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# Religion

## A Sociocultural Predictor of Health Behaviors in Mexico

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**Objective:** Tobacco, alcohol, and physical inactivity are now among the top 10 risk factors for mortality in the Americas region. Subsequently, a more complete understanding of the various cultural factors that influence health behaviors such as these is needed. **Method:** This study investigates how religion influences the use of alcohol and cigarettes within a large, nationally representative sample of older adults in Mexico (Mexican Health and Aging Study,  $N = 10,399$ ). **Results:** Religious salience and participation in religious activities are both significantly associated with smoking status, but not alcohol use. **Discussion:** This is one of the first studies to examine these associations in a developing country. Despite cultural differences, the negative relationship between religion and smoking in Mexico corresponds to associations seen in the United States and other Western countries. This type of information may be useful to health researchers, providers, and policy makers attempting to reduce deaths due to preventable causes.

**Keywords:** *Mexico; smoking; alcohol; religion; health behaviors*

History has shown that developing countries undergo a transition in which the primary causes of death shift from acute causes to more chronic ones. During this transition, lifestyle and behavioral characteristics become the leading health risk factors. Accordingly, tobacco, alcohol, and physical inactivity are now three of the top 10 risk factors for mortality in the Americas region (World Health Organization, 2002). In Mexico, increasing rates of these negative health behaviors have led to a huge rise in deaths due to preventable factors, including lung cancer, diabetes, and cerebrovascular disease (Centers for Disease Control and Prevention, 1995; International Diabetes Foundation, 2004). Thus, Mexico and other less-developed countries are now joining the battle against chronic conditions. To reduce the

effect of these conditions, it is critical that health researchers, administrators, and providers have a more complete understanding of the various factors that influence the relevant health behaviors.

One important factor to consider is religion, given that research done in other countries has documented significant relationships between religion and health behaviors. Although research on these relationships has not been previously conducted in Mexico, the high levels of religiosity documented here make it an interesting country for broadening the geographic boundaries of the literature. For example, nearly all Mexicans report a religious preference, with 89% identifying themselves as Catholic (Central Intelligence Agency, 2004). Furthermore, church attendance rates in Mexico are among the highest in the world, with almost 50% of Mexicans attending church services weekly (University of Michigan, 1997). Levels of religious salience, or the importance of religion within a person's life, are also high. Specifically, 84% of Mexicans report that religion is very important or important, whereas only 3% claim that religion has no meaning in their lives (Camp, 2000). Other measures of religion or spirituality in Mexico, such as belief in God, respect for priests, trust in religious institutions, and religious education in the home, also support the high level of significance given to religion within this culture (Camp, 2000). The high levels of religiosity in Mexico are particularly notable given the historical tensions that have existed between the government and the Catholic Church. Although restrictions on the Catholic Church (and all other religious groups) were not officially removed from the constitution until 1992 (Hanratty, 1997), these tensions do not appear to have minimized current levels of religious affiliation and involvement.

In light of the importance that religion holds for many people, it is not surprising that it has an influence on various spheres of life, such as health behaviors. Previous research supports a relationship between religion and a wide range of health behaviors, including smoking, drinking, drug use, sexual activity, diet, and exercise (see Koenig, McCullough, & Larson, 2001, for an extensive review). Specifically, more religious individuals are less likely to smoke cigarettes or drink alcohol, more likely to exercise regularly, and more likely to report preventive health care use (Aaron, Levine, & Burstin, 2003; Arredondo, Elder, Ayala, Campbell, & Baquero, 2005; Benjamins & Brown, 2003; Hill, Burdette, Ellison, & Musick, 2006; Idler, 1987; Idler & Kasl, 1997; Levin & Schiller, 1987). Health behaviors also differ by denomination, with more conservative and strict denominations generally having lower levels of smoking and drinking (Levin, 1994; Troyer, 1988).

