihood of antisocial behavior as the function of exposure to religious practices and institutions requires a longitudinal design.

The Current Study

In the current study, we use data from the 40-year Columbia County Longitudinal Study (CCLS), a prospective study of 856 8-year-olds who were in the third grade in Columbia County, New York in 1960, when they and their parents were first interviewed. The children were subsequently re-interviewed at ages 19, 30, and 48. The CCLS has made important contributions to theory (e.g., social learning models of the development of aggression over time and across generations; Eron, Walder, & Lefkowitz, 1971; Huesmann, Eron, Lefkowitz, & Walder, 1984; Huesmann, Dubow, & Boxer, 2009), social policy (e.g., the causal influence of violent media and harsh parental punishment on children's aggression; Eron, Huesmann, Lefkowitz, & Walder, 1972; Huesmann & Miller, 1994); and more recently to lifespan developmental research (e.g., examining pathways from children's early social behavior through their educational development to middle adulthood outcomes such as occupational status and alcohol problems; Dubow, Huesmann, Boxer, Pulkkinen, & Kokko, 2006; Dubow, Boxer, & Huesmann, 2008, 2009). In the current study, we examine the continuity of religiosity from youth to adulthood and across three generations; how this religiosity relates to concurrent and future aggression within and across generations; and how religiosity might modify the expected trajectory of aggression from childhood to adulthood and across generations.

Methods

The Columbia County Longitudinal Study was initiated in 1960 by Eron et al. (1971), when the original sample of 856 children, all of the third graders in Columbia County, NY, were first assessed at Wave 1 of what has now become a 40-year 4-wave longitudinal study. Subsets of the sample were reassessed 10 years later in 1970 when the participants were 19; 11 years after that in 1982 when the participants were 30; and 18 years after that in 2000 when the participants

were 48 on average. This project has generated a large amount of data concerning how aggression develops from childhood into adulthood (see Eron, Huesmann, & Zelli, 1991; Eron et al., 1971; Huesmann et al., 1984; Huesmann et al., 2009), as well as how childhood and adolescent aggression negatively affect indices of adulthood success (e.g., Dubow, Boxer, & Huesmann, 2009; Dubow et al., 2006).

Participants and Procedures

Columbia County, NY, is semi-rural with a few heavy industries. Of its approximately 63,000 current residents, about 7,000 live in the largest city and county seat, Hudson. The county has had a depressed economy for the last 50 years, although it has begun to benefit from the encroachment of the New York City metropolitan area. When the study began in 1960, there were 38 public and private third-grade classrooms in the county, all of which were included in the sample. Over 90% of the original sample of 856 participants was Caucasian; 51% were male and 49% were female. The number of ethnic minorities (i.e., 3% African American, < 1% Asian or Pacific Islanders, < 1% Hispanic) was too small to allow separate analyses. In this first wave, 85% of the participants' mothers and 71% of their fathers also were interviewed. The participants came from a broad range of socioeconomic backgrounds ($M = 5.01$, $SD = 2.23$ on a 10-point scale of father's occupational status derived by Eron et al. (1971), based on Warner, Meeker, & Eells' (1960) 7-point scale; this mean reflects jobs such as craftsmen, foremen, and skilled tradesmen) and displayed a wide range of intelligence (mean IQ of 104, $SD=14$).

The 427 participants (211 boys, 216 girls) who were re-interviewed in 1970 for Wave 2 had a modal age of 19 years and had completed 12.6 years of education on average. In 1981, 409 of the original participants were re-interviewed again for Wave 3 (modal age 30; 198 males, 211 females). However, we will not be using data from that wave in this paper as religiosity was not assessed during that wave.

In 1999-2002, 523 of the participants (268 males, 255 females; 61% of the original sample) were re-interviewed for Wave 4. Their mean age was 48.46 years old ($SD=.77$); their average education level was between some college and a college degree; their average occupational attainment was middle-class status (the average occupational prestige code using Stevens & Hoisington's [1987] prestige scores reflected jobs such as sales, bookkeepers, secretaries); and 69% of the original participants were living with their spouses. Their average verbal achievement score on the WRAT was 99.15 ($SD = 13.72$). Finally, during this same Wave 4, we interviewed 536 offspring of our original subjects. They were the offspring of 325 different subjects. To keep the sample independent for this study we selected the oldest offspring when more than one offspring of a subject was interviewed. This gave us a sample of 349 independent children, youth, and young adults who were children of our original subjects and grandchildren of the parents we interviewed in 1960. This sample was 51% female and 49% male. The ages of the offspring ranged from 8 to 33 with a mean age of 21.75.

Interviews. Data collection procedures for the first three waves of the study have been reported elsewhere (e.g., Eron et al., 1971; Lefkowitz et al., 1977; Huesmann et al., 1984, 2002). At age 8, two main sources of data were utilized: classroom-based peer-nominations and extensive individual parent interviews. At age 19, participants were administered a variety of self-report measures, as well as peer nominations, in individual interviews at a field office. At ages 30 and 48, interviews were conducted by computer in a field office and by mail/telephone for those participants who could not come to the office. At age 30, participants were paid \$50 for their participation; at age 48, they were paid \$100 for their participation. Interviews ranged from two to four hours. The offspring of the subjects were interviewed using the same procedures as for the subjects in Wave 4 except that phone/mail interviews were not conducted with any who were younger than 13.

