Losing faith and finding religion: Religiosity over the life course and substance use and abuse

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ABSTRACT

Background: Religion has only come into the light of scientific inquiry as a factor influencing health and behavior in the last few decades. While religiosity is a protective factor for contemporaneous substance misuse, the relationship between longitudinal changes in religiosity and substance use outcomes is understudied.

Methods: Using data from the National Comorbidity Study – Replication ($N = 6203$), we examined how changes in religiosity from childhood to adulthood are related to use and abuse/dependence of licit (alcohol and tobacco) and illicit drugs. Multivariable logistic regression was used to account for potential confounders including demographic characteristics, familial disruption during childhood, and comorbid major depression.

Results: Religiosity was inversely associated with use and misuse of both licit and illicit substances; however this relationship varied by level of childhood religiosity. Relative to stable levels of religiosity from childhood to adulthood, a 2-unit decrease in religiosity from childhood was associated with increased likelihood of illicit drug use in the past year (odds ratio (OR): 2.43, 95% confidence interval (CI): 1.39–4.25). However, a 2-unit increase in religiosity was also associated with past-year illicit drug use (OR: 1.85, 95% CI: 1.09–3.13). Comparable associations were found with a range of recent and lifetime measures of alcohol, tobacco, and illicit drugs.

Conclusions: Substantial gains or losses in religiosity from childhood to adulthood are associated with substance use and misuse. Findings support the use of a life course approach to understanding the relationship between religiosity and substance use outcomes.

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1. Introduction

Religion, perhaps due to its nature as an intensely personal, subjective, and controversial topic, is sometimes viewed as a domain distinct from scientific inquiry, even in opposition to it. While certain historical conceptions of psychopathology invoked spiritual causes, such as hallucinations treated as visions from the saints in the Middle Ages (Kroll and Bachrach, 1982), and mental illnesses equated with possession in traditional Arab culture (Al-Adawi et al., 2002), modern empirical investigation of religion as a determinant of mental health and related behaviors is relatively novel. Although one of the earliest reports on church attendance and child delinquency reported null results (Hirschi and Stark, 1969), most subsequent studies indicate that religious involvement is generally protective for both licit and illicit substance use (Yonker et al., 2012). Indeed, in a nationwide study Stark (1996) revisited the topic, finding religious attendance protective against alcohol and drug use. Church attendance is only one index of religious behavior that may be relevant to substance use outcomes, however.

Measures of religiosity, that is, the salience of religious belief to a person's life, have not yet been standardized to any significant degree. Efforts to categorize this heterogeneity have arrived at diverse factor-analytic (Kendler et al., 2003) or meta-analytic distinctions (Chitwood et al., 2008). Two broad notions of religiosity have been primarily applied: first, a quality called *organizational religiosity*, which indexes participation in social religious activities; and second, a quality termed *intrinsic religiosity*, which indexes the perceived importance of religion. Both these metrics of religiosity have been negatively associated with alcohol and cannabis use, and less strongly, tobacco use and other illicit substances as well (Edlund et al., 2010; Kovacs et al., 2011; Marsiglia et al., 2012). A latent class analysis of both organizational and intrinsic indices

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among adolescents found that protective effects were most pronounced in the 'devoted' class (i.e., high levels on both metrics), though findings were less clear for other classes (Salas-Wright et al., 2012). The relationship between organizational religiosity and substance use is complex (Marsiglia et al., 2012); indeed, in cases where intrinsic religiosity is low, greater attendance of religious services and activities is associated with elevated risk of substance use (Longest and Vaisey, 2008).

Many indices of organizational religiosity assess objective measures of religious behavior (e.g., frequency of attendance). However, external forces may influence these behaviors: for example, lack of nearby worship centers may reduce the frequency that one attends services, or a friend or family member may attempt to increase that frequency (particularly for children who receive their religious proclivities from their parents). If religiosity, rather than a volitional expression of faith, is instead the result of external factors, it may not serve well as a protective factor for substance use and misuse. This suggests that instead an examination of intrinsic religiosity may provide a more consistent picture of the effects of religious belief.

While a handful of longitudinal studies have examined religiosity and its relationship with substance use (Yeung et al., 2009), in most cases religiosity is treated as time-invariant. Many of the instruments used to assess religiosity [e.g., the Duke University Religion Index (Koenig and Büssing, 2010)] assess only current religious involvement and belief. These measures thus provide little information about the development of religiosity over a person's life course. One notable exception comes from a longitudinal study of adolescents by Regnerus and Burdette (2006). Over a one-year period, they reported that approximately 15% of adolescents reported growth in at least one measure of religiosity, 20% reported a decline, and the remaining 65% experienced no change; declines in religiosity were positively correlated with substance use behaviors. As this study indicates, religiosity can be conceptualized like other dynamic personal qualities, such as attitudes toward political engagement, which change over time (Eckstein et al., 2012). It is therefore possible that change in religiosity itself may act as a risk or protective factor distinct from the absolute level of religious involvement.