Despite the abundance of empirical studies on this relationship, several methodological issues limit the representativeness of the findings. As

alluded to above, almost all of the past studies examining the influence of religion on health behaviors have been conducted within the United States, which is characterized by religious pluralism. The relationship between religiosity and health behaviors may differ in Mexico, where most of the population is Catholic, but the nature and extent of this difference is unclear. Most important, no previous studies were found using Mexican samples. Moreover, many previous studies use samples that are not nationally representative (and thus are limited by regional variations), are not randomly selected (e.g., convenience samples), and are not longitudinal. Finally, although religion is a multidimensional phenomenon (e.g., Ellison, 1991), much of the previous work on this topic is limited to single-item measures of religiosity, such as service attendance. This study attempts to address these problems and add to this literature by examining the relationship between religion and health behaviors within a nationally representative, prospective sample of older adults in Mexico. More specifically, this study will estimate the effects of religious salience, religious service attendance, and religious activities on the use of cigarettes and alcohol.

## Theoretical Framework

As noted above, several previous studies have shown that religiosity is related to various health-related behaviors, such as smoking and drinking (Koenig et al., 2001), as well as the use of preventive health care (e.g., Aaron et al., 2003; Benjamins, 2006). Although the mechanisms underlying these relationships are not clear, there are many possible explanations. To begin, the influence of belonging to a religious community on various behaviors has long been acknowledged. For example, a century ago, Durkheim (1915/1961) posited that religious groups, like other social institutions (e.g., family), function, in part, "to regulate human needs and actions through beliefs about the sacred" (Turner, Beeghley, & Powers, 1989, pp. 339-340). More specifically, religious groups regulate individual health and lifestyles by proscribing behaviors (formally and informally), such as excessive drinking, smoking, and promiscuity. Ellison and Levin (1998) suggest that individuals may conform to "strong religio-ethical norms" (p. 704) for several reasons: (a) to avoid feelings of guilt or shame, or for fear of divine consequences, (b) to avoid embarrassment or social sanctions (e.g., ostracism by fellow members), or (c) to emulate the lifestyles of other, highly respected members. In addition, attending religious services or participating in other religious activities may be associated with better health behaviors because religious organizations often provide information or activities related to health topics that may lead to healthier lifestyles.

Furthermore, the influence of religion on health behaviors may work directly through religious beliefs. For example, belief in a higher power may encourage positive health behaviors due to feelings of responsibility. More specific for Christians, the biblically based conviction that the body is a temple of the Holy Spirit may encourage believers to practice more positive health behaviors. Similarly, religious individuals may be more motivated to maintain their health in order to be physically able to lead a life consistent with their beliefs (e.g., volunteering, evangelism, etc.; Ott, 1991).

From the findings of previous studies, as well as the theoretical explanations presented above, we derive the following hypotheses:

*Hypothesis 1:* Greater religious salience, and more frequent service attendance and participation in other religious activities, will be associated with lower odds of smoking cigarettes.

*Hypothesis 2:* Greater religious salience, and more frequent service attendance and participation in other religious activities, will be associated with lower odds of drinking alcohol.

## Method

### Data

Data from the first and second waves (2001 and 2003) of the Mexican Health and Aging Study (MHAS) are used for this study. These data were collected as part of a collaborative project by researchers from the Universities of Pennsylvania, Maryland, and Wisconsin and the Instituto Nacional de Estadística, Geografía e Informática (INEGI) in Mexico (*Mexican Health and Aging Study project overview*, 2006). The MHAS is a nationally representative sample of the 13 million Mexicans 50 years of age and older in 2001. The respondents were selected from households included in the National Employment Study, a nationally representative survey conducted by the Mexican counterpart of the U.S. Census Bureau (*Mexican Health and Aging Study project overview*, 2006). Specifically, households with at least one individual aged 50 or older were selected from this sampling frame. A random selection of these 11,000 households was chosen and, if more than one age-eligible person lived in the household, one person was randomly selected to be in the study (Wong, Pelaez, Palloni, & Markides, 2006). The sample is representative of both rural and urban areas, and states with high migration (to the United States) were oversampled.