Attrition information. At age 48, we interviewed 61% (523, 255 females, 268 males) of the original sample of 856. Of the non-interviewed participants, 37 were confirmed dead, 112 had disappeared and could not be found despite intense efforts, 40 could not be interviewed because of distance and scheduling difficulties, and 144 refused. The number who refused to be interviewed (despite substantial financial incentives) was higher than expected, but the completed re-interview rate of 61% over 40 years still provides us with a sizeable sample for analysis. However, we must ask whether the attrition introduced bias into the sample. A comparison of means on age 8 scores revealed that compared to participants who were re-interviewed at age 48, participants who were not re-interviewed had higher levels of aggression, $t(854) = 4.06, p < .001$ ($M_{\text{difference}} = .13, SE_{\text{difference}} = .03$), lower levels of popularity, $t(854) = 4.19, p < .001$ ($M_{\text{difference}} = 4.45, SE_{\text{difference}} = 1.06$), lower peer compliance, $t(854) = 3.86, p < .001$ ($M_{\text{difference}} = 3.40, SE_{\text{difference}} = .88$), and lower IQ at age 8 $t(852) = 5.69, p < .001$ ($M_{\text{difference}} = 5.70, SE_{\text{difference}} = 1.00$). These effect sizes range from $r = .14$ to $r = .19$. However, we note that the plots of the distributions for these four age 8 variables revealed that many of the high aggressive and low competent participants *were* re-sampled and there was no substantial restriction of range that might have made it hard to detect relations between these age 8 variables and adult outcomes. There was no significant difference in age 8 father's occupational status between re-sampled participants and drop-outs.

Measures

Specific aggression measures for all waves.

1) *Peer-nominated aggression* was assessed at ages 8 and 19 using a peer-nomination procedure developed by Eron et al. (1971), who defined aggression as “an act whose goal response is injury to another object” (p. 30). Their 10 peer-nominated aggression items cover physical (e.g., “Who pushes and shoves other children?”), verbal (e.g., “Who says mean things?”), acquisitive (e.g., “Who takes other children’s things without asking?”), and indirect

(e.g., “Who makes up stories and lies to get other children into trouble?”) aggressive acts. The score represents the proportion of times the child was nominated by classmates on the ten items (participants could nominate peers of either sex; thus, a child’s score was: total number of nominations received across the ten items / number of classmates times ten). This measure is described in detail elsewhere (Eron et al., 1971; Huesmann et al., 1984), has been widely used, and has an $\alpha = .90$ in cross-national samples, including the CCLS.

At age 19, because participants already had left high school, interviews were conducted in the field office. Participants first were presented with a list of those original participants who had attended school with them at age 8, and were asked to identify those whom they now know “well enough to answer some questions about.” Aggression was measured using the same peer-nominated items as at age 8, save for the omission of one item (“Who says, ‘Give me that!’?”). Participants checked all the names that applied from the list of participants who fit each item. Each individual’s score was computed as the number of times he or she was nominated on the nine questions divided by the number of times he or she could have been nominated (i.e., the number of participants who now knew the individual well). This measure was highly reliable ($\alpha = .90$ across the nine items). At ages 8 and 19, a log transformation was applied to the aggression scores to reduce skewness and kurtosis.

2) *Self-reports on peer-nomination questions* were obtained for the children who were interviewed in Wave 4 as their wide geographic distribution make obtaining peer-nominations impossible. For the younger offspring the same questions were used as had been used for the subjects when they were 8-years old; for the older offspring we used the questions that had been used with the 19-year olds.

3) *Severe physical aggression* was assessed for the subject at ages 19, 30, and 48 and for the child of the subject in Wave 4 through self-reports of how often in the last year they engaged in each of four behaviors (e.g., choked someone, slapped or kicked someone, punched or beaten

someone, knifed or shot at someone or threatened to do it; 1 = never to 4 = a lot; scores were log-transformed for analysis due to skewness) ($\alpha = .66$).

3) *Aggressive personality* was measured at ages 19, 30, and 48 and among children of the subjects who were 13 or older in Wave 4 by taking the sum of scales 4, 9, and F from the Minnesota Multiphasic Personality Inventory (MMPI; Hathaway & McKinley, 1940). In earlier studies by our group (e.g., Huesmann et al., 1984; Huesmann, Lefkowitz, & Eron, 1978), the summed T-scores of these three scales reflected a reliable and valid measure of antisocial-aggressive behavior. For these scales, participants read 143 statements and indicated whether each was true (1) or false (0) in describing themselves. T-scores were computed for each scale, and a total score for each respondent was computed from the sum of the three T-scores ($\alpha = .78$).

We view these measures as assessing a latent construct that we call “aggressiveness.” At different ages, different measures may be differentially important in assessing this latent trait; so in our past research we have typically used multiple indicators of aggression at every age where they are available and for both genders (Huesmann et al., 1984; Huesmann et al., 2002; Huesmann & Guerra, 1997).

For the analyses in this paper we first converted the aggression measures obtained in each wave (peer-nomination, self-report of peer-nomination questions, self-report of serious physical aggression, MMPI F+4+9) to standardized z-scores. At each age, where more than one aggression measure exists (i.e., ages 19 and 30), we computed a measurement model for combining the measures. The measurement parameters derived from the model represent how aggressiveness manifests itself on the average, and the derived estimation equations allow one to estimate the composite “aggressiveness” for any individual. Then a composite measure of aggression was computed as the weighted mean of the one to three aggression scores available for the subject during that wave or for the subject’s child during Wave 4. Because, these composite scores are standardized within each wave of data, they provide a standard scale on

which individuals' locations can be compared across waves independently of total sample shifts in aggressiveness or differences in measures obtained.

Religiosity.

