

RELIGIOUS INVOLVEMENT AND THE INTOXICATION TRAJECTORIES OF LOW INCOME URBAN WOMEN

TERRENCE D. HILL, MICHAEL E. McCULLOUGH

Although prior research has made significant contributions to our understanding of the risk factors associated with increased alcohol consumption in disadvantaged urban neighborhoods, very little is known about the resources that help residents to resist the countless circumstances and conditions that sustain these systems of alcohol abuse. Building on prior research, we use data from the Welfare, Children, and Families project, a probability sample of 2,402 lowincome women with children living in lowincome neighborhoods in Boston, Chicago, and San Antonio, to test whether religious involvement is protective against intoxication. Results obtained from ordered logistic regression models indicate that regular religious attendance is associated with lower levels of intoxication over two years.

INTRODUCTION

Residents of disadvantaged urban neighborhoods live within systems of alcohol abuse. These systems are defined by a constellation of factors that encourage risky drinking practices, including high alcohol outlet density, heavy alcohol-related marketing, inadequate police presence, weak informal social control, public intoxication, and numerous psychosocial stressors (Fitzpatrick & LaGory, 2000; Hill & Angel, 2005; Kadushin, Reber, Saxe, & Livert, 1998). Although prior research has made significant contributions to our understanding of the risk factors associated with increased alcohol consumption in disadvantaged urban neighborhoods, very little is known about the resources that help residents to resist the myriad circumstances and conditions that sustain these systems of alcohol abuse. In this study, we consider

Terrence D. Hill, Ph.D., is an assistant professor of sociology at the University of Miami. His research focuses on the social distribution of health and health-relevant behaviors. **Michael E. McCullough**, Ph.D., is a professor of psychology at the University of Miami. His research is currently concentrated in three areas: forgiveness and revenge, gratitude, and religion and spirituality.

whether religious involvement is protective against intoxication among low-income women living in low-income urban neighborhoods.

Over the past 20 years, a great deal of scholarly attention has been devoted to the study of religious involvement and alcohol consumption. Briefly, this body of research shows that religious involvement (usually indicated by measures of religious attendance or religious salience) is consistently associated with a wide range of favorable drinking outcomes, including higher rates of abstinence (Bazargan, Sherkat, & Bazargan, 2004; Cochran, Beeghley, & Bock 1988; Michalak, Trocki, & Bond, 2007), lower consumption frequencies and quantities (Hadaway, Elifson, & Peterson, 1984; Forthun, Bell, Peek, & Sun, 1999), and lower rates of heavy drinking (Hill, Burdette, Ellison, & Musick, 2006; Lucas, Goldschmidt, & Day, 2003; Strawbridge, Shema, Cohen, & Kaplan, 2001), and alcohol dependence (Ford & Kadushin, 2002; Kendler et al., 2003; Koenig, George, Meador, Blazer, & Ford, 1994). Although it is difficult to establish causal order, available longitudinal research is generally consistent with the idea that religious involvement may actually lead to lower levels of alcohol consumption (Strawbridge et al., 2001).

If, as prior research suggests, religious involvement is associated with favorable patterns of alcohol consumption, why is it? Previous work has identified several promising theoretical explanations (e.g., Ellison & Levin, 1998; George, Ellison, & Larson, 2002; Gorsuch, 1995; Koenig, McCullough, & Larson, 2001; Vaux, 1976; Welch, Tittle, & Grasmick 2006). First, religious involvement may encourage moderate drinking behaviors and abstinence from alcohol by exposing individuals to specific biblical proscriptions against intoxication (e.g., Galatians 5:19-21 New King James Version; Luke 21:34; Proverbs 23:29-35). Many religious groups also adhere to general religious principles concerning the instrumental importance of health as a means to greater spiritual commitment and involvement (e.g., 1 Corinthians 3:16-17; 1 Corinthians 6:19-20). The biblical passage that refers to the body as the "temple of the Holy Spirit" has been used to discourage a wide range of health relevant behaviors, from drinking and smoking to body piercing and tattooing.

