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Religiosity and Drug Use

THE CUMULATIVE ADVANTAGE OF RELIGIOSITY IN PREVENTING DRUG USE

SUNG JOON JANG, CHRISTOPHER D. BADER, BYRON R. JOHNSON

Although previous studies tend to find that religiosity is negatively associated with drug use, their findings are mostly nondevelopmental, whether based on cross-sectional or longitudinal data. Taking a life course perspective, we examine the effects of childhood religious socialization as well as involvement on drug use during later years. Based on the concept of cumulative advantage, it is hypothesized that religious upbringing decreases the probability of using drugs during adolescent years and into the early 20s indirectly not only via childhood religiosity but also through the protective and risk factors of drug use. To test this hypothesis, we conducted OLS regression analyses of three-wave panel data from the National Survey of Children. Results show that survey respondents raised by parents who believe religious training as well as service attendance to be important for children are less likely to use drugs during adolescence and early adulthood than those who were not raised by such parents.

INTRODUCTION

Prior research tends to find that adolescents who are religious are less likely to use drugs, licit or illicit, than those who are not (Hawkins, Jenson, Catalano, & Lishner, 1988; Johnson, Larson, Li, & McCullough, 2000; Stark & Bainbridge, 1996). These findings remain significant after holding social learning, social control, and strain variables constant (Jang & Johnson, 2001, 2003; Johnson, Larson, Jang, & Li, 2000; Koenig, McCullough, & Larson, 2001; Regnerus, 2003a; Smith, 2003).

However, previous studies of religious effects on drug use have been mostly nondevelopmental, despite the increasing emphasis on life course perspectives within

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Sung Joon Jang, Ph.D. is an associate professor of sociology at Baylor University. His research focuses on the effects of family, school, peers, religion, and community on crime and deviance. **Christopher Bader**, Ph.D., is an associate professor of sociology at Baylor University with interests in criminology and the sociology of religion. **Byron Johnson**, Ph.D., is professor of sociology and co-director of the Institute for Studies of Religion (ISR) as well as director of the Program on Prosocial Behavior, both at Baylor University. He is also a Senior Fellow at the Witherspoon Institute in Princeton, New Jersey.

criminology over the last 20 years (LeBlanc & Loeber, 1998; Sampson & Laub, 1993; Thornberry, 1987). For example, the current literature on religiosity and drug use among adolescents tends to be limited to studies based on data collected only for teenage years, although developmental perspectives imply the causal influence of religious upbringing on drug use throughout adolescence. Further, researchers have rarely examined the long-term effects of religious socialization and participation in religious activities during childhood on drug use beyond the years of adolescence. To fill this gap in the current literature, we examine the effects of religious upbringing and childhood involvement in religion on drug use during adolescence and early adulthood based on the concept of cumulative advantage.

THE CUMULATIVE ADVANTAGE OF RELIGIOSITY

Although the ideas of cumulative advantage and disadvantage are not new (Merton, 1968), the concept has received renewed interest from developmental scholars in an effort to explain why antisocial and criminal behaviors are relatively stable over long periods of the life course (LeBlanc & Loeber, 1998). Some criminologists attribute the behavioral stability to population heterogeneity in terms of static, time invariant factors like low self-control (Gottfredson & Hirschi, 1990), but developmental criminologists suggest that state-dependent, dynamic processes help to explain the observed continuity in criminal behavior. For example, while recognizing the explanatory relevance of population heterogeneity, Sampson and Laub (1993, 1997) propose that behavioral continuity can be explained largely by the cumulative continuity of disadvantage or, in short, cumulative disadvantage.[1]

Cumulative disadvantage refers to the progressive accumulation of negative structural consequences of antisocial or criminal behaviors. Specifically, an antisocial or criminal act is likely to generate negative reactions from society, such as official labeling, arrest, and negative life events associated with the act (e.g., divorce or loss of job), subsequently resulting in a disadvantaged status in the opportunity structure (e.g., school failure or dropout). Further deviant acts will negatively impact social capital by weakening or even severing ties to conventional others in the family, school, and community, while increasing opportunities for deviant associations (Thornberry, 1987). This cumulative continuity of disadvantages (i.e., negative consequences) explains the continuity in antisocial and criminal behavior, for example, how adolescent delinquency causes adult crime.

If negative life events or circumstances can result in cumulative disadvantage, it is also the case that positive circumstances or events often result in cumulative advantages that build throughout the life course. For example, children raised by parents who can afford costly preschool programs may have an immediate advantage over other children upon entering elementary school. This advantage may translate

into increased teacher attention and access to special programs which then create their own advantages.

The present study applies the cumulative continuity concept to explain the temporal stability of a prosocial behavior—religious involvement—by focusing on the potential cumulative advantages of religiosity (i.e., the progressive accumulation of positive consequences of religious involvement). That is, childhood involvement in religion is expected to have a positive causal effect on later religious involvement, partly because the early religious involvement tends to generate and strengthen prosocial relations. For example, religiosity is likely to enhance a child's attachment to parents, which, in turn, is likely to increase the continuity in religious involvement because the child does not want to jeopardize his or her relationship with parents by rejecting their religion.[2] Also, childhood involvement in religion and its prosocial consequences are likely to reduce antisocial behavior, such as drug use, that would be incompatible with the prosocial behavior of religious involvement and its resultant prosocial relations. In sum, the concept of cumulative advantage is expected to explain not only the continuity of religious involvement but also relatively low levels of drug use among religiously involved individuals.

PRIOR RESEARCH ON RELIGIOSITY AND DRUG USE

Previous studies provide empirical evidence that an individual's religiosity, measured in terms of religious involvement (e.g., religious service attendance and participation in religious activities) and religious salience (i.e., perceived importance of religion), tends to be negatively associated with crime and deviance, especially licit and illicit drug use (Hawkins et al., 1988; Johnson, Larson, Li et al., 2000). Criminologists tend to explain the negative association based on control, social learning, and strain theories (Agnew, 1992; Akers, 1985; Gottfredson & Hirschi, 1990; Hirschi, 1969). For example, Johnson, Jang, Larson, and Li (2001) empirically demonstrated how the effects of religiosity on delinquency are partly explained by the cumulative advantage of religiosity; that is, religiosity enhanced conventional moral beliefs and decreased delinquent peer association (see also Cochran & Akers, 1989; Evans, Cullen, Dunaway, & Burton, 1995). Also, a recent study shows that religiosity buffers or weakens the effects of strain generated negative emotions, especially anger, on drug use (Jang & Johnson, 2003).

Whichever theory is employed, a common premise of the explanations of religious effects on drug use is that religious individuals are encouraged to live normative and healthy lives because they are under the guidance of an institution prescribing prosocial behavior. In this way, religious effects, especially over time, can yield cumulative advantages for religious adherents over their nonreligious counterparts. Some researchers argue that religious effects are spurious (e.g., Cochran, Wood, &

Arneklev, 1994), but mounting evidence points to nonspurious effects of religiosity on crime and deviance, attributable partly to religiosity's prosocial outcomes (Evans et al., 1995; Johnson, Larson, Jang et al., 2000). For example, religiously involved adolescents are less likely to commit delinquency or use illicit drugs partly because they are more attached to their parents, more committed to educational goals, more conventional in moral beliefs, and less likely to have delinquent or drug using friends than their nonreligious peers (Jang & Johnson, 2001; Johnson et al., 2001; Johnson, Larson, Jang et al., 2000; Regnerus, 2003b).

Although previous research provides empirical evidence of religious effects on drug use, the current literature has been devoid of research based on life course perspectives until recently (e.g., Jang, 2002; Jang & Johnson, 2001). This oversight is unfortunate since life course perspectives have generated new research questions by applying and reformulating existing theories to study crime and deviance within a developmental context (LeBlanc & Loeber, 1998; Sampson & Laub, 1993). For example, few have examined whether childhood involvement in religion matters for later behaviors of abstaining from drugs. While it is commonly believed that religion inhibits later drug use, it is possible that its effects are limited at best since children often have no choice with regards to church attendance. In other words, if children are forced to go to church, can we expect childhood religiosity to impact later drug use? To address this issue, we construct a theoretical model based on the cumulative advantage concept.