In Wave 4 the subjects and their offspring both indicated *their frequency of religious service attendance* on a 9-point scale ("How often do you attend religious services?", rated as 1= "never," 2= "less than once/year," 3= "1-2 times/year," 4= "several times a year," 5= "about once a month," 6= "2-3 times a month," 7= "nearly every week," 8= "every week," and 9= "several times/week") . Additionally, both the subjects and their offspring reported on their religious preference; their spirituality ("To what extent do you consider yourself a spiritual or religious person?", rated as 1 = "not spiritual/religious at all," 2 = "Slightly spiritual/religious," 3 = "Moderately spiritual/religious," 4 = "Very spiritual/religious;" and their frequency of praying ("How often do you pray privately in places other than a church, mosque, or synagogue?" rated as 1 = "Never," 2 = "Less than once a month," 3 = "Once a month," 4 = "A few times a month," 5 = "Once a week," 6 = "A few times a week," 7 = "Once a day," 8 = "More than once a day."

In Wave 1 the parents of the subjects were also asked their *frequency of religious service attendance*, but the response scale ranged from 0 = "Never," 1 = "A few times a year," 2 = "About once a month," 3 = "A few times a month," 4 = "Once a week," and 5 = "More than once a week." They were also asked their religion preference, but they were not asked any questions about spirituality or praying.

Similarly in Wave 2 the 19-year old subjects themselves were asked to report on their *frequency of religious service attendance* using the same procedure and scale as used with the parents in Wave 1.

Other outcomes and covariates.

In Wave 4 we also assessed the *Normative Beliefs about Aggression* of both the subjects and their offspring (Huesmann & Guerra, 1997). The normative belief scale is a 20 item

scale that asks the responder about their approval of aggression. Twelve of the questions specify a provocation and ask the responder how OK it is to engage in a specific aggressive retaliation, e. g., “Suppose a man says something bad to another man, John. Do you think it is OK for John to hit him? (4 = perfectly OK, 3 = sort of OK, 2 = sort of wrong, 1 = really wrong). The other eight questions ask about the subject’s approval of aggression in general, e. g., “Is it usually OK to push or shove other people around if you're mad? (same response scale).” The normative beliefs scale score is the mean of all the responses and has shown to be a highly reliable assessment of approval of aggression by the responder (Huesmann & Guerra, 1997).

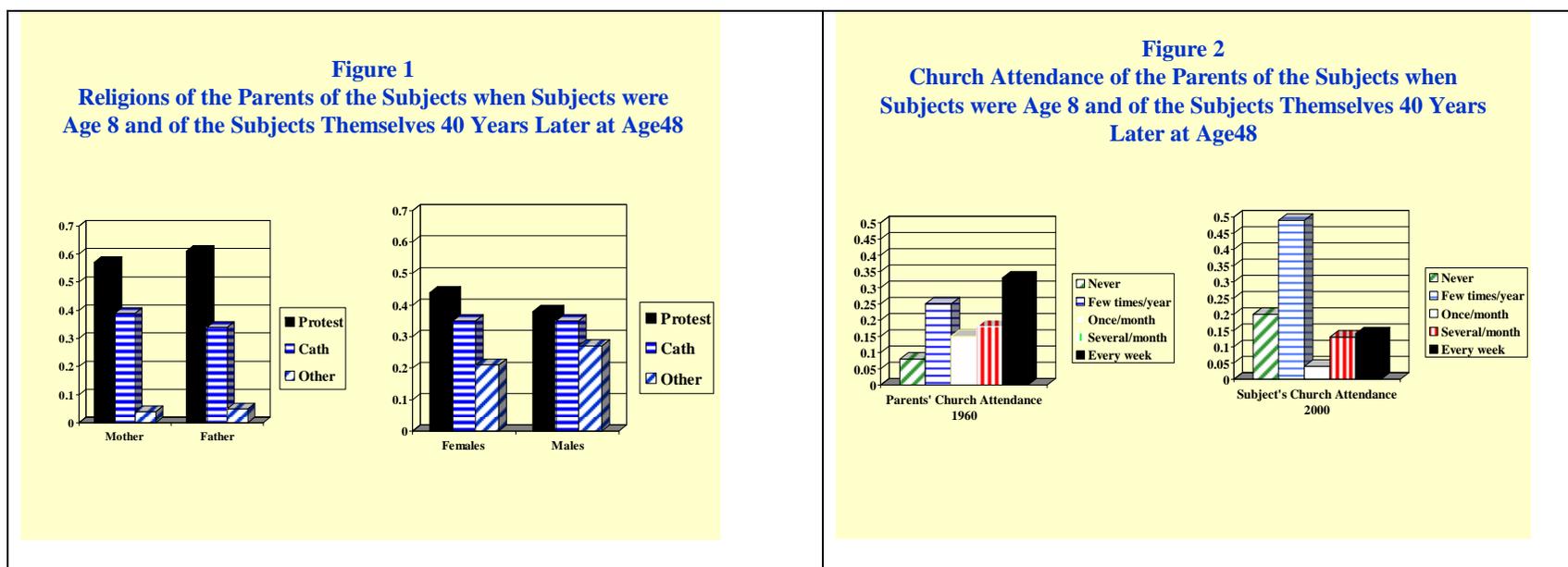
In Wave 1 *Parents’ educational level* (Eron et al., 1971) reflects the parents’ self-reported levels of educational attainment, ranging from 1 = under 7 years to 7 = graduate/professional training. The family score was computed as the mean of the mother’s and father’s educational level.