Research also suggests that religious involvement encourages conformity, deference to authority, and adherence to rules and laws through fear of divine retribution, internalized moral codes, and the social context of similarly obedient peer networks (Welch et al., 2006). Indeed, numerous biblical passages (e.g., Hebrews 13:17; Peter 2:13-14; Romans 13:1-7) advise individuals to submit to known "authorities" and "ordinances." If religious individuals are more sensitive to authority, they may, for example, be more likely to adhere to recommended medical regimens that favor moderate drinking behaviors and to obey formal laws and regulations that discourage risky drinking practices and related activities.

Another mechanism through which religious involvement might obtain its association with reduced alcohol use is through the cultivation of self-control and generic self-regulatory capacities. Self-control is important because research suggests that strong self-regulatory capacities are associated with reduced likelihood of heavy drinking (e.g., Neal & Carey, 2007). In a systematic review of the existing empirical evidence, McCullough and Willoughby (2008) show that religious people consistently score higher than do their less religious counterparts on measures of self-control (e.g., ability to control one's impulses, appetites, and emotions). They went on to demonstrate that self-control may mediate the effects of religious involvement on crime and delinquency among adults and precocious sexual behavior and substance use among adolescents (e.g., Walker, Anette, Wills, & Mendoza, 2007).

Finally, religious involvement may protect against heavy alcohol consumption by promoting mental health. In the *Handbook of Religion and Health*, Koenig and colleagues (2001) note that religious involvement is correlated with several factors that are known to benefit mental health, including greater hope and optimism, a greater sense of meaning and purpose, and greater social support. Psychological well-being gained through religious involvement might favor healthier drinking behaviors by reducing negative coping behaviors (e.g., self-medication or tension reduction) and feelings of fear and hopelessness, which often inhibit efforts to design and carry out healthy lifestyles.

Although numerous theoretical and empirical works suggest that religious involvement is associated with moderate drinking practices and abstinence from alcohol, it is unclear whether these patterns extend to disadvantaged urban neighborhoods where residents live within systems of alcohol abuse. We anticipate that religious involvement will be effective in these environments for two reasons. First, religious institutions are among the few antisubstance abuse resources available to individuals living in disadvantaged urban communities (Johnson, Larson, Li, & Jang, 2000). Second, research shows that religious involvement constrains delinquent behavior most effectively in environments that are characterized by social disorganization, where secular controls are absent or weak (Tittle & Welch, 1983).

Drawing on the research presented thus far, we expect that religious involvement will be associated with lower levels of intoxication among low income women living in disadvantaged urban neighborhoods. In order to formally test this hypothesis, we use data collected from a large probability sample of low income women with children living in low income neighborhoods in three cities to predict frequency of intoxication over two years with religious attendance and sociodemographic variables.

METHODS

DATA

The data for this study come from the Welfare, Children, and Families (WCF) project (see <http://www.jhu.edu/~welfare/>). The WCF project is a household based, stratified random sample of 2,402 low income women living in low income neighborhoods in Boston, Chicago, and San Antonio. The WCF first sampled census blocks (or neighborhoods) with at least 20% of residents below the federal poverty line based on the 1990 census. Within these neighborhoods, households under 200% of the poverty line were sampled, with an oversample of households below 100% of the poverty line. Because one of the goals of the WCF project is to assess the impact of welfare policy and work on children, households were screened for their presence. Households with at least one infant or child (aged 0 to 4) or young adolescent (aged 10 to 14) were sampled. The children's caregivers, all women age 18 and older, were interviewed face to face. Data were collected in 1999 with a follow-up in 2001, when about 87% of the sample was reinterviewed. The Wave 1 data collection process yielded an overall response rate of 75% and city-specific response rates of 74% (Boston), 71% (Chicago), and 79% (San Antonio).

Most WCF respondents report affiliations with Christian religious faiths. For example, the sample is largely Catholic (51%) and Protestant (33%). Approximately 10% of respondents reported no religious affiliation.