THEORETICAL MODEL

The present study is intended to examine causal relationships between religiosity and drug use in a developmental context of cumulative continuity taking place over the first two decades of the life course. Specifically, it is postulated that the cumulative advantage of religiosity partly explains not only the stability of religious involvement but also religious effects on drug use over the life course. We also hypothesize that religiosity and drug use have reciprocal causal relationships with each other during childhood through early adulthood, and their prosocial and antisocial outcomes are expected to partly explain the relationships.

In this study, the prosocial and antisocial outcomes of religiosity and drug use are conceptualized in terms of three leading theories of crime and deviance: control, social learning, and strain theory. First, three variables of social bonding—attachment to parent, attachment to school, and commitment to school—and the concept of low self-control are included in the present study (Gottfredson & Hirschi, 1990; Hirschi, 1969). Second, we also include deviant peer associations as a measure of social learning, which previous research confirms as the strongest and most consistent predictor of crime and deviance, especially drug use (Akers, 1997; Thornberry &

Krohn, 1997). Finally, this study incorporates an emotional distress variable derived from Agnew's (1992) General Strain Theory (GST). Although GST conceptualizes strain as an antecedent of negative emotions, this study focuses on the emotional consequence of strain given that the effects of strain on crime and deviance, including drug use, tend to be mediated by negative emotions (Jang & Johnson, 2003).

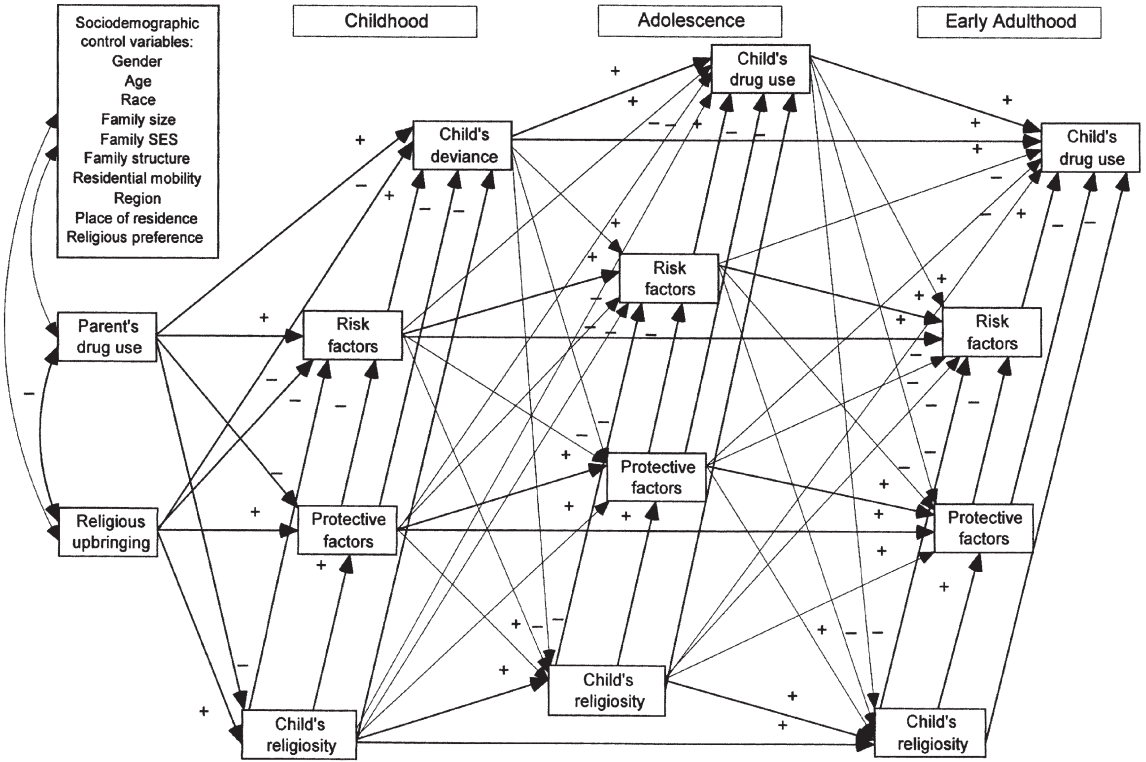
While all of the above variables are derived from causal theories of drug use, they are also causally related to religiosity. Religiosity is expected to generate prosocial outcomes such as attachment to parents, attachment to school, and commitment to school. In turn, religiosity may inhibit negative outcomes such as low self-control, deviant peer associations, and emotional distress. Drug use is expected to have the opposite effect, decreasing attachments and commitments and increasing the likelihood of deleterious outcomes. Variables drawn from these theories can be specified in a theoretical model as intervening variables between religiosity and drug use, being reconceptualized in terms of protective versus risk factors.[3] This reconceptualization is based on Jessor's (1991) reformulation of problem behavior theory (Jessor & Jessor, 1977), in which he organizes the theory's main constructs—controls against involvement in problem behavior and instigations for engaging in problem behavior—into protective and risk factors.

Figure 1 shows the present study's theoretical model of causal relationships among religiosity, protective factors, risk factors, and drug use during childhood through early adulthood.[4] Besides those discussed above, the model includes hypothesized relationships that need to be explained. First, the model has two key exogenous variables along with sociodemographic controls: religious upbringing and parent's drug use during childhood. Religious upbringing, which can be measured by parent's (or other legal guardian's) religiosity, is probably the most important structural determinant of a child's involvement in religion. Parental drug use is a key predictor of a child's drug use from the social learning perspective (Akers, 1985). While the diagram does not show all causal paths from exogenous to endogenous variables to reduce visual clutter, causal effects of all exogenous variables on all endogenous variables will be estimated.

Second, contemporaneous causal relationships among the four variables within each developmental stage are specified as a sequential model with risk factors being the most proximate cause of drug use (deviance in childhood) and preceded by protective factors and religiosity. It is modeled that religiosity has causal effects on drug use (deviance in childhood) rather than the other way around. This causal ordering is assumed because whether or not a child begins to get involved in religion is likely to be determined at a very early age before his or her first deviant behavior, depending on whether he or she is born into a religious family or not, although causal relationships between religiosity and drug use are expected to

FIGURE 1

THEORETICAL MODEL OF THE CAUSAL RELATIONSHIPS AMONG RELIGIOSITY, PROTECTIVE FACTORS, RISK FACTORS, AND DEVIANCE/DRUG USE DURING CHILDHOOD THROUGH EARLY ADULTHOOD



Note. Paths from exogenous (i.e., sociodemographic controls, parent's drug use, and religious upbringing) to all endogenous variables and from childhood to early adulthood endogenous variables (including those of stability coefficients shown above) are estimated, but are not shown here to reduce visual clutter.

be reciprocal afterwards. Specifying protective factors as causally preceding risk factors is based on the assumption that most children are socialized by the family and school to develop prosocial relations (e.g., attachment to parent) before they get exposed to antisocial relations (e.g., deviant peer associations) or come to have antisocial propensities (e.g., low self-control or emotional distress) partly as a result of ineffective socialization and weakening influence of the conventional social institutions (Agnew, 1992; Gottfredson & Hirschi, 1990).

Finally, the causal effects of religiosity on drug use (deviance in childhood) are hypothesized to be direct as well as indirect via protective and risk factors. This direct effect is specified not only because those protective and risk factors are unlikely to mediate all the religious effects, but also because religiosity is likely to have a causal influence that cannot be explained in terms of "secular" variables. While this study is not intended to focus on explaining the uniquely religious effects of religiosity on drug use, we can expect that simple belief in a supernatural authority that judges one's behavior may have an independent effect upon one's deviant behavior.