Finally, in Wave 1 we also obtained the subject’s *IQ score*. The child’s IQ was assessed with the California Short-Form Test of Mental Maturity (Sullivan, Clark, & Tiegs, 1957). Kuder-Richardson reliability coefficients range from .87-.89 across grades; the total score correlates approximately .75 with other IQ measures.

Results

Religions of Participants

In Figure 1 the distribution of self-reported religious affiliations is shown for the participants in the study when they were 8-years old (as reported by their parents) and when they were 48 years old (as self reported). In Figure 2 their church (or synagogue or mosque) attendance is graphed for the same two times.



As one can see the sample was predominately Christian-Protestant and Christian-Catholic in 1960 with a small sample of Jewish and other (including “no”) affiliations. By 2000 the sample was still predominately Protestant or Catholic but a much larger proportion reported “other” or “no” affiliation. Also, one can see that by 2000 when the subjects were 48 years old, on average they attended religious services much less than their parents had attended them 40 years earlier.

Religiosity

The three measures of religiosity that were assessed in Wave 4 among the 48-year-old subjects and among their offspring (average age = 21.75) were highly correlated as shown in Table 1. A factor analysis of the three measures showed that one factor could explain 69 to 71% of the variance in the scales in both cases. Furthermore, all three scales had loadings of .77 to .88 in both cases. Consequently, any one of the measures could be used to represent religiosity adequately. As only the measure of religious participation was collected in Waves 1 and 2 as well as in Wave 4 on the subjects and on their children, we decided to use that measure for all analyses.

Table 1

Correlation between different components of religiosity in 2000 at age 48 (below diagonal) and at age 12 to 30 – average age 19 (above the diagonal).

	Subject's Self- reported Religious Participation	Subject's Self- reported Frequency of Prayer	Subject's Self- reported Spirituality
Subject's Self-reported Religious Participation		.48**** (N = 325)	.54**** (N = 325)
Subject's Self-reported Frequency of Prayer	.52**** (N = 481)		.67**** (N = 325)
Subject's Self-reported Spirituality	.46**** (N = 479)	.65**** (N = 480)	

*p < .10 **p < .05 ***p < .01 ****p < .001

Continuity of Religious Participation

The correlations over 40 years between the subject's parent's religious participation when the subject was 8-years old, the subject's own religious participation at age 19 and at age 48, and the subject's child's religious participation when the subject was 48 are shown in Table 2.

Religious participation clearly displays continuity within and across generations. Most notably, perhaps, the subject's child's religious participation correlates .52 ($p < .001$) with the subject's concurrent religious participation at age 48, correlates .28 ($p < .001$) with the subject's religious

participation 30 years earlier, and correlates .21 ($p < .001$) with the grandparent's religious participation 40 years earlier. Of course, these later correlations represent only modest effect sizes, and there is substantial variability in the trajectories of religious participation over the life course and across generations. When we partitioned religious participation into upper, middle, and lower tertiles (called High, Medium, and Low Participation), we found that in only about 44% of the cases was the level of participation the same within generations at ages 19 and 48, in only about 20% of the cases was the level of religious participation the same for the grandparent when the subject was 8, the subject at ages 19 and 48, and in only about 10% of the cases was the level of participation exactly the same for the grandparent, the subject at age 8 and 48, and for the subject's child when the subject was 48. Additionally, in general the participation rates declined over the 40 years from 1960 to 2000 as was shown above in Figure 2.

Table 2.

Correlations of religiosity over three generations and 48 years

	Subject's Parents' Religious Participation when Subject is Age 8	Subject's Religious Participation at Age 19	Subject's Religious Participation at Age 48	Subject's Child's Religious Participation when Subject is Age 48
Subject's Parents' Religious Participation when Subject is Age 8				
Subject's Religious Participation at Age 19 (N = 374)	.36****			
Subject's Religious Participation at Age 48 (N = 401)	.17***	.31****		
Subject's Child's Religious Participation when Subject is Age 48 (N = 274)	.21****	.28****	.52****	

*p < .10 **p < .05 ***p < .01 ****p < .001

The Relation of Religious Participation to Aggression Over Time and Generations

In Table 3 the correlations are shown between the religious participation of the subject's parents, the subject, and the subject's child and the concurrent and subsequent aggressive behavior and beliefs of the subject and the subject's child. The correlations at each age between a person's own religious participation and their own aggressive behavior are negative and significant. Higher religious participation is related to lower concurrent aggression. The effect sizes are not large – $-.20$ at age 19 and $-.13$ at age 48 – but are significant. Additionally, the grandparent's religious participation assessed in 1960, not only correlates significantly negatively ($-.09$, $p < .05$) with their child's concurrent aggression at age 8, but also correlates significantly negatively with their grandchild's aggression and aggressive beliefs 40 years later ($-.15$, $p < .01$; $-.13$, $p < .05$). This is true even though the grandparent's religious participation does not correlate significantly with the subject's (their own child's) aggression at age 19 or 48, and the subject's religious participation at age 48 does not correlate significantly with the grandchild's concurrent aggressiveness. All in all this table of negative correlations provides evidence that not only is a person's aggressiveness negatively related to their concurrent religious participation, but it is also related to negatively to higher levels of religious participation within the family system.