In-person interviews were conducted with the respondents and their spouses on a variety of topics, including health status, migration history,

family, intergenerational transfers, socioeconomic status, and living environment (*Mexican Health and Aging Study project overview*, 2006). More than 15,000 individuals completed interviews during Wave 1, with an individual response rate of 93%. In 2003, 13,704 of these individuals completed Wave 2 surveys. Because the sample is only representative of individuals born prior to 1951, those younger than 50 years of age are excluded. After exclusions for age, proxies, new respondents, and those missing the primary independent and dependent variables, the sample size is 10,399.

## Measures

*Religion variables.* In the first wave of interviews (2001), religious salience was the only measure of religion included. In Wave 2, attendance at religious services and participation in church activities were asked in addition to salience. Religious salience is measured in Wave 1 with the following question: "How important is religion in your life? Would you say it is very important, somewhat important, or not important?" The latter two categories were combined due to the small number of individuals (approximately 3%) responding "not important," and this group serves as the reference group. Religious service attendance was measured with the following question: "Do you attend religious services?" Individuals who never attend services are the reference group. Finally, respondents were asked if they participate in events organized by their church. The response choices were as follows: *weekly or more often*, *sometimes*, or *never* (reference).

*Health behavior outcomes.* Both smoking and drinking are examined here. The smoking measure is a categorical variable indicating whether the respondent has never smoked cigarettes, has smoked in the past, or is a current smoker. Alcohol use is measured in a similar manner, but with four response categories: *never*, *former*, *current moderate*, and *current heavy*. Individuals who replied that they had never had an alcoholic drink in their life make up the first category. Those who said that they drank alcoholic beverages in the past but do not currently drink make up the former drinking category. Those who answered yes to the following question are considered to be current drinkers: "Do you ever drink any alcoholic beverages such as beer, wine, liquor, or pulque?" Individuals who reported drinking 3 or more drinks a day or at least 21 drinks a week were considered to be heavy drinkers, and those who reported fewer drinks than this were categorized as moderate drinkers. All outcomes are measured in Wave 2.

*Demographic, social, and health covariates.* Demographic controls include numerous established predictors of health behaviors, such as age, gender, and marital status. The following measures of socioeconomic status are also included: education and net worth. Education is measured with a count variable representing years of schooling completed. Net worth, which is generally considered a better measure of financial resources for older adults than income (Hurd, 1989; Smith & Kington, 1997), was computed by the MHAS staff using questions on household income, assets, and debt (Wong & Espinoza, 2002).

Two possible predictors of health behaviors that may be particularly important to older adults in Mexico are also tested. One, residency in high-migration area (in one of the six highest outmigration [to the United States] states), may be significant because it is an indirect measure of exposure to the health-related norms and practices of the United States. For example, the United States has lower rates of smoking (Mackay & Eriksen, 2002) and higher rates of individuals abstaining from alcohol (International Center for Alcohol Policies, 2000), and it is possible that areas with high outmigration may benefit from the information and behaviors that migrating individuals acquire while in the United States. The second residency measure, less urban residence, indicates whether the individual lives in an urban or nonurban area. It is expected that individuals in urban areas will have greater access to health care services and education and, thus, better health behaviors. Because both of these variables may be correlated with both health behaviors and religious characteristics, they are included in the models as controls.

Similarly, health status has repeatedly been shown to be associated with both religion and health behaviors in other populations and, thus, it is included in the models to account for possible confounding. Health status is measured with two different variables. Self-rated health is measured with a question that asks respondents to rate their health as *excellent*, *very good*, *good*, *fair*, or *poor*. Higher scores indicate worse health. The second measure of health status is a count of self-reported chronic conditions. These conditions include hypertension, diabetes, cancer, respiratory disease, heart disease, and stroke. Again, higher scores indicate worse health.