In sum, we test the following hypotheses by estimating the theoretical model (Figure 1):

- *Hypothesis 1*. Religious upbringing is the antecedent of a child's religious involvement during childhood and increases the child's religiosity during adolescence and early adulthood.
- *Hypothesis 2*. Childhood religiosity decreases the probability of the child using drugs during adolescence and early adulthood indirectly by decreasing childhood deviance.
- *Hypothesis 3*. Religiosity decreases the probability of the child's deviance and drug use directly as well as indirectly by generating prosocial outcomes (protective factors) and reducing antisocial outcomes (risk factors) for drug use.
- *Hypothesis 4*. Parent's drug use during the child's preadolescent years is likely to increase the probability of the child's drug use during adolescence and early adulthood directly as well as indirectly by increasing the child's deviance during childhood.

METHODS

DATA

Data to test the present hypotheses come from the National Survey of Children (NSC). The NSC is a three-wave panel study, conducted in 1976 (Wave 1), 1981 (Wave 2), and 1987 (Wave 3), based on a nationally representative sample of children living in households in the 48 contiguous states (Zill, Furstenberg,

Peterson, & Moore, 1990). When interviewed for the first wave, children born between September 1, 1964, and December 31, 1969, were 7 to 12 years old and were reinterviewed when they were 11 to 16 years old (Wave 2) and then 17 to 22 years old (Wave 3). Multi-stage stratified probability sampling design generated a list of 2,193 households containing one or more eligible children, from which data were obtained for 2,301 children based on interviews with 2,279 children and 22 parents most knowledgeable about the child (in cases where children were unable to be interviewed) in 1,747 households, a completion rate of 80%.[5]

Wave 2 of the survey was based on reinterviews with a subsample of those originally studied in 1976 because the focus of the 1981 survey was the effects of marital conflict and disruption on children. Specifically, the subsample included 1,350 of the 1,747 families of the Wave 1 sample. Given the second survey's focus, all of the 716 families classified as "disrupted and reconstituted families" were included in the Wave 2 sample (i.e., sampled with certainty) so that reinterviews might be sought with all children who were found in 1976 to be living in a high conflict or disrupted family in terms of family structure. On the other hand, only 634 of 1,031 "stable families" were included in the Wave 2 sample. To adjust for the differential rates of selection (i.e., oversampling "disrupted and reconstituted families" and undersampling "stable families"), new weights were developed, which the present study applies for generalization of findings. Ninety percent of the children were relocated, and interviews were obtained with more than 90% of those located, yielding an overall response rate of 82% among those selected for follow-up. Telephone interviews were conducted with the child and the more knowledgeable parent. A total of 1,423 children completed the second interview.

A total of 1,151 Wave 3 interviews were completed with 1,147 interviews with youths and four interviews with parents whose child had died, showing a response rate of 82%. Between the first and third waves, 68% of the original sample had been interviewed. Because this attrition was not random, the data were reweighted using race, age, sex, city size, family income, and the number of years the family has lived at the current address in Wave 1 to reduce biases introduced by selective attrition. In addition, as mentioned above, an adjustment was made for the subsampling between Waves 1 and 2. As a result, the weighted sample (n = 1,127) is representative of the U.S. population of children born between September 1, 1964, and December 31, 1969, and living in households in the 48 contiguous states in 1976 (Zill et al., 1990).[6] The present study analyzes the weighted data from the NSC.

MEASUREMENT

Religious upbringing is measured by an item included in the first wave's parent survey, which asked how important it was to the parent respondent to provide

religious training for his or her child aside from attending religious services (see Appendix). While this is the only item available in the survey to measure religious upbringing, we believe that the item is valid because it specifically asks about the parent's perceived importance of the child's receiving religious training in addition to attending religious services. This measure was constructed under the assumption that those parents who answered the survey question affirmatively were more likely to make systematic and conscious efforts to raise their children in a particular religion so that they may grow up internalizing particular religious beliefs and values more than those who did not.

Despite their noticeable similarities, not all religions are the same in fundamental doctrines and practical teachings, including behavioral principles relevant to the lifestyle of using drugs, whether legal or illicit. Indeed an abundance of research in the sociology of religion notes how differing levels of strictness amongst religious denominations impact religious and nonreligious behaviors and attitudes (cf. Finke & Stark, 2005; Iannaccone, 1992, 1994; Stark & Finke, 2000). To control for the effects of religious denomination we utilize the RELTRAD classification scheme developed by Steensland et al. (2000). Steensland and his associates developed a typology of American religious denominations by researching their history and theology. The RELTRAD scheme places respondents into one of seven categories based on their reported denomination—Catholic, Black Protestant, Evangelical Protestant, Mainline Protestant, Jewish, "other," and none (no religious affiliation).[7]

Unfortunately, the NSC provides religion data in a manner that precludes the development of a full RELTRAD measure. Specifically, the NSC's denomination variable groups many religious groups into larger families. For example, members of any Baptist denomination are simply listed as "Baptists," whether Southern Baptist, Northern Baptist, National Baptist, or one of the many other denominations that share a Baptist heritage. As such we were not able to separate out Black Protestants and were forced to place respondents into a RELTRAD category based on the general tendency toward strictness of the religious family as a whole. For example, while some Baptist denominations, such as the Northern Baptists, are theologically liberal in their orientation, Baptist denominations tend towards the stricter/more conservative end of the religious spectrum. Therefore, we coded Baptist respondents as Evangelical. In a similar vein, Presbyterian denominations tend to be liberal in their theological orientation. Thus Presbyterian respondents were coded as Mainline. Steensland et al. used frequency of church attendance to determine if someone who claimed to be a nondenominational Christian was Evangelical or Mainline. We used a similar method in several cases. For example, when an NSC respondent reported being a Protestant, but did not provide a denomination, we coded them as Evangelical if they attend church on a weekly basis or more often and Mainline

otherwise. Religious tradition was entered as a series of dummy variables with Evangelical as the contrast category.[8]

Multiple items of child's religiosity are available at all three waves, although they are not the same in source and content across the waves. In the first two surveys, parents were asked about frequency of their children's attendance at religious service, including Sunday school or other religious class, whereas children were asked how much they liked or disliked going to church, Synagogue, or Sunday school. We constructed a child religiosity measure by weighting (i.e., multiplying) the former by the latter to incorporate the child's attitude toward religious activities into the measure. In Wave 3 of the child's survey, five items were included regarding perceived importance of religion and belief about the Scriptures as well as frequency of service attendance, other religious activities, and prayer. Standardized items were summed for a composite measure based on high inter-item reliability ($\alpha = .79$) and factor loadings.

In the last survey, child respondents were asked whether their parents drank, smoked, and/or used illicit drugs, while they were growing up (specifically, between the ages of about 8 and 14). Three items of parent's drug use have acceptable inter-item reliability ($\alpha = .60$) and were loaded on a single factor with high loadings. These items were standardized and summed for a composite measure of parent's drug use. On the other hand, child respondents were asked to self-report their own use of drugs, licit and illicit, at Waves 2 and 3, by answering four and five questions, respectively. The multiple items show good inter-item reliability in each wave (.69 and .73) and were summed to measure child's drug use. For Wave 1, however, a composite index of the child's nondrug deviance during childhood was constructed by using three items from the parent survey (theft and behavior or discipline problems at school) and an item from the child survey (fighting at school).[9]

Our measure of the child's protective factors is operationalized using three measures of Hirschi's (1969) social bonding: attachment to parent, attachment to school, and commitment to school. As the Appendix shows, they tend to be reliable measures in terms of Cronbach's alpha, ranging from .80 to .88, although some of them had to be based on one or two items. The measure of attachment to parent taps the child's affective ties and close communications with as well as sensitivity to potential embarrassment to his or her parents, whereas that of attachment to school focuses on the child's positive attitudes toward school. Commitment to school is measured in terms of the child's academic performance, an indicator of stake in conformity, something students are unlikely to want to jeopardize by committing deviant acts or using drugs.