Table 3

Correlations of religious participation with aggression over 3 generations

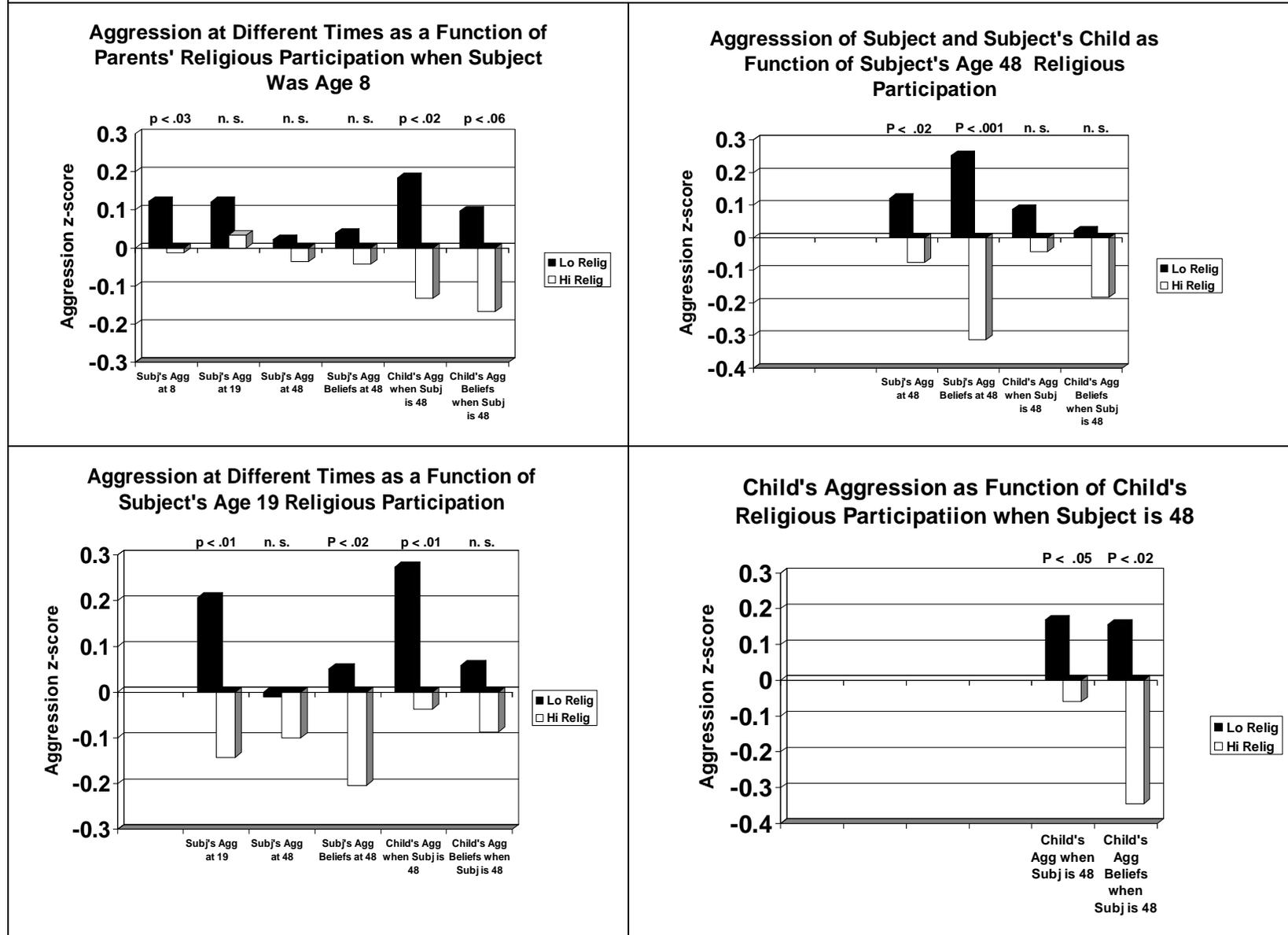
	Subject's Parents' Religious Participation when Subject is Age 8	Subject's Religious Participation at Age 19	Subject's Religious Participation at Age 48	Subject's Child's Religious Participation when Subject is Age 48
Subject's Aggression at Age 8	-.09** (N = 706)	-.04 (N = 427)	-.04 (N = 481)	-.05 (N = 325)
Subject's Aggression at Age 19	-.04 (N = 373)	-.20***** (N = 426)	-.21***** (N = 305)	-.14** (N = 196)
Subject's Aggression at Age 48	-.05 (N = 399)	-.09 (N = 303)	-.13*** (N = 476)	-.16*** (N = 293)
Subject's Beliefs Approving of Aggression at Age 48	-.02 (N = 398)	-.11** (N = 304)	-.22***** (N = 476)	-.12** (N = 293)

Subject's Child's	-0.15***	-0.17**	-0.07	-0.13**
Aggression when	(N = 292)	(N = 215)	(N = 316)	(N = 325)
Subject is Age 48				
Subject's Child's	-0.13**	-0.07	-0.11*	-0.19****
Beliefs Approving of	(N = 275)	(N = 208)	(N = 304)	(N = 307)
Aggression when				
Subject is Age 48				

*p < .10 **p < .05 ***p < .01 ****p < .001

It is illustrative to examine these relations over time in terms of how predictive very frequent religious participation is of lower aggression compared to very infrequent religious participation. To do this we partitioned religious participation into approximate thirds where high participation means attending services once a week or more, low participation means attending church never or no more than once a year, and medium participation is everything in between. We then analyzed the mean differences for the high and low groups on the aggression measures at each point in time. The results are shown in Figure 3.

Figure 3: Mean aggressive behavior and aggressive beliefs for the subject at age 8, 19, and 48 and the subject's child when subject is 48 as a function of the frequency of religious participation of the subject, the subject's parents, and the subject's child over the 40 years of the study.