## Analyses

Descriptive statistics, including the range, mean, and standard deviation, are provided for each of the independent, dependent, and control variables. Frequencies are given for the total sample, as well as by level of religious salience, attendance, and participation in religious activities. Chi-square

tests are used to determine differences by level of religious salience and involvement. Next, a series of multivariate regression models is run (all adjusted). Multinomial logistic regression is used due to the categorical nature of the outcomes. The longitudinal relationships between religious salience and the outcomes are displayed first. Then, models estimating the cross-sectional associations between religious attendance, participation in religious activities, and the outcomes are shown. For these models, the predictor, control, and outcome variables are measured at Wave 2, with two exceptions. Specifically, the two variables related to the respondent's residence were not available at Wave 2 and, thus, Wave 1 measures were used. Individual-level weights provided by MHAS are used in the regression analyses to account for sample selection probabilities, missing values, and attrition. Data were analyzed using SAS, Version 9.1. More specifically, regression models were analyzed with the "Proc surveylogistic" commands to account for the complex sampling design of the data set.

## Results

Univariate statistics are provided in Table 1. These indicate that the average respondent has a very high level of salience. Specifically, nearly three fourths of the sample said that religion was very important in their lives. As expected, high levels of religious attendance were also seen (87%). In addition, 39% reported that they participate in religious activities weekly or more often, whereas 42% participate sometimes. Less than one fifth of the sample never takes part in religious activities. A relatively small percentage of the sample (16%) currently smokes, but an additional 27% have smoked at some point in their lives. Approximately one third of the respondents have never drunk alcoholic beverages and an additional 40% do not currently drink. Of the one quarter of respondents who do currently drink, only 8% are considered heavy drinkers.

The demographic and social variables indicate that the average age of the respondents is nearly 62 years, slightly more than half are female, and more than two thirds are married. The average respondent has a net worth of 378,000 pesos (worth approximately \$38,929 in 2001) and 4 years of formal schooling. The measures of residential characteristics show that approximately one quarter of the respondents live in high-migration areas and slightly more than one third live outside of big cities. Finally, the health measures indicate that the average respondent rates his or her health as fair and has less than one chronic condition.

**Table 1**  
**Descriptive Statistics of Religion Variables, Health Behaviors, and Covariates From the Mexican Health and Aging Study (2001-2003)**

	Range	<i>M</i> or Proportion	<i>SD</i>
Religious salience (Wave 1)			
Very important	0-1	0.71	0.45
Somewhat or not important	0-1	0.29	0.45
Religious attendance (Wave 2)			
Attends services	0-1	0.87	0.43
Religious activities (Wave 2)			
Weekly or more often	0-1	0.39	0.49
Sometimes	0-1	0.42	0.49
Never	0-1	0.19	0.39
Health behaviors (Wave 2)			
Cigarette use			
Never	0-1	0.58	0.49
Former	0-1	0.27	0.44
Current	0-1	0.16	0.36
Alcohol use			
Never	0-1	0.34	0.47
Former	0-1	0.40	0.49
Current moderate	0-1	0.17	0.38
Current heavy	0-1	0.08	0.28
Sociodemographic variables (Wave 1)			
Age	50-105	61.8	9.09
Female	0-1	0.56	0.50
Married	0-1	0.70	0.46
Net worth	-5.85-244.33	3.78	6.92
Education	0-19	4.43	4.33
High-migration area	0-1	0.28	0.45
Rural residence	0-1	0.34	0.47
Health variables (Wave 1)			
Self-rated health	1-5	3.71	0.85
Chronic conditions	0-5	0.66	0.79
<i>N</i>	10,399		

Note: Unweighted data. Numbers may not add to 100% due to rounding.

## Health Behaviors by Level of Religious Salience and Involvement

Table 2 shows how the health behaviors are distributed by level of religious salience, attendance, and participation in other religious activities. The chi-square tests indicate that both health behaviors vary significantly by level of salience. Specifically, individuals with the highest level of

**Table 2**  
**Smoking and Drinking Status by Level of Religious Salience and Involvement (Mexican Health and Aging Study, 2001-2003)**

	Smoking (%)			Drinking (%)			
	Never	Former	Current	Never	Former	Moderate	Heavy
Total	58	27	16	34	40	17	8
Religious salience (Wave 1)							
Very important	60	26	15	37	41	16	7
Somewhat or not important	51	30	19	26	40	21	12
	<i>p</i> < .0001 <sup>a</sup>			<i>p</i> < .0001			
Religious attendance (Wave 2)							
Does not attend services	48	32	20	25	44	19	13
Attends services	59	26	15	35	40	17	8
	<i>p</i> < .0001			<i>p</i> < .0001			
Religious activities (Wave 2)							
Never	51	31	18	29	42	18	11
Sometimes	54	27	18	31	40	19	11
Weekly or more often	65	23	12	40	39	16	5
	<i>p</i> < .0001			<i>p</i> < .0001			