While the measurement of protective factors is based on a single theory of control, the construct of risk factors is measured by three multi-item scales derived from

control, social learning, and strain theories. The first risk factor, low self-control, derives from Gottfredson and Hirschi's (1990) general theory of crime and is operationalized using the behavioral indicators that the theory's authors emphasize (Hirschi & Gottfredson, 1993) as well as attitudinal items measuring whether the child is risk taking, imprudent, noncognitive, impulsive, and indifferent or insensitive to the suffering and needs of others.[10] Wave 1 and 2 measures are based on three items each included in the parent survey, whereas the Wave 3 measure is constructed using five items from the child's self-report. The three multi-item measures have marginally acceptable inter-item reliability, ranging from .50 to .52, and the factor loadings are generally high.[11]

The second risk factor is based on Aker's (1985) social learning theory: associations with deviant, especially drug using peers, which has been found to be the strongest predictor of delinquency and drug use during adolescence (Thornberry & Krohn, 1997). The first survey did not include any item about the child's associations with deviant peers, but the next two surveys provide data, though limited, to measure the key predictor of drug use. Specifically, the Wave 2 measure of deviant peer associations is based on a single item in the parent survey asking whether the child "hangs around with kids who get into trouble," whereas the Wave 3 measure is based on four items asking the child whether their friends are favorable to and engage in drug use. The four items show acceptable inter-item reliability ($\alpha = .67$) with high factor loadings and were therefore summed to construct a composite measure.

Our third risk factor is based upon strain theory and Agnew's (1992) concept of negative emotions. Wave 1 and 2 measures of emotional distress consist of four and two items, respectively, with a Cronbach's alpha of .59, whereas the Wave 3 child survey included 16 items of depression/anxiety and anger/frustration ($\alpha = .91$). Previous research shows that both self- (i.e., depression and anxiety) and other-directed emotions (i.e., anger and frustration) tend to increase drug use in reaction to strain (Jang & Johnson, 2003).

Finally, the present study controls for several sociodemographic variables that tend to be correlated with religiosity, deviance, drug use, and the protective and risk factors of drug use (Agnew, 1992; Akers, 1985; Gottfredson & Hirschi, 1990; Hawkins et al., 1988; Hirschi, 1969; Jang, 2002; Jang & Johnson, 2001, 2003; Johnson et al., 2001; Thornberry, 1987; Thornberry & Krohn, 1997). We control for the child's gender (0 = male, 1 = female), age, race (0 = non-White, 1 = White), family size (i.e., number of children living in the same household), family socioeconomic status (sum of standardized scores of family income, parent's education, and parent's occupational prestige; $\alpha = .77$), family structure (0 = married, widowed, or never married, 1 = divorced or separated), and residential mobility (i.e., number of moves in the last five years). While most of these variables were measured at all three

waves, Wave 1 measures are included in the subsequent analysis to control for the sources of spuriousness.

Analytic Strategy

We conducted ordinary least squares (OLS) regression analysis to estimate the theoretical model (see Figure 1). The model includes 12 endogenous variables, four in each of the three developmental stages (i.e., childhood, adolescence, and early adulthood), so a total of 12 regression models (Models 1 to 12) were estimated. For example, in Model 1 childhood religiosity was regressed on all sociodemographic controls and the two key exogenous variables (i.e., religious upbringing and parent's drug use), whereas in Model 2 childhood protective factors were regressed on all the exogenous variables plus childhood religiosity. The process was repeated for the remaining models.

Regression analyses were conducted, using the method of listwise deletion of missing cases. This treatment of missing data slightly reduced the weighted total sample size from 1,127 to 1,044. T-test results showed that the excluded 83 cases tend to be non-White male respondents who grew up in non- or less religious families living in large central cities during childhood and were less religious and at higher risk of drug use during adolescence and early adulthood. While this nonrandom nature of deleted missing cases is not unexpected, findings presented below should be interpreted with this in mind.[12]

Results

Table 1 reports descriptive statistics for dummy variables as well as ordinal or higher levels of variables, and presents frequency distributions of categorical variables. The weighted final sample (n = 1,044) is 51.0% female and 82.6% White (13.7% Black, 2.5% Hispanic, .2% Asian, and 1.0% other), and the average age of child respondents is about 9 years (at Wave 1). They are almost evenly distributed across the ages except the youngest and oldest age category: 6 = 42 (4.0%), 7 = 192 (18.4%), 8 = 185 (17.7%), 9 = 185 (17.7%), 10 = 186 (17.8%), 11 = 218 (20.9%), and 12 = 36 (3.5%). According to the U.S. Census Bureau's (1976) *Statistical Abstract*, the population of children, ages 5 to 13, was 49% female and 84% White when the Wave 1 survey was conducted. Although the percentages are not directly comparable because the Census data include two additional age groups, 5 and 13, the present sample is likely to be a good representation of those who were 6 to 12 years old in 1976, especially in terms of sex and race composition (Zill et al., 1990).

Results from estimating the theoretical model (Figure 1) are summarized in Table 2. Each wave includes four endogenous variables (i.e., child's religiosity, protective factors, risk factors, and deviance/drug use), and standardized regression coefficients

of exogenous and endogenous variables are presented in five panels. While the first panel reports estimated effects of sociodemographic controls on endogenous variables, we focus here on the second panel that shows estimated effects of the

TABLE 1
DESCRIPTIVE STATISTICS AND FREQUENCY DISTRIBUTION OF VARIABLES (N = 1,044)

Variable	Mean	Standard Deviation	Minimum	Maximum
Sex (female)	.51	.50	.00	1.00
Age	9.04	1.61	6.00	12.00
Race (White)	.83	.38	.00	1.00
Family size	3.32	1.59	1.00	7.00
Family SES	.10	2.41	-9.33	7.24
Separated/divorced	.14	.34	.00	1.00
Residential mobility	1.32	1.72	.00	15.00
Parent's drug use	-.03	2.07	-4.98	8.61
Religious upbringing	3.64	.61	1.00	4.00
Child's religiosity W1	13.75	6.30	1.00	25.00
Protective factors W1	.08	1.99	-6.93	4.57
Risk factors W1	-.04	1.69	-3.18	7.46
Child's deviance W1	.60	1.10	.00	9.00
Child's religiosity W2	12.72	5.21	1.00	20.00
Protective factors W2	.06	1.97	-8.25	4.21
Risk factors W2	-.10	1.91	-2.43	10.88
Child's drug use W2	-.01	2.38	-1.96	11.53
Child's religiosity W3	.06	3.72	-8.12	8.24
Protective factors W3	.20	.85	-2.66	1.70
Risk factors W3	-.08	3.52	-7.80	11.59
Child's drug use W3	-.05	2.22	-3.33	8.32

Variable	Category	Frequency	Percent	Cumulative Percent
Region	Northeast	242	23.1	23.1
	Midwest	369	35.3	91.4
	South	344	33.0	56.1
	West	90	8.6	100.0
		1,044	100.0	
Place of residence	Large central city (1 million+)	84	8.0	8.0
	Medium central city (250,000-999,999)	113	10.8	18.8
	Small central city (50,000-249,999)	74	7.1	25.9
	Noncentral city (SMSA)	421	40.3	66.2
	Nonmetropolitan area	352	33.7	100.0
		1,044	100.0	
Religious preference	Evangelical Protestant	431	41.3	41.3
	Mainline Protestant	232	22.2	63.5
	Catholic	282	27.0	90.5
	Jewish	7	.7	91.2
	Other	14	1.3	92.5
	None	78	7.5	100.0
		1,044	100.0	

Note. Items used to construct variable's measure are mostly not the same across waves, so measures of a same variable cannot be directly compared among the waves in terms of descriptive statistics, such as mean.

two key exogenous variables (i.e., parent's drug use and religious upbringing) on the endogenous variables of 12 regression models (Models 1 through 12) and the next three showing estimated causal relationships among Waves 1 to 3 endogenous variables.

Although the bottom four panels of Table 2 report all coefficients directly relevant to the testing of our hypotheses, Figure 2 shows only significant ones for visual presentation of hypothesis testing results. Hypothesis 1 receives empirical support. As hypothesized, religious upbringing has a direct positive effect on the child's religiosity during childhood (β = .33) and indirect effects on religiosity during adolescence and early adulthood via childhood religiosity. Further, a religious upbringing (having children attend religious services and providing religious training) also has direct effects on religiosity during early adulthood (β = .08).