The goal of this investigation is to bring the connections between changes in religiosity over the life course and substance use and misuse into greater clarity. To this end, we examined the relationship between change (both gains and losses) in religiosity and substance use and abuse/dependence using data from a nationally representative sample of US adults.

2. Methods

2.1. Data

Data come from the National Comorbidity Survey – Replication (NCS-R). The NCS-R is a nationally representative, household survey of adults aged 18 and older conducted between 2001 and 2003 (Kessler and Merikangas, 2004). The NCS-R collected information on a variety of psychiatric and substance use conditions through the World Health Organization Composite International Diagnostic Interview (WHO-CIDI) instrument. The WHO-CIDI is a fully structured diagnostic instrument administered by layperson trained interviewers, modeled after a clinical psychiatric interview, and is designed to assess psychiatric and substance use disorders as categorized in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) and the International Classification of Diseases (ICD-10). Only those respondents who provided complete data on the measures of intrinsic religiosity and substance abuse/dependence ($N = 6203$) (both asked in Part 2 of the NCS-R interview only) were included (66.8% of the total NCS-R sample).

Appropriate data weights, along with strata and cluster variables, were used to allow this subsample to be properly representative of the US population.

2.2. Variables

2.2.1. Key predictors. The two main predictors were childhood and current (adulthood) intrinsic religiosity. Respondents were asked "In general, how important are religious or spiritual beliefs in your daily life – very important, somewhat, not very, or not at all important?" and then asked, "How important was religion in your life when you were growing up – very important, somewhat, not very, or not at all important?" Both items were measured on a 4-point scale ranging from 1 ("Very important") to 4 ("Not at all important"). Change in religiosity was calculated by subtracting religiosity in adulthood from that in childhood, such that a positive change score indicates an increase in religiosity in adulthood relative to childhood. Change in religiosity was categorized as: no change, slight change (corresponding to a one-point difference), moderate change (a two-point difference) and significant change (a three-point difference). Positive and negative changes were analyzed separately to allow for the two types of change having different associations with the substance use outcomes. We note that 'change' refers simply to having endorsed a level of childhood religiosity different from the reported current religiosity, and is described as positive (or a 'gain') if the current level exceeds the childhood level – meaning that those who experience gains necessarily start from lower religiosity levels in childhood. Religious preference was categorized as Protestant, Catholic, other religious preference, and no preference (including Agnostic, Atheist, and those reporting no religious preference/no religion). Notably, no distinct categories for affiliations of relevance to substance use were present in this data (such as Mormonism, Islam, Buddhism, and Sikhism); instead such responses (if any) were included in the 'other' group. Differences between Pentecostal Protestants and others were considered, but no significant effects of religious preference arose when these categories were analyzed separately (data not shown). Frequency of attending services, a measure of organizational religiosity, was also assessed, categorized as "More than once a week," "About once a week," "One to three times a month," "Less than once a month," or "Never."

2.2.2. Outcomes. Current or recent use of alcohol, tobacco, cannabis, cocaine, prescription drugs (in a non-prescribed fashion), and other illicit substances was assessed by self-report. Current alcohol use was assessed as past-year frequency of having at least one drink, dichotomized as 3 or more occasions per week on average versus drinking less often. Lifetime alcohol abstainers ($N = 364$) were excluded from this analysis due to probable qualitative differences between this group and those who merely drink infrequently, though as a sensitivity analysis all alcohol use models were refit including abstainers; results were substantially unchanged (data not shown). Current smoking behavior was dichotomized as current versus former/never smoker. Recent drug use was dichotomized as past-year use of marijuana, cocaine, prescription drugs, or other illicit drugs, versus not. Past-year alcohol abuse and dependence were assessed using the CIDI according to DSM-IV criteria and combined into a single dichotomous variable. Past-year nicotine dependence was also assessed according to DSM-IV criteria. Finally, abuse and dependence of any illicit drug was combined into a single variable indicating past-year DSM-IV drug abuse/dependence. CIDI diagnoses of substance abuse/dependence have good concordance with clinical interviews, such as the clinician-administered World Health Organization Schedules for Clinical Assessment in Neuropsychiatry (SCAN; Cottler et al., 1989; Compton et al., 1996). In total, six recent