Note: Unweighted data; *N* = 10,399. Percentages may not add to 100 due to rounding.

a. Based on chi-square tests.

salience are more likely to report never smoking and less likely to report being a former or current smoker. Similarly, individuals who say that religion is very important are more likely to have never drunk alcoholic beverages and less likely to be a current drinker (moderate or heavy).

The second group of frequencies displays the relationship between religious service attendance and the health behavior outcomes. The frequencies indicate that levels of both smoking and drinking are different for individuals who attend religious services compared with those who do not. Those who attend services are more likely to have never smoked and are less likely to be former or current smokers. Likewise, attenders are more likely to be lifetime abstainers from alcohol and are about half as likely to be heavy drinkers. Finally, frequencies for smoking and drinking are shown by level of participation in religious activities. As before, more religiously involved individuals are significantly less likely to smoke or drink.

### Religious Salience

*Smoking.* Results of the regression models are presented in Tables 3 and 4, with estimates displayed as odds ratios. The first set of estimates in Table 3

**Table 3**  
**Longitudinal Models Estimating the Effects of Religious Salience and Covariates on Smoking and Drinking (Mexican Health and Aging Study, 2001-2003)**

	Smoking <sup>a</sup>		Drinking <sup>b</sup>		
	Former	Current	Former	Moderate	Heavy
Religious salience <sup>c</sup>					
Very important	1.04	0.74**	0.96	0.86	0.85
Sociodemographic variables					
Age	1.01**	0.98***	0.98***	0.98*	0.94***
Female	0.16***	0.13***	0.09***	0.08***	0.02***
Married	0.79	0.66**	0.91	0.75	0.92
Net worth	1.00	0.99	1.00	0.99	0.98
Education	1.03	1.03	1.05***	1.08**	1.10***
High-migration area	0.93	1.51***	0.82	1.04	0.36***
Rural residence	0.87	0.56***	0.60***	0.86	0.86
Health variables					
Self-rated health	1.13	1.07	1.11	0.91	0.77*
Chronic conditions	1.14	0.82	1.00	0.84	0.78
Likelihood ratio chi-square	16,951.8		21,964.8		

Note: Multinomial logistic regression estimates are displayed as odds ratios. Weighted data; Mexican Health and Aging Study, 2001-2003;  $N = 10,399$ .

a. Individuals who never smoked are the reference group.

b. Individuals who never drank are the reference group.

c. Individuals who responded "somewhat or not important" are the reference group.

\* $p \leq .05$ . \*\* $p \leq .01$ . \*\*\* $p \leq .001$ .

summarizes the longitudinal relationship between religious salience and smoking. The adjusted odds ratios indicate that individuals who say religion is very important are significantly less likely to be current smokers compared with never having smoked ( $OR = 0.74$ ,  $p < .01$ ). In contrast, those with high levels of salience are no less likely to be former smokers. Of the sociodemographic and health covariates, age, gender, marital status, and the residency characteristics all predict smoking status. For example, older adults, women, married individuals, and those living in low-migration or rural areas are all less likely to be current smokers compared with never having smoked.

*Drinking alcohol.* Unlike smoking, religious salience is not significantly related to drinking alcohol (model shown on right side of Table 3). Specifically, after controlling for demographic, socioeconomic, and health

characteristics, levels of religious salience do not predict whether an individual drank in the past, drinks moderate amounts, or drinks heavily. Variables that are associated with drinking status include age, gender, education, residency characteristics, and self-rated health. Whereas older adults and women are consistently less likely to drink, individuals with a higher education are more likely to report drinking (currently or in the past) than never drinking.