Hypothesis 2 receives partial support. A child's religiosity strengthens protective factors (β = .16) that inhibit childhood deviance both directly (β = -.10) and indirectly through their suppression of risk factors (β = -.34) for deviance. Deviance as a child is significantly and positively related to drug use in early adulthood (β = .14). In other words, childhood religiosity decreases the probability of drug use in early adulthood through a series of significant, indirect effects. Interestingly, although childhood deviance was found to have no significant effect on drug use during adolescence (β = .05), a close examination revealed that the effect was significant (β = .07, p = .024, two-tailed test) before the variable of Wave 2 risk factors was added to the model (i.e., Model 8 in Table 2).

Hypothesis 3 also receives partial support. Religiosity does indeed have significant direct and indirect effects on deviance and drug use during adolescence and early adulthood. However, there was no significant direct effect of child's religiosity on childhood deviance (β = -.00). All significant effects of childhood religiosity on childhood deviance were indirect. Additional analysis showed that the coefficient was not significant before adding protective and risk factors to the regression model of childhood deviance (Model 4).

Another potentially interesting observation related to Hypothesis 3 is the significant positive (rather than negative) coefficients associated with the effects of childhood and adolescent religiosity on risk factors during early adulthood (β = .08 and .07). While this could be simply a statistical anomaly, the finding may indicate undesirable consequences associated with religious involvement during childhood and adolescence. We discuss this issue below.

Finally, Hypothesis 4 is strongly supported. As hypothesized, parent's drug use during their children's preadolescent years has significant direct effects on childhood deviance (β = .07) and drug use during adolescence (β = .08) and early adulthood (β = .09). In addition, parent's drug use has significant indirect effects on childhood

TABLE 2

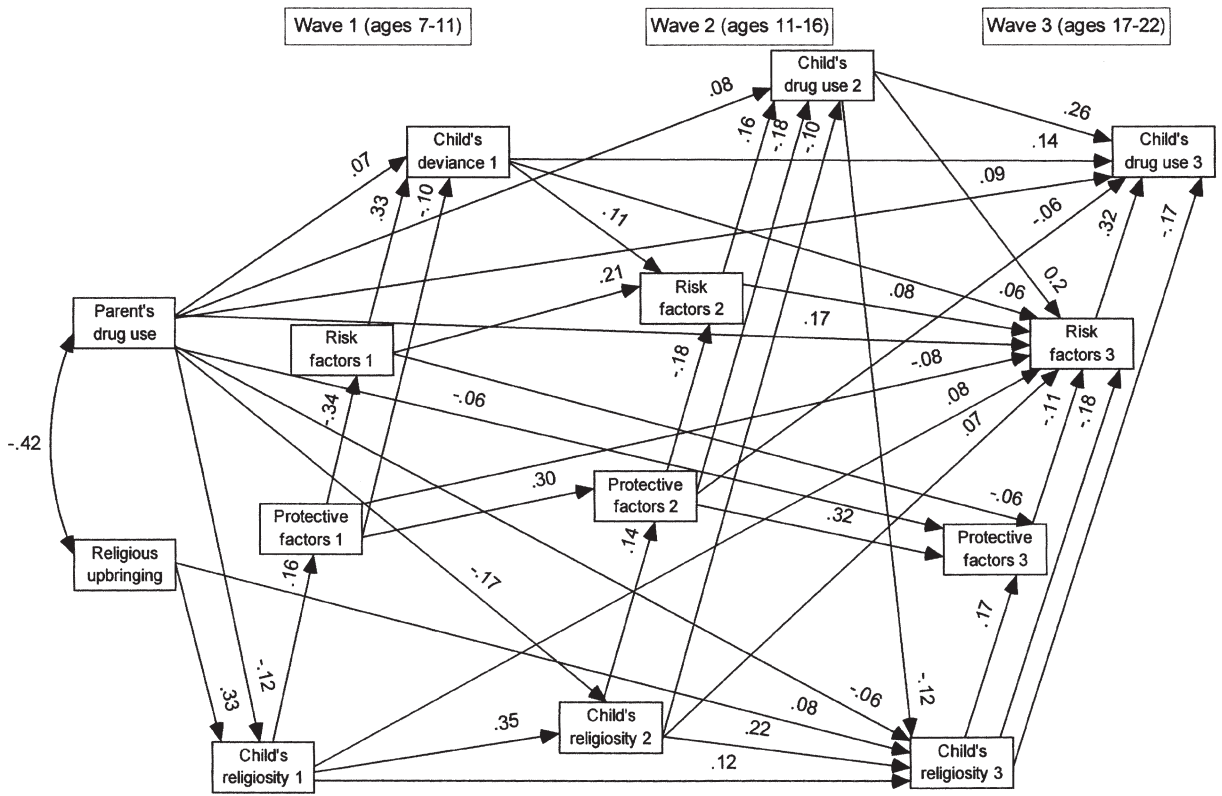
STANDARDIZED OLS REGRESSION COEFFICIENTS: THREE-WAVE PANEL MODEL OF RELIGIOSITY AND DRUG USE (N = 1,044)

	Wave 1 (ages 7-12)				Wave 2 (ages 11-16)				Wave 3 (ages 17-22)			
Exogenous/ Endogenous Variables	(1) Religiosity	(2) Protective factors	(3) Risk factors	(4) Deviance	(5) Religiosity	(6) Protective factors	(7) Risk factors	(8) Drug use	(9) Religiosity	(10) Protective factors	(11) Risk factors	(12) Drug use
Female	.17*	.19*	-.09*	-.08*	.06*	-.09*	.02	.05	.12*	-.08*	-.12*	-.08*
Age	-.02	-.04	-.01	.00	-.07*	-.03	.02	.40*	-.00	.06	-.01	.03
White	.08*	-.10*	.04	.00	-.02	-.02	-.03	.08*	-.04	.08*	-.03	.10*
Family size	.04	-.04	-.02	-.04	-.01	-.07*	.02	.07*	.11*	-.00	-.00	.00
Family SES	.09*	.13*	-.15*	.00	.09*	.13*	-.01	.04	.03	.02	.04	.04
Separated/divorced	-.01	-.04	.05	.04	-.02	.04	.12*	-.03	-.02	-.21*	-.00	-.02
Residential mobility	.03	.03	.05	.06*	-.03	-.01	-.01	.02	-.04	-.01	.01	-.02
Region (Northeast)	-.04	.00	.05	.08*	-.16*	.01	-.05	.11*	-.09*	.03	-.00	-.06
Region (Midwest)	.00	.00	.05	.00	-.04	.03	.05	.11*	-.17*	.03	.02	.02
Region (West)	-.02	-.03	.06	-.03	-.09*	-.03	-.00	.06	-.06	.04	-.02	.02
Central city (1 million+)	.06	.04	.01	.05	.00	.01	.10*	-.04	.00	-.06	.02	.01
Central city (250,000-999,999)	.04	.07*	-.09*	.06*	-.02	-.06	-.06	.01	.10*	-.04	.02	-.07*
Central city (50,000-249,999)	-.03	.04	.00	-.04	.02	.08*	.04	.04	-.02	-.01	.04	-.04
Noncentral city, SMSA	.03	.06	.00	.06	-.04	-.01	-.01	.02	.02	-.02	.02	.00
Mainline Protestant	-.16*	.04	.07*	-.03	-.10*	-.03	.04	-.02	-.06	.01	.03	.01
Catholic	.03	.05	.04	-.04	-.00	-.02	.03	-.02	-.10*	.05	.11*	-.01
Jewish	-.06*	.01	.05	-.00	-.01	-.00	.02	.05*	-.03	-.01	.03	-.02
Other religion	-.04	-.02	.00	.02	.03	.03	-.03	.01	-.02	.02	.00	-.04
No religion	-.16*	.03	-.00	-.03	-.11*	-.04	-.01	-.01	.03	-.01	-.00	-.05
Parent's drug use	-.12*	-.00	.04	.07*	-.17*	.00	.03	.08*	-.06*	-.06*	.17*	.09*
Religious upbringing	.33*	.02	-.04	.03	.06	.01	-.00	.04	.08*	-.01	-.02	-.04
Child's religiosity W1		.16*	.00	-.00	.35*	.03	-.04	.03	.12*	.05	.08*	.00
Protective factors W1			-.34*	-.10*	.03	.30*	-.02	-.04	-.03	-.04	-.08*	.02
Risk factors W1				.33*	-.01	-.05	.21*	-.02	.00	-.06*	-.03	-.01
Childhood deviance W1					.02	-.06	.11*	.05	-.01	-.04	.06*	.14*
Child's religiosity W2						.14*	-.03	-.10*	.22*	-.03	.07*	.02
Protective factors W2							-.18*	-.18*	-.01	.32*	-.05	-.06*
Risk factors W2								.16*	.00	-.03	.08*	-.04
Child's drug use W2									-.12*	-.01	.20*	.26*
Child's religiosity W3										.17*	-.18*	-.17*
Protective factors W3											-.11*	-.01
Risk factors W3												.32*
Adjusted R^2	.26	.09	.18	.19	.30	.19	.18	.31	.24	.25	.21	.42