One can see that in every single case those high in religious participation score lower on aggression and aggressive beliefs than those low in religious participation. However, not all of the relations are significant. Mostly the results are consistent with the correlations in Table 3 but show that the correlations reflect large differences between fairly high and fairly low levels of participation rather than small differences across the continuum of participation scores.

Predicting Adult Aggression from Youth Aggression and Religious Participation

In a number of prior publications the continuity of aggression within and across generations in the Columbia County Longitudinal Study has been shown to be substantial (Huesmann, et al., 1984; 2009). The analyses so far have shown both that there is continuity of religious participation across time and generations and that religious participation is inversely related to aggressiveness concurrently and over time and generations. Given these results, it makes sense to examine whether religious participation in youth predicts adult aggressiveness when one controls for youth aggression. To do this analysis we created a composite religious participation score for Waves 1 and 2 by taking the mean of the standardized participation scores for each wave (Wave 1 religious participation reported by subject's parent and Wave 2 religious participation reported by subject). We also created a comparable composite aggression score for Waves 1 and 2 in the same way. We conducted a regression analysis predicting the subject's Wave 4 aggression from these two variables and their interaction (product of their standardized scores). The results are shown in Table 4.

Table 4

Multiple regression predicting the subject's aggressive behavior at age 48 from their aggressive behavior at Age 8 and 19 and their participation in religious services at age 8 and 19 controlling for the subjects gender, intelligence, and parents' educational level

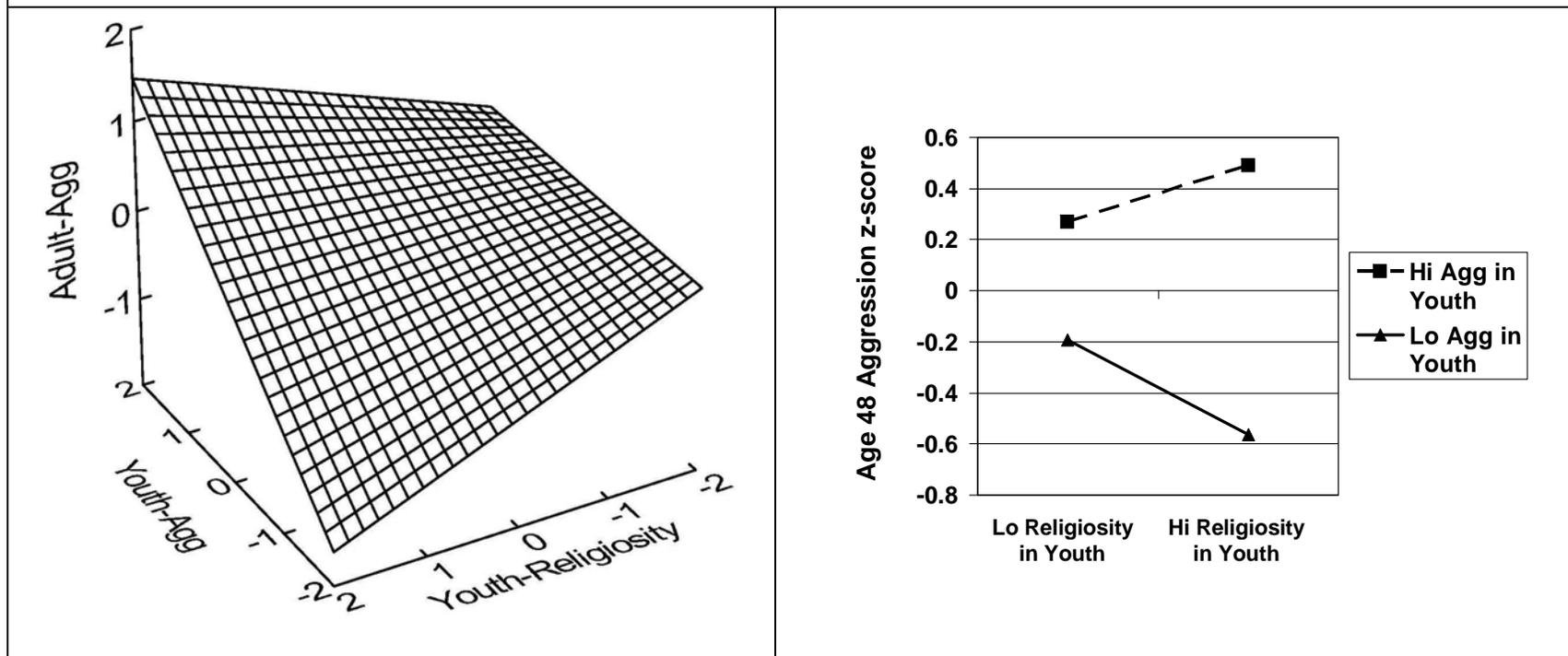
	Step 1 Standardized Regression Coefficients	Step 2 Standardized Regression Coefficients	Step 3 Standardized Regression Coefficients
Subject's Aggression as Youth (Mean of Ages 8 & 19)	.35****	.38****	.38****
Subject's Religious Participation as Youth (Mean of Ages 8 & 19)	-.04	-.04	-.02
Interaction of Subject's Youth Aggression and Youth Participation in Religious Activities		.15****	.15****
Subject's Gender			-.01
Subject's IQ at Age 8			.04
Subject's Parent's Level of Education			-.17****
R ²	.123****	.143****	.169****

*p < .10 **p < .05 ***p < .01 ****p < .001

As expected youth aggressiveness is revealed to be a highly significant predictor of adult aggressiveness 30 to 40 years later ($\beta = .38, p < .001$). The regression also reveals that a youth's level of religious participation 30 to 40 years earlier does not add at all

significantly to this prediction even though their religious participation at age 8 and 19 correlated negatively with their concurrent aggression at that time. However, while that early religious participation does not have a direct effect on adult aggression, it does significantly moderate the trajectory of aggression from youth to adulthood as indicated by the highly significant interactive effect of youth participation and youth aggression on adult aggression ($\beta = .147, p < .002$). In order to understand the meaning of this interaction we plotted it in Figure 4 in two ways – first as a three dimensional plot showing the surface defined by the complete regression equation, and second as a limit plot showing how high and low youth aggression and high and low religious participation in youth (as defined by plus and minus one SD) combine to predict adult aggression.