MEASURES

Frequency of intoxication, the focal outcome variable, is intended to measure the most fundamentally problematic aspect of alcohol consumption—getting drunk. Instead of asking respondents to recall specific alcohol frequencies and quantities consumed, this measure of intoxication requires respondents to estimate the number of occasions during which they were drunk. Specifically, respondents were asked, “In the past 12 months, how often have you gotten drunk?” Response categories for this item are coded as (0) never, (1) once or twice, (2) several times or often. This measure of intoxication has demonstrated construct validity in previous research. Using the 1985 National Survey on Drug Abuse, Robbins (1989) employed a similar measure of intoxication and found strong positive associations with psychological distress, social, and behavioral problems. Hill and Angel's (2005) recent analysis of WCF data showed strong positive associations with depression and anxiety.

Consistent with prior research (e.g., Hill et al., 2006; Strawbridge et al., 2001), we use religious attendance to assess religious involvement. Respondents were asked to indicate how often in the past 12 months they attended religious services. Preserving the original response categories for this item, religious attendance is coded into five dummy variables: (a) more than once per week, (b) about every

week, (c) one to two times per month, (d) a few times in the past year, and (e) never (the reference category). Although we would prefer to use multiple measures of religious involvement, religious attendance provides substantial compatibility with other studies of religious involvement and alcohol consumption (e.g., Hadaway et al., 1984; Hill et al., 2006).

Numerous background factors have been identified as significant correlates of risky drinking practices. While heavy drinkers are often younger, unemployed, and financially disadvantaged, they are less likely to be Black, married, or highly educated (Hill & Angel, 2005; Mirowsky & Ross 2003). In accordance with prior research, the analysis plan includes controls for age (in years), race/ethnicity (dummy variables for non-Hispanic White, Mexican, and other Hispanic compared with Black), education (in years), employment status (1 = worked for pay in past week), current welfare status (1 = currently receiving welfare), marital status (1 = married and living with a spouse), and number of children (1 to 5 or more).

STATISTICAL PROCEDURES AND ANALYTIC STRATEGY

Analyses begin with the presentation of descriptive statistics for the study sample (Table 1), including minimum and maximum values and, as appropriate, sample percentages or means and standard deviations for frequency of intoxication, religious attendance, and selected background factors. Table 2 provides sample percentages for categories of intoxication within each category of religious attendance. Table 2 also presents chi squared statistics and gamma coefficients to formally test whether religious attendance is associated with frequency of intoxication.

Table 3 presents the multivariate regression analysis. Because frequency of intoxication is measured ordinally with three categories, we use ordered logistic regression to model the cumulative log odds of intoxication at baseline (1999) and over two years (2001). Table 3 provides unstandardized ordered logistic regression coefficients, cumulative odds ratios, and 95% confidence intervals for corresponding independent variables. Ordered logistic regression estimates coefficients via maximum likelihood to describe the difference in the cumulative log odds of intoxication for every one-unit change in an independent variable.

The baseline analysis tests whether religious attendance is associated with current levels of intoxication, net of selected background factors. Although most studies assume that religious involvement predicts alcohol consumption, frequent intoxication might also limit religious participation in the first place. Therefore, the longitudinal analysis tests whether religious attendance at baseline predicts the change in levels of intoxication two years later, controlling for baseline frequency of intoxication and selected background factors.

RESULTS*DESCRIPTIVE STATISTICS*

According to Table 1, most respondents abstain from intoxication and attend religious services sporadically or not all. In terms of race/ethnic composition, the sample includes Blacks (43%), Mexicans (24%), other Hispanics (24%), and non-Hispanic Whites (9%). The average respondent is nearly 33 years of age, with approximately 10 years of formal education. Less than half of the respondents are employed (41%) or currently receiving welfare benefits (37%). Few respondents are married and living with a spouse (13%). On average respondents are responsible for nearly three children.