* $p \leq .05$ (two-tailed test).

FIGURE 2

ESTIMATED MODEL OF THE CAUSAL RELATIONSHIPS AMONG RELIGIOSITY, PROTECTIVE FACTORS, RISK FACTORS, AND DEVIANCE/DRUG USE DURING CHILDHOOD THROUGH EARLY ADULTHOOD (N = 1,044)



Note. Only significant (standardized) coefficients are shown, and sociodemographic variables are controlled but not presented in this diagram (see Table 2).

deviance and drug use during adolescence, both of which have significant direct effects on drug use during early adulthood (β = .14 and .26, respectively).[13]

DISCUSSION AND CONCLUSION

Sampson and Laub's (1993) influential *Crime in the Making* cemented the place of life course theories of crime in criminological research. Specifically, Sampson and Laub note the importance of early life experiences in shaping the protective and risk factors that promote or inhibit future levels of deviant behavior. Therefore, crime can be the result of a trajectory that begins in early life. As the life course perspective has gained influence in recent years, an obvious variable that can establish or shape a life trajectory has been virtually ignored—religion.

Given that many religions are founded upon belief in an omnipotent being with the power to judge and/or punish deviant behavior, it makes sense to assume that personal religiosity might have an impact on deviant behavior. To the extent that religion indeed promotes protective factors, such as attachment to parents and avoidance of deviant peers, as previous research finds (Jang & Johnson, 2001; Johnson, Larson, Jang et al., 2000), we can expect personal religiosity to exert a cumulative effect on deviant behavior, including drug use. To the extent that a person develops religious beliefs early in life, we can expect its cumulative effects to be magnified. Indeed our findings generally support this contention. As Hypothesis 1 predicted, we found that raising a child in a religious household tends to produce children who remain religious into adulthood. This finding is in line with a long body of research on the transmission of religious beliefs, behaviors, and values (see Bader & Desmond, 2006, for a review). Further, we found evidence that child religiosity does indeed have effects that persist into early adulthood. The child's religiosity both strengthens the protective factors and weakens the risk factors that promote deviant behavior and drug use, as predicted in Hypothesis 2.

Our most curious finding relates to Hypothesis 3. We found that personal religiosity indeed has significant direct and indirect dampening effects on drug use during adolescence and into early adulthood. However, we also found that childhood and adolescent religiosity have significant and positive effects upon early adulthood risk factors for drug use. Perhaps these counterintuitive findings are evidence of differential developmental effects of religious involvement during childhood and adolescence, and how, if at all, they are mediated by religious involvement during early adulthood. For example, it may be that children who are forced by parents to participate in religion or religious activities are less likely to realize anticipated outcomes once the child enters the developmental stage of individual autonomy (i.e., adolescence and early adulthood). Stated differently, it may be that early involvement in religion leads some children to develop animosity toward the religion

that they reluctantly followed as a child. In this line of thinking, it is possible that early religious involvement for some may result in antisocial outcomes later in the child's life, especially when the animosity is expressed in the form of rebellious and self-destructive behaviors and lifestyles.

Our findings have implications for several areas of further research. First, per our results regarding Hypothesis 3, further research is needed that examines more intentionally the discontinuity or instability in religion. Continuous religious involvement appears to result in a powerful cumulative advantage with regards to lowered drug use. Future research is necessary to determine if being raised religious indeed increases risk factors for deviance, should the child ultimately leave the religion. In a similar vein, research should examine the effects, if any, that acquiring a religion later in life (e.g., spiritual transformations and conversions are not uncommon among a significant percentage of Americans) or switching between religious traditions has upon protective factors, risk factors, and deviance itself.

Another fruitful line of research would be in specifying why religion has direct effects on deviant behaviors. The indirect effects of religion on deviant behavior are easily understood based on past research and theory. Religion tends to promote conformity—therefore religious people will tend to have conforming friends and become attached to conforming institutions. Much less understood or even dismissed by some (Cochran et al., 1994) is the nature of the direct effects of religiosity found in this and other studies. Is there something unique about religious effects that cannot be explained in terms of the so-called secular variables of control, learning, and strain? Perhaps religion's unique ability to call upon the "supernatural" gives it the impetus to modify behavior. Or perhaps the power of religion simply lies in heretofore unspecified indirect effects. It is hoped the further research can clarify this issue.

While we examined understudied research questions about religious effects on drug use, several limitations of this study are to be recognized. First, although we believe our measure of religious upbringing is not invalid, the content validity of our single item measure is obviously limited. This might have resulted in underestimation of the effects of religious upbringing on drug use among youths. Second, because our data were collected from a national sample and thus the sample was mostly White, we could not estimate the model separately for ethnic minorities, who tend to be more religious than Whites (e.g., Blacks), to see whether overall findings remain the same for non-Whites. Given their greater involvement in religion, the effects of religious upbringing on drug use might be larger among ethnic minorities than Whites. Finally, we could not examine the effects of religious involvement in a larger context of prosocial behaviors due to data constraints. Such examination would have

enabled us to see whether and how different types of prosocial behaviors, religious and nonreligious, work together in reducing drug use among youths.

Over the past several decades the scientific study of religion within criminology has grown in impressive ways. This trend mirrors the significant growth in the broader scientific study of religion in a number of other disciplines (see Koenig et al., 2001). Improved methodological and theoretical applications have improved our understanding of the mechanisms by which religion is relevant to explaining or thinking about crime and deviance. The present study takes another step in adding to this emerging body of research on religion and crime. The positive causal relationships among religious upbringing and a child's religiosity, the positive causal relationships among parent's drug use and the child's deviance/drug use, and the mediating variables—that is, protective factors and risk factors—between the two sets of causal relationships together represent the developmental processes of cumulative advantage of religiosity and the cumulative disadvantage of deviance and drug use. Specifically, in a developmental context the present study empirically demonstrates how the cumulative advantage of religiosity, which we conceptualized as originating from religious upbringing, helps adolescents and young adults avoid getting trapped in the addictive habit of using drugs, whether smoking, drinking, or getting high on marijuana and/or other illicit drugs. Whether religion ultimately proves to have entirely indirect effects on deviant behavior or a mixture of direct and indirect effects, one thing is clear—religion is a powerful inhibitor of deviant behavior and drug use. As such, social scientists and criminologists would be well served by giving religion more serious consideration when specifying research models as well as developing and testing theoretical lines of inquiry.

Decades of survey research have consistently confirmed that Americans are highly religious. However, recent research suggests that although religion remains vibrant in the U.S., the American religious landscape is, in fact, quite diverse and that religious people tend to hold very different views of God (Bader et al., 2006). Understanding how various behavioral trajectories and events in the life course are influenced by religious or spiritual matters is clearly an understudied and important area for future research.