Figure 4
The moderating effect of youth religious participation on the relation between youth aggression (Mean of ages 8 and 19) and adult aggression at age 48.



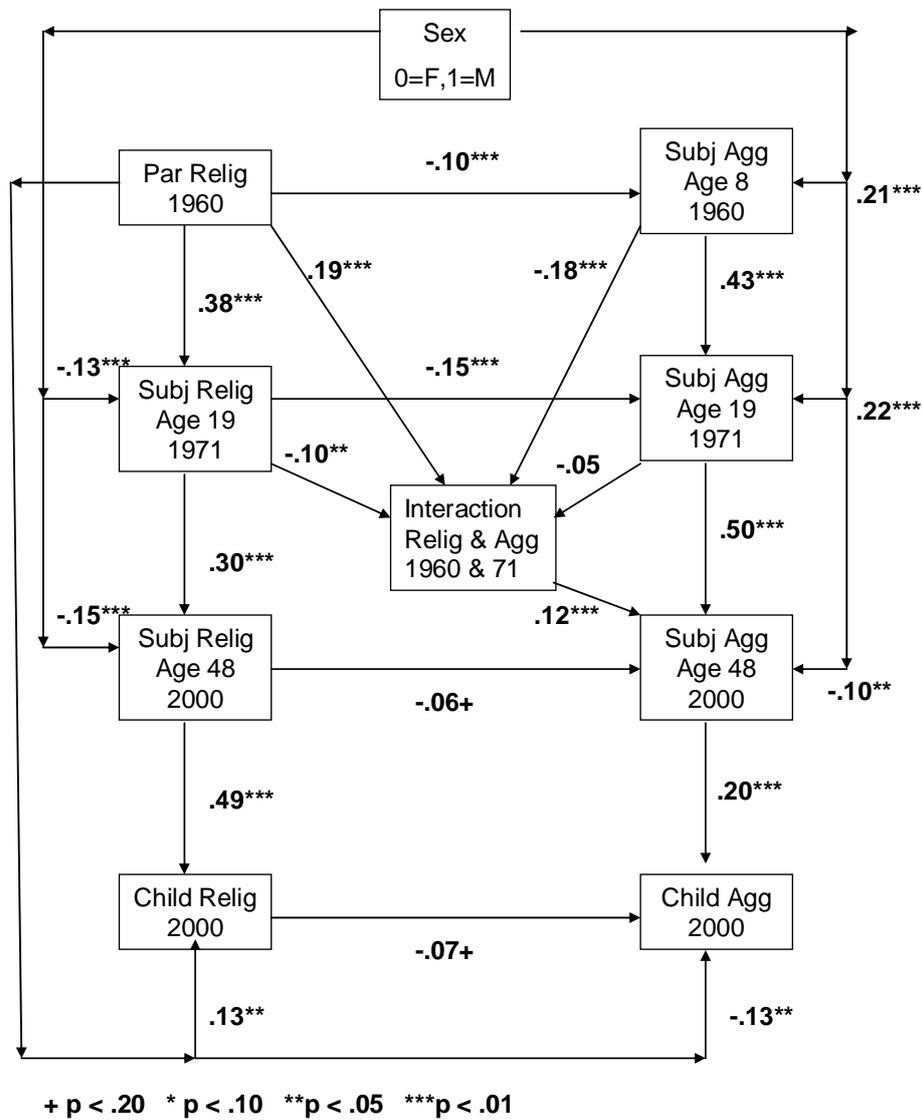
The results are striking. If one accepts that the direction of effects must be from religious participation to aggression, the results indicate that high religious participation exacerbates the effects of youth aggression on adult aggression. For those lower on youth aggression, high religious participation is predictive of even lower adult aggression and lower participation of higher aggression. For those higher on youth aggression, the effect is reversed. High religious participation is predictive of even higher adult aggression and lower participation of lower aggression.

One may wonder if these effects are independent of other participant characteristics. The second column of Table 4 shows that they are. The participant's gender and IQ at age 8 do not change the results at all, and while the parent's education level is a significant predictor of the subject's aggression 40 years later, its inclusion in the model does not change the moderating effect of religious participation in youth.

A similar regression analysis was conducted to predict the subject's child's aggression when the subject was 48 (mean age of child = 21.75). While the subject's life-long aggression was a highly significant predictor of the subject's child's aggression when the subject was 48 ($\beta = .25, p < .001$), the analysis revealed no similar interactive effect of the subject's life-long religious participation on cross-generational transmission of aggression and no main effect of the subject's religious participation on the offspring's aggression.

Finally, we constructed a longitudinal structural model to represent both the effects of religious participation on aggression and the continuity of aggression and religious participation within and across generations. The final model that best fit the data is shown in Figure 5.