## Religious Involvement

*Smoking.* Table 4 displays the cross-sectional relationships between religious attendance, participation in religious activities, and the health behaviors. The first set of estimates reveals that there are significant associations between participation in religious activities and smoking. Specifically, individuals who participate in religious activities sometimes or at least weekly are significantly less likely to be former smokers (OR = 0.62,  $p < .001$ ; OR = 0.59,  $p < .001$ , respectively). Similarly, individuals who participate in religious activities weekly or more often are also less likely to currently smoke. In fact, they are almost half as likely to be a current smoker compared with never having smoked (OR = 0.56,  $p < .001$ ). The demographic, social, and health predictors of smoking remain the same as seen in Table 3.

*Drinking alcohol.* As shown on the right side of Table 4, the data do not support a significant relationship between religious attendance, participation in religious activities, and the use of alcohol.

## Discussion

The influence of religious salience and religious involvement on health behaviors among Mexicans is particularly important given the growing prevalence of preventable chronic conditions in this country. For example, in the 1990s, Mexico saw a substantial increase in the proportion of adults who smoke (Organisation for Economic Co-operation and Development, 2003). Consequently, smoking-related deaths in Mexico have skyrocketed. For example, deaths from cerebrovascular disease increased by 60% between 1970 and 1990, whereas deaths from lung cancer rose by 220% (Centers for Disease Control and Prevention, 1995). The results of this study indicate that religious salience and religious involvement are significant predictors of smoking, although they are unrelated to alcohol use among older

**Table 4**  
**Cross-Sectional Models Estimating the Effects of Religious Attendance and Participation in Religious Activities on Smoking and Drinking (Mexican Health and Aging Study, 2003)**

	Smoking <sup>a</sup>		Drinking <sup>b</sup>		
	Former	Current	Former	Moderate	Heavy
Religious attendance <sup>c</sup>					
Attends services	1.12	0.80	0.88	0.94	0.77
Religious activities <sup>d</sup>					
Weekly or more often	0.59***	0.56***	1.03	0.84	0.61
Sometimes	0.62***	0.80	0.99	0.90	0.81
Sociodemographic variables					
Age	1.02**	0.98***	0.98***	0.98*	0.94***
Female	0.17***	0.13***	0.09***	0.08***	0.02***
Married	0.81	0.68**	0.92	0.76	0.95
Net worth	1.00	0.99	1.00	0.99	0.98
Education	1.03	1.03	1.05***	1.08**	1.10***
High-migration area	0.90	1.53***	0.82	1.03	0.36***
Rural residence	0.88	0.56***	0.60***	0.74	0.85
Health variables					
Self-rated health	1.13	1.05	1.11	0.90	0.76*
Chronic conditions	1.14	1.14	1.00	0.84	0.77
Likelihood ratio chi-square	16,877.6		21,934.6		

Note: Multinomial logistic regression estimates are displayed as odds ratios. Weighted data; Mexican Health and Aging Study, 2003;  $N = 10,399$ . All variables were measured at Wave 2.

a. Individuals who never smoked are the reference group.

b. Individuals who never drank are the reference group.

c. Individuals who do not attend services are the reference group.

d. Individuals who never participated are the reference group.

\* $p \leq .05$ . \*\* $p \leq .01$ . \*\*\* $p \leq .001$ .

Mexicans. Specifically, lending support to our first hypothesis, individuals with high levels of religious salience and participation in religious activities are less likely to currently smoke or be former smokers. In contrast, the data indicate almost no support for a relationship between religion and the use of alcohol (Hypothesis 2) after controlling for sociodemographic and health variables.

Some, but not all, of the relationships seen here between various aspects of religion and health behaviors correspond to those observed in the United States and other more developed countries. For example, the strong association between religious salience and low levels of smoking in this study is supported by numerous recent studies examining religion and cigarette use

(Gillum, 2005; Hill et al., 2006; Koenig et al., 1998; Wallace & Forman, 1998). In contrast, the lack of an association between religion and alcohol use in this study is at odds with previous studies that find that more religious individuals generally drink less (e.g., Hill et al., 2006; Michalak, Trocki, & Bond, in press; Nagel & Sgoutas-Emch, 2007).