APPENDIX: ITEMS USED FOR ANALYSIS

Variable	Description of Item	Factor loading (α) W1	W2	W3
Religious upbringing	W1P: "Aside from attending religious services, how important is it to you to provide religious training for your child(ren)? Would you say it is: …?" (1=Not at all important, 2=Fairly unimportant, 3=Fairly important, 4=Very important)	.√		
Religious denomination	W1P[a]: "In what religion, if any, are you raising your child(ren)?" (1=Evangelical Protestant, 2=Mainline Protestant, 3=Catholic, 4=Jewish, 5=Other, 6=None)	.√		
Child's religiosity	W1&2P: "In the past year, about how often (has/have) the child(ren) attended religious services, including Sunday School or other religious class?" (1=Not at all, 2=A few times a year or less, 3=Two or three times a month, 4=About once a week, 5=More than once a week)	.√	.√	
	W1&2C: "How do you feel about going to church, Synagogue, or Sunday School?" (1=Hate, 2=Don't like, 3=Not sure, 4=Like, 5=Love)	.√	.√	(.79)
	W3C: "Do you attend religious services or activities?" (1=Never, 2=A few times a year, 3=A t least once a month, 4=About once a week)			.75
	"About how often have you participated in any church activities, such as a group for young adults or a choir?" (1=Never, 2=A few times a year, 3=Monthly, 4=Weekly, 5=Daily)			.57
	"How often do you pray, if ever, either before a meal or at any other time?" (1=Never, 2=Almost never, 3=Occasionally, 4=At least once a week, 5=About once a day, 6=Several times a day)			.79
	"How important is your religion to you?" (1=Not very important, 2=Fairly important, 3=Very important)			.75
	"Some people say that the Scriptures are the actual word of God and are to be taken literally, word for word? Do you …?" (1=Strongly disagree, 2=Disagree, 3=Agree, 4=Strongly agree)			.45
Parent's drug use	W3C: "While you were growing up, that is, between the ages of about 8 and 14, did your father/mother …"			(.60)
	(1) … drink? (1=Not drink at all, 2=Just drink occasionally, 3=Drink moderately, 4=Drink heavily on occasion, 5=Drink heavily and fairly regularly, 6=Get drunk fairly regularly)			.56
	(2) … smoke? (1=No, 2=Yes, only on rare occasions, 3=Yes, a light smoker, 4=Yes, a moderate smoker 5=Yes, a heavy smoker)			.42
	(3) … ever use illegal drugs, to your knowledge, such as marijuana, LSD, or cocaine? (1=No, 2=Yes)			.42
Child's drug use	W2C: "Have you used … in the last two weeks?"		(.69)	
	(1) … alcohol, other than just a sip		.60	
	(2) … cigarettes		.59	
	(3) … marijuana		.81	
	(4) … other drugs, such as LSD, coke, uppers or downers (1=No, 2=Yes)		.44	
	W3C: "During the past 12 months, did you use …?			(.73)
	(1) … alcohol, other than just a sip			.38
	(2) … marijuana or hashish, even once			.73
	(3) … cocaine, coke, crack or snow, even once			.79
	(4) … other nonprescription drugs or intoxicants such as LSD, uppers or downers,			.70
	(5) … tobacco, that is, cigarettes, cigars, a pipe, snuff or chewing tobacco even once (0=Never used, 1=Not at all, 2=Less often, 3=Monthly, 4=Weekly, 5=Daily)			.35
Child's deviance	W1P: "Has (child) ever stolen anything, regardless of its value?" (0=No, 1=Yes, once or twice, 2=a few times, 3=many times)	.√		
	"Has (child) ever had any behavior or discipline problems at school, resulting in receiving a note or being asked to come in and talk with the teacher or principal?"	.√		
	"Has (child) ever been suspended, excluded, or expelled from school?" (0=No, 1=Yes, once, 2=Yes, more than once)	.√		
	W1C: "Did you get into a fight at school last week? Did you get hit or pushed hard enough to get hurt? Did you hit or push the other kids hard enough to hurt them?" (0=No, 1=Yes, but neither hurt, 2=Yes one hurt, 3=Yes, both hurt)	.√		

APPENDIX CONTINUED.

Variable	Description of Item	Factor loading (α) W1	W2	W3
Child's protective factors				
Attachment to parent	W1P: "Compared to other children of (child's) age, how well does (he/she) behave with (his/her) parents?" (1=Much worse, 2=Worse, 3=About the same, 4=Better, 5=Much better)	.√		
	W2&3C:		(.80)	(.84)
	(1) "How close do you feel to your (mother/father)?" (1=Not very close, 2=Fairly close, 3=Quite close, 4=Extremely close)		.56	.87
	(2) "How much do you want to be like the kind of person s/he is when you are an adult?" (1=Not at all, 2=Just a little, 3=Quite a bit, 4=A lot)		.47	.71
	"For each of the following statements about parents, tell me if it sounds very much like (=3), somewhat like (=2), not at all like (=1) your (mother/father)."			
	(3) (Mother/Father) trusts you to behave even when she isn't around		.56	
	(4) (Mother/Father) encourages you always to do your best		.64	
	(5) (Mother/Father) lets you know s/he appreciates what you try to accomplish		.77	
	(6) (Mother/Father) loves you and is interested in you		.78	
	(7) "How well can you and your (mother/father) share ideas or talk about things that really matter?" (1=Not very well, 2=Fairly well, 2=Quite well, 4=Extremely well)			.81
Attachment to school	W1P: "How does (child) feel about going to school?" (1=Hates it, 2=Doesn't like it, 3=Changes, 4=Likes it, 5=Loves it)	.√		
	W1C: "How [do you] feel about going to school?" (1=Hate it, 2=Don't like it, 3=Not sure, 4=Like it, 5=Love it)	.√		
	W2C: "[How do you like] going to school?" (1=Hate, 2=Dislike, 3=No opinion, 4=Like, 5=Love)		.√	
Commitment to school	W1&2P, W1&2C: "What kind of student (is child/are you)?" (1=Near the bottom of class, 2=Below the middle of class, 3=In the middle of class, 4=Above the middle of class, 5=One of the best students in class)	.√	.√	
Child's risk factors				
Low self-control	W1P: "For each statement, please tell me … how much like that (child) is."	(.50)		
	(1) Fights too much; teases, picks on or bullies other children	.67		
	(2) Breaks things; deliberately destroys (his/her) own or others' belongings	.42		
	(3) Is polite, helpful, considerate of others* (1=Not at all, 2=Little, 3=Somewhat, 4=Pretty much, 5=Very much, 6=Exactly like)	.42		
	W2P: "Tell me whether each statement has been often true (=3), sometimes true (=2), or not true (=1) of (child) during the past three months."		(.52)	
	(1) Bullies, or is cruel or mean to others		.59	
	(2) Does not seem to feel sorry after (he/she) misbehaves		.48	
	(3) Is impulsive, or acts without thinking		.47	
	W3C: "Please tell me whether each statement is definitely true of you (=3), somewhat true of you (=2), or not true of you (=1)."			(.52)
	(1) I would do almost anything on a dare.			.53
	(2) I like to test myself every now and then by doing something a little risky.			.58
	(3) I often act on the spur of the moment without stopping to think.			.38
	(4) I often try to get my own way regardless of what others may want.			.37
	(5) I think it's funny when older people get upset because young people play loud rock music.			.28
Deviant peer associations	W2P: "Tell me whether it has been often true (=3), sometimes true (=2), or not true (=1) of (child) that (he/she) hangs around with kids who get into trouble during the past three months."		.√	
	W3C: "(Are/Were) the following true (=2) or false (=1) during your teen years?"			(.67)
	(1) My friends encouraged me to try illegal drugs			.57
	(2) My friends discouraged me from using alcohol			.47
	"When you were 16, how many of your friends …?"			
	(3) Drank beer, wine or another kind of alcohol			.64
	(4) Used illegal drugs (1=None, 2=Some, 3=Half, 4=Most, 5=All)			.63

APPENDIX CONTINUED.