BIVARIATE ANALYSIS

The results presented in Table 2 suggest that religious attendance is protective against frequent intoxication over two years. The percentage of respondents who abstain from intoxication is consistently higher for respondents who attend religious services at least one to two times per month. Compared with respondents who never attend religious services, respondents who attend religious services more than once per week are far more likely to abstain from intoxication at baseline (63.1% versus 86.8%, a difference of 23.7%) and two years later (68.0% versus 89.7%, a difference of 21.7%). The gamma coefficients suggest that religious attendance is moderately and inversely associated with frequency of intoxication at baseline ($\gamma = -0.30, p < 0.001$) and two years later ($\gamma = -0.30, p < 0.001$).

MULTIVARIATE ANALYSIS

Column 1 of Table 3 provides estimates for the effects of religious attendance and background factors on frequency of intoxication at baseline. These results indicate that religious attendance (monthly or more) is associated with lower levels of intoxication, net of controls for selected background factors. The coefficient for monthly attendance ($b = -0.50$) corresponds to a cumulative odds ratio of 0.60. This estimate suggests that those who attend religious services one to two times per month exhibit a 40% ($[0.60 - 1]100$) reduction in the cumulative odds of intoxication as compared with those who never attend church. Those who attend religious services about every week and more than once per week also exhibit significant reductions in the cumulative odds of intoxication (55% and 67%, respectively).

Column 2 of Table 3 presents estimates for the effects of predictor variables on the change in frequency of intoxication over two years. These results demonstrate that religious attendance (weekly or more) is associated with lower levels of intoxication over two years, net of controls for baseline frequency of intoxication and selected background factors. The coefficient for weekly attendance ($b = -0.87$) corresponds

TABLE 1
DESCRIPTIVE STATISTICS FOR FREQUENCY OF INTOXICATION AND SELECTED BACKGROUND FACTORS (WCF 1999, 2001)

	Min-Max	Percentage	Mean	Standard Deviation
Frequency of Intoxication (1999)				
Never	0-2		0.4	0.6
Once or twice	0-1	69.4		
Several times or often	0-1	23.8		
		6.8		
Frequency of Intoxication (2001)				
Never	0-2		0.3	0.6
Once or twice	0-1	72.3		
Several times or often	0-1	20.7		
		7.0		
Religious Attendance (1999)				
Never	0-4		1.6	1.2
A few times in the past year	0-1	19.5		
One to two times per month	0-1	35.7		
About every week	0-1	19.8		
More than once per week	0-1	18.0		
		7.0		
Background Factors (1999)				
Age	18-74		32.8	9.9
Black	0-1	42.9		
Mexican	0-1	24.2		
Other Hispanic	0-1	24.0		
Non-Hispanic White	0-1	8.9		
Education	0-14		10.5	2.4
Employed	0-1	41.2		
Receiving welfare	0-1	37.3		
Married, spouse in house	0-1	13.5		
Number of children	1-5		2.6	1.2

Wave 1 (1999) *n* = 2,387
 Wave 2 (2001) *n* = 2,087

TABLE 2
SAMPLE PERCENTAGES FOR CATEGORIES OF INTOXICATION WITHIN CATEGORIES OF RELIGIOUS ATTENDANCE (WCF 1999, 2001)

		Religious Attendance (1999)					χ^2	γ
	Never	A few time in the past year	One to two times per month	About every week	More than once per week			
Frequency of Intoxication (1999)							120.06 ***	- 0.30***
	Never	63.1	59.3	75.5	82.8	86.8		
	Once or twice	27.9	31.5	19.0	13.9	12.0		
	Several times or often	9.0	9.1	5.5	3.2	12.0		
Frequency of Intoxication (2001)							110.65 ***	- 0.30***
	Never	68.0	62.7	74.2	87.1	89.7		
	Once or twice	21.3	28.8	18.7	11.1	7.5		
	Several times or often	10.7	8.5	7.1	1.8	2.7		

Wave 1 (1999) $n = 2,387$

Wave 2 (2001) $n = 2,087$

Shown are chi-squared values (χ^2) and gamma coefficients (γ).