However, less work has examined the relationship between religion and health-related outcomes specifically within Hispanic populations. This is surprising given that previous researchers have suggested that religion serves as a "repository for culture" and is sometimes the "principal social institution" within Hispanic communities, at least in the United States (e.g., Levin, Markides, & Ray, 1996, p. 461). Within the existing research, several cross-sectional studies have linked religious service attendance to better health outcomes such as subjective health (Markides & Martin, 1983), life satisfaction (Markides, Levin, & Ray, 1987), and psychological well-being (Levin et al., 1996) among Mexican Americans. But fewer studies have looked at health behaviors in Hispanic populations. One of the few studies found examined Latinas in San Diego County, California. This study discovered that those who attend church more frequently were more likely to have a healthy diet and to exercise regularly (Arredondo et al., 2005). However, our study appears to be the first to connect religion and health behaviors using a nationally representative sample of adults in Mexico.

Within our study, the fact that religion appears to influence the use of cigarettes more consistently than the use of alcohol is interesting, and several explanations can be postulated. To begin, churches may discourage smoking (either formally or informally) to a greater extent than drinking. Also, the (moderate) use of alcohol has been shown to have positive health effects and, thus, religious individuals may not consider drinking to be at odds with having a healthy lifestyle. In fact, many religions, including Roman Catholicism, incorporate alcohol into their services (i.e., communal wine).

Because the majority of individuals in this sample identify themselves as Catholic, it is useful to consider what is known about the association of this religious affiliation with health behaviors. With regard to the percentage of smokers, there appears to be little difference between Catholics and most Protestants, with the exception of certain conservative denominations (i.e., Pentecostals, Mormons, and Seventh-Day Adventists) for whom smoking is uncommon (Koenig et al., 2001). Members of more conservative Protestant religious groups are also more likely to abstain from alcohol use than Catholics (Cahalan & Room, 1972). In addition, Catholics are more likely than Protestants of any denomination to report drinking heavily (Midanik & Clark, 1994). Together with the current findings, these results suggest that

smoking is more likely to be discouraged than drinking among Catholics in both the United States and Mexico.

Finally, the lack of effect of religious attendance on either cigarette or alcohol use is interesting. Service attendance is perhaps the most commonly studied facet of religion within the health literature. It is also one of the most strongly predictive religious measures when examining health behaviors and outcomes. However, as noted before, the vast majority of studies in this area were conducted in the United States or Western Europe. The influence of religious attendance in countries such as these, where only a minority of individuals attend weekly, is likely to differ from the influence of attendance in Mexico, where attending religious services is a nearly universal activity for older adults. Because of this difference, it is possible that the norms and beliefs of society in general are very similar to those of the primary religious organization in Mexico (the Catholic Church). Thus, it is only when an individual is participating in religious activities above and beyond service attendance that a (health-related) benefit of religious involvement may become apparent.

When interpreting these results and contemplating the possible implications, several limitations must be considered. To begin, the measure of cigarette use may not provide the best approximation of this health behavior. It is unfortunate that the exact questions needed to calculate more precise measurements (such as pack-years) were not available. In addition, more diverse measures of religion, such as those involving affiliation, prayer, spirituality, and specific religious beliefs, would provide a better understanding of the influence of religion. Along these lines, more information about specific mechanisms, such as church-based health programs or measures of religious social support, would be useful to explain the associations found. Finally, this study uses survey data to address the complex subject of health care utilization in Mexico. This is a multifaceted issue influenced by innumerable national, cultural, and historical factors. More ethnographic methods would be better able to deal with concerns such as the cross-cultural comparability of concepts and measurements that arise with studies such as these.

Nevertheless, the results presented have extended earlier work on religion and health by replicating previous findings in a new cultural setting. The dramatic upsurge of chronic conditions in Mexico indicates a strong need for policies and interventions that can address the increasingly prevalent underlying risk behaviors. A better understanding of the potential effect of social factors, such as religion and religious institutions, on health behaviors may be an important first step in improving health promotion programs and policies in this country.

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