Figure 5. Structural Model Showing Standardized Direct and Indirect Effects of Religious Participation Throughout the Life Course on Subsequent Aggression in the Self and in One's Offspring (FIML Solution, N=856, Chi-Sq = 27.8, df = 23, p > .22, CFI = .99, RMSEA = .016)



Again, we make the assumption in this model that the relation between religious participation and aggression (to the extent any relation exists) is in the causal direction of participation affecting aggression. The model fits quite well (FIML Solution, N=856, Chi-Sq = 27.8, df = 23,

$p > .22$, CFI = .99, RMSEA = .016). The model shows the expected strong continuity of both aggression and religiosity over the life course and across generations with stronger continuity with generation for aggression and across generations. The model also shows significant concurrent direct negative effects of the subject's religiosity at age 19 to their aggression at age 19 and from their parent's religiosity in 1960 to their concurrent aggression at age 8. The effects from a subject's age 48 religiosity to their age 48 aggression were only marginally significant as were the effects of the child's religiosity on their own aggression in 2000. However, taken together the four concurrent paths certainly indicate that religiosity has a damping main effect on concurrent aggression. Furthermore, the interactive effect of a subject's religiosity and aggression in their youth on their adult aggression that we had discovered with the regression analysis remained significant and substantial in this model ($\beta = .12$, $p < .008$). Being high on religiosity in youth seems to exacerbate the tendency of low aggressive youth toward low aggression in the future and high aggressive youth toward high aggression in the future. The model explains 24% of the variation in the subject's age 48 aggression, 12% of the variation in their age 48 religiosity, 7% of the variation in their child's aggression, and 27% of the variation in their child's religiosity. The standardized total effect sizes of prior family-religiosity combined with concurrent self-religiosity on aggression were .078 for age 48 subject aggression and .146 for the subject's children in Wave 4. While not large effect sizes, they are significant and large enough to be important.

Discussion

Our analysis of these four waves of data spanning three generations and 40 years showed first that religious participation, prayer, and spirituality are highly intercorrelated and can be represented substantially by a single construct. Because of this result and because participation in religious services is the only measure we had in all four waves, we based all our analyses on this

measure. Obviously, this is a potential weakness, and our results must be considered in the context that spiritual individuals who never participate in religious services are misclassified in these analyses. Of course, the most likely effect of this omission would be to weaken our effect sizes for religiosity.

Using religious participation as our measure we found clear evidence both that participation in religious activities has a main effect on reducing concurrent aggression at any age and in youth has an additional effect of exacerbating the tendencies of low aggressive youth to grow up to be low aggressive adults and of high aggressive youth to grow up to be high aggressive adults. These effects were not due to relations between religiosity and gender, IQ, or the educational level of the family. These effects remained in the context of a longitudinal model that accounted for the substantial continuity of religiosity and aggression both over the life span and across generations.

While this study demonstrates these effects fairly conclusively, it does not explain why they occur. As we discussed in the introduction religiosity, and particularly participation in religious activities, has a number of benefits that could explain the main effects of religiosity in reducing aggression in addition to affecting normative beliefs about aggression. The three main theoretical ideas we reviewed were 1) Parents' religiosity is a marker of more proximal factors that influence child outcomes (e.g., good parenting, family interaction patterns, the child's developing religiosity); 2) Religious organizations provide social support when problems occur; and 3) Religious exposure builds strong internal self-regulating standards in a child, e.g., normative beliefs opposing aggression.

Relevant to the third explanation, we did show that an adult's and youth's normative beliefs about the appropriateness of aggression were significantly related to their religiosity in the direction that more religiosity predicted lower approval of aggression, e. g., "It is not OK to

hit someone even if they hit you.” However, the direct relation between religiosity and concurrent normative beliefs was modest (-.19 to -.22 in Table 3). Consequently, while we could not directly test mediation models because scores on normative beliefs were only available in Wave 4 of the study, it is unlikely that the effect sizes of religiosity on normative beliefs are large enough to completely explain the total effects of religiosity on aggression.

Similarly, the fact that the relations between religiosity and aggression were not diminished much when we controlled for gender, child IQ, and parental level of education suggests that no association between religiosity and any of these other variables related to aggression can account for the effect by itself as the first explanation above might suggest.

We have no evidence in the study that bears on the second explanation that the social support provided through participating in religious activities ameliorates the tendency to respond to stressors and social problems with aggression. In fact, the finding that high religiosity exacerbates the tendency of high aggressive youth to grow up to be high aggressive adults and low aggressive youth to grow up to be low aggressive youth seems contradictory to this idea.

It may be that all three processes operate and contribute partially to the effect. However, the interactive exacerbating effect suggests that one more process, a “self-justification” process might be important. Most religious texts can be read in different ways and can equally well provide justification for behaving aggressively or prosocially. Christians can focus on “turning the other cheek” when provoked, or on obtaining “an eye for an eye.” If one has already been behaving aggressively in one’s youth, participating in religious activities may make it easier to self-justify one’s aggressiveness by providing consensual validation for the behavior. On the other hand, if one is already behaving less aggressively, one can find consensual validation for those behavior in religion as well.

Final determination of the process through which religious participation influences aggression must await more developmental studies assessing the hypothesized factors involved in the processes. Nevertheless, it seems fair to conclude from this study and the prior research that participating in religious activities had a general protective main effect on concurrent aggression and promotes religious participation later in life and in subsequent generations; that the effects are relatively independent of IQ, educational level, and gender; but that the main effects are limited by the significant tendency of participation in religious activities to turn the developmental trajectory of aggression upward for youth high in aggression and downward for youth low in aggression.

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