Variable	Description of Item	Factor loading (α) W1	W2	W3
Child's risk factors (continues)				
Emotional distress	W1P: "For each statement, please tell me … how much like that (child) is."	(.59)		
	(1) Usually in a happy mood; very cheerful*	.34		
	(2) Is awfully restless, fidgets all the time, can't sit still	.47		
	(1=Not at all, 2=Little, 3=Somewhat, 4=Pretty much, 5=Very much, 6=Exactly like)			
	"In general, is (child):"	.75		
	(1=Unusually calm or relaxed, 2=Moderately relaxed, 3=Moderately tense, 4=Rather high strung, tense and nervous)			
	"With respect to (his/her) temper, would you say that (he/she):"	.52		
	(1=Hardly ever gets angry or shows any temper, 2=Gets angry once in a while, but does not have a particularly strong temper, 3=Occasionally shows a fairly strong temper, 4=Has a very strong temper, losing it easily)			
	W2C: "Do you have days when you are …?"		(.59)	
	(1) … nervous, tense, or on edge		.√	
	(2) … unhappy, sad, or depressed		.√	
	(1=Hardly ever, 2=Occasionally, 3=Fairly often, 4=Very often)			
	W3C: "Please tell me whether you felt [as described below] most of time (=4), often (=3), sometimes (=2), or never (=1) during the past four weeks."			(.91)
	(1) I felt sad.			.72
	(2) I was bothered by things that usually don't bother me.			.66
	(3) I did not feel like eating; my appetite was poor.			.44
	(4) I felt that I could not shake off the blues, even with help from my family/friends.			.77
	(5) I had trouble keeping my mind on what I was doing.			.66
	(6) I felt depressed.			.80
	(7) I felt that everything I did was an effort.			.44
	(8) I felt fearful.			.52
	(9) My sleep was restless.			.57
	(10) I talked less than usual.			.62
	(11) I felt lonely.			.72
	(12) I could not get along.			.65
	(13) I was nervous, tense, or on edge.			.65
	(14) I felt angry, frustrated, or bitter.			.62
	(15) I felt like punching someone out.			.48
	(16) I felt that nobody really cared about me.			.61
Child's sex	(0=Male, 1=Female)	.√		
Child's age	Child respondent's age at the time of the first survey	.√		
Child's race	(1=White, 2=Black, 3=Hispanic, 4=Asian, 5=Other)	.√		
Family size	W1P: Total number of children	.√		
Family SES	Family socioeconomic status	(.77)		
Parent's education	W1P: Highest grade/year (mother/father) finished and got credit for in regular school (0=No formal schooling, 1-16=1-16 years, 17=17 years or over)	.82		
Parent's occupation	W1P: (Mother's/Father's) occupational prestige score	.70		
Family income	W1P: Total family income before taxes in 1975 (1=Under $3K, 2=$3K-$3,999, 3=4K-$4,999, 4=$5K-$5,999, 5=$6K-$7,999, 6=$8K-$9,999, 7=$10K-$11,999, 8=$12K-$14,999, 9=$15K-$19,999, 10=$20K-$24,999, 11=$25K-$$29,999, 12=$30K-$34,999, 13=$35K and over)	.66		
Family structure	W1P: Parents being separated or divorced at the time of survey (0=Married, widowed, or never married, 1=Separated or divorced)	.√		
Residential mobility	W1P: "Including the present address, altogether, how many different addresses has the family lived at in the last 5 years (that is, since 1971/January 1977)?"	.√		
Region	(1=Northeast, 2=South, 3=Midwest, 4=West)	.√		
Place of residence	(1=Central city, 1 million+; 2=Central city, 250,000-999,999; 3=Central city, 50,000-249,999; 4=Non-central city, SMSA; 5=Non-metropolitan area)	.√		

[a] W1, W2, and W3 are Waves 1, 2, and 3, respectively, whereas P and C refer to parent and child survey.
* Indicates reverse-coded item

NOTES

1 Sampson and Laub's cumulative disadvantage is a direct application of Caspi, Elder, and Bem's (1987, p. 313) "cumulative continuity" concept to criminology, which is one of two conceptually distinct, though causally related, developmental processes proposed to explain behavioral stability over time. The other process, called "interactional continuity," focuses on how some individual trait (e.g., temper tantrum) evokes certain responses from others (e.g., angry reactions in parents) during reciprocal social interaction, which, in turn, sustain stable behavioral patterns.

2 It is also possible that childhood involvement in religion might have no effect or even a negative effect on later religiosity if the child had a bad experience or felt that religion was forced upon him or her against his or her will. Also, the early involvement in religion is less likely to have a positive effect on later involvement during adolescence and, to a greater extent, early adulthood as the child becomes increasingly independent of parental control if parents fail to raise their children to see the relevance of religion to their lives.

3 Methodologically, this conceptual reorganization of the variables derived from three distinct theories enables us to reduce the complexity of the model to be estimated because the six variables can be specified as two composite measures.

4 While the terms prosocial and antisocial factors are used interchangeably with protective and risk factors in this paper, the figure uses the latter because those factors are hypothesized to have contemporaneous causal effects on drug use within each developmental stage (which makes them protective and risk factors of drug use rather than religiosity), while their lagged causal effects on religiosity are also modeled across developmental stages.

5 In addition to interviews with children and their parent, a follow-up of the schools attended by the children in the survey was carried out in the spring of 1977 based on questionnaires completed by the teachers of about 80% of the children. School follow-up was also conducted for Waves 2 and 3. However, the present study focuses on data collected from children and their parents mainly because of missing data concerns with the school follow-up.

6 The total sample size slightly reduced from 1,151 to 1,127 when the three-wave data were weighted.

7 The Evangelical Protestant category includes members of many Protestant groups considered more conservative or stricter in their orientation, such as the Southern Baptist Convention, Lutheran Church Missouri Synod, and Seventh Day Adventists. The Mainline Protestant category includes comparatively liberal denominations such as the Episcopalians and Presbyterian Church USA. The

Black Protestant category consists of the members of several denominations that are historically African American in their membership including African Methodist Episcopal Zion and the National Baptist Convention of the USA. The "other" category includes all members of non-Christian, non-Jewish groups in the United States, such as Muslims, Hindus, and Buddhists. Finally, the "none" category should not be assumed to consist of atheists. While atheists would fall into this category, it would also include people who do not provide a denomination for any reason. For example a respondent may be agnostic, practicing privately at home, a member of a denomination not listed and so on.

[8] Full details of how the denomination variable was coded are available upon request.

[9] The four items of child's deviance were not factor analyzed (and their inter-item reliability was not calculated) because they could not be treated as items of a same scale, though they can be treated as items of an index, given that the two of them tapping responses to the child's misbehavior at school are rather different from the other two regarding the child's deviant behavior. So, they were summed to construct the index of child's deviance.

[10] While some of the behavioral items describe deviant acts, such as fighting and bullying, they are unlikely to cause the problem of tautology in the measurement of low self-control (Akers, 1991) because those items concern the child's behavioral tendency rather than a specific act committed during a particular period of time. The problem is also unlikely because they were reported by the child's parent as independent observation of the child's behavioral tendency.

[11] Although one of the Wave 3 items, "I think it's funny when older people get upset because young people play loud rock music," has a relatively low factor loading (.28), we decided to keep the item because it has face validity. In addition, deletion of the item had little effect upon the scale's inter-item reliability.

[12] For example, the effects of religiosity on drug use are likely to be somewhat conservative estimates given that the low end of religiosity data and high end of drug use data were truncated.

[13] We also conducted additional analyses by estimating three cross-sectional models (i.e., one for each wave) and three two-wave models (i.e., one for each pair of the three waves: Waves 1 and 2, Waves 2 and 3, and Waves 1 and 3). Overall results from the analyses showed that estimated relationships among key theoretical constructs in those models are generally consistent with what we presented above. Complete results are available upon request.

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