Asterisks indicate statistical significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE 3
MULTIVARIATE ORDERED LOGISTIC REGRESSION OF FREQUENCY OF INTOXICATION ON RELIGIOUS ATTENDANCE AND SELECTED BACKGROUND FACTORS (WCF 1999, 2001)

	Frequency of Intoxication (1999)			Frequency of Intoxication (2001)		
	b	OR	95% CI	b	OR	95% CI
Frequency of Intoxication (1999)						
Religious Attendance (1999)						
Never		1.00		1.56	4.76	4.59 - 4.93 ***
A few times in the past year	0.16	1.17	0.94 - 1.41	0.11	1.11	0.83 - 1.39
One to two times per month	-0.50	0.60	0.32 - 0.89 **	-0.02	0.98	0.81 - 1.15
About every week	-0.79	0.45	0.01 - 0.66 ***	-0.87	0.42	0.01 - 0.82 ***
More than once per week	-1.09	0.33	0.16 - 0.83 ***	-0.97	0.38	0.24 - 0.59 **
Background Factors (1999)						
Age	-0.04	0.96	0.95 - 0.97 ***	-0.03	0.97	0.96 - 0.99 ***
Black		1.00			1.00	
Mexican	0.11	1.12	0.99 - 1.24	-0.28	0.75	0.46 - 1.04
Other Hispanic	-0.58	0.56	0.31 - 0.81 ***	-0.46	0.63	0.33 - 0.93 **
Non-Hispanic White	0.37	1.45	1.13 - 1.77 *	0.42	1.52	1.15 - 1.88 *
Education	0.03	1.03	0.98 - 1.07	0.04	1.04	0.98 - 2.03
Employed	0.17	1.18	0.99 - 1.38	0.19	1.21	0.97 - 1.44
Receiving welfare	0.08	1.09	0.88 - 1.29	-0.14	0.87	0.63 - 1.11
Married, spouse in house	-0.60	0.55	0.24 - 0.86 ***	-0.30	0.74	0.38 - 1.10
Number of children	0.03	1.03	0.96 - 1.11	0.12	1.25	1.04 - 1.21 *
Model Statistics						
Model chi-square			237.58 ***			567.59 ***
Nagelkerke pseudo R-square			0.12			0.31
Chi-square test of parallel lines			16.53			14.91

Wave 1 (1999) *n* = 2,387

Wave 2 (2001) *n* = 2,087

Shown are unstandardized ordered logistic regression coefficients, cumulative odds ratios, and 95% confidence intervals. Asterisks indicate statistical significance: **p*<0.05, ***p*<0.01, ****p*<0.001

to a cumulative odds ratio of 0.42. This estimate implies that those who attend religious services about every week at baseline exhibit a 58% reduction in the cumulative odds of intoxication two years later as compared with those who never attend church. Finally, we observe that those who attend religious services more than once per week exhibit a 62% reduction in the cumulative odds of intoxication two years later.

In addition to religious attendance, the multivariate regression analysis revealed significant effects for several background factors, including age, race/ethnicity, marital status (baseline model only), and number of children (longitudinal model only). Briefly, each additional year of age is associated with a 4% reduction in the cumulative odds of intoxication at baseline and a 3% reduction in the cumulative odds of intoxication two years later. Compared with Black respondents, other Hispanics exhibit a 44% reduction in the cumulative odds of intoxication at baseline and a 37% reduction in the cumulative odds of intoxication two years later. Non-Hispanic White respondent exhibit a 45% increase in the cumulative odds of intoxication at baseline and a 52% increase in the cumulative odds of intoxication two years later. Finally, respondents who are married and living with a spouse exhibit a 45% reduction in the cumulative odds of intoxication at baseline, while each additional child increases the cumulative odds of intoxication two years later by approximately 25%.

DISCUSSION

The results of the present investigation show that religious attendance is associated with lower levels of intoxication over two years. The baseline analysis indicates that religious attendance (monthly or more) is associated with lower levels of intoxication, net of controls for age, race/ethnicity, education, employment status, welfare status, marital status, and number of children. The longitudinal results show that religious attendance (weekly or more) is associated with lower levels of intoxication over two years, net of controls for baseline frequency of intoxication, and selected background factors.

These results are generally consistent with what other studies have found (e.g., Hill et al., 2006; Strawbridge et al., 2001). We know that religious involvement is associated with a wide range of favorable drinking outcomes, including abstinence from alcohol (Bazargan et al., 2004; Cochran et al., 1988), lower consumption frequencies and quantities (Hadaway et al., 1984; Forthun et al., 1999), and lower rates of heavy drinking (Hill et al., 2006; Strawbridge et al., 2001) and alcohol dependency (Ford & Kadushin, 2002; Koenig et al., 1994). The present analysis suggests that religious involvement is also associated with lower levels of intoxication.

Because most studies employ cross-sectional designs, the causal order of the association between religious involvement and alcohol consumption is generally uncertain. The results of our longitudinal analysis provide strong support for the idea that religious involvement may actually lead to lower levels of alcohol consumption.

Given that low income urban women face so many risk factors for increased alcohol consumption, the nature of the data allowed for a rigorous test of the effects of religious involvement. Our results suggest that involvement in religious institutions is protective against intoxication in disadvantaged urban environments.

STUDY LIMITATIONS

The present study has several limitations. Although religiosity is widely recognized as a multidimensional phenomenon, our measurement of religious involvement is restricted to single indicator (religious attendance). Religious attendance is a valid indicator of religious involvement; however, reliability is a cause for concern.

We would also like to acknowledge the potential for bias due to social desirability. It is possible that some individuals might falsely respond to questions by overestimating the frequency of religious attendance and/or underestimating the frequency of intoxication in order to protect their religious values and identities. Since we are unable to control for social desirability, the present analysis may exaggerate the association between religious attendance and frequency of intoxication.

Our focal outcome measure is also limited. While it is customary for studies to measure multiple aspects of drinking behavior with precise frequencies and quantities, the current measure of intoxication is based on a single item (frequency of getting drunk in past 12 months) with a narrow range of imprecise response categories (never, once or twice, several times, and often). Because the question references a long recall period (past 12 months), the item is subject to recall bias. As a general rule, shorter recall periods are associated with more accurate reports (Singleton & Straits, 2005). Although the measure has been used in prior research and has demonstrated construct validity (e.g., Hill & Angel, 2005; Robbins, 1989), the single item is less reliable than would be ideal.

Finally, we would like to acknowledge some of the more basic limitations of the data. Since the data are limited to Boston, Chicago, and San Antonio, it is unclear whether the results of the present investigation are generalizable beyond these particular cities. The religious homogeneity of the study sample also limits the extent to which our results are generalizable to non-Christian religious faiths. Because the data are also limited to low income urban women, it is unclear whether the results extend to low income urban men.

RECOMMENDATIONS FOR FUTURE RESEARCH

The results of the present investigation indicate that religious involvement is one of the stronger correlates of intoxication among low income urban women. These patterns emphasize the importance of religious institutions in disadvantaged urban environments. Therefore, we recommend that future research continue to examine the association between religious involvement and drinking behaviors in low income urban populations.

In order to better establish the assumption of causal order (that religious involvement leads to favorable drinking outcomes), we recommend that studies continue to examine the effects of religious involvement on alcohol consumption over time. One viable strategy would be to test whether changes in religious involvement correspond to changes in drinking behaviors. This approach would provide compelling evidence in support of the idea that religious involvement actually leads to favorable drinking outcomes.

Finally, although the present study is limited to the study of religious attendance and intoxication, it is important to compare the effects of various indicators of religious involvement (religious beliefs and practices) across indicators of alcohol consumption and common illicit substances. Research along these lines would further clarify the extent to which religious involvement is linked with substance use and misuse within disadvantaged urban contexts.

In this paper, we tested whether religious involvement is protective against intoxication among low income women living in low income urban neighborhoods. We focused on disadvantaged urban neighborhoods because they are characterized by conditions that favor risky drinking practices. Despite the limitations of our study, our results demonstrate that regular religious attendance is protective against intoxication in disadvantaged urban areas over two years. Taking this evidence into account, the precise mechanisms through which religious involvement might discourage risky drinking practices clearly warrants additional research.

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