

Predictors of Preventive Health Care Use Among Middle-aged and Older Adults in Mexico: The Role of Religion

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Published online: 7 March 2007

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Abstract Research has shown that religion is associated with a wide range of health behaviors among adults of all ages. Although there is strong support for religion's influence on behaviors such as drinking and smoking, less is known about the possible relationship between religion and the use of preventive health services. This relationship may be particularly important in Mexico, a country with high levels of religiousness and low levels of preventive service utilization. The current study uses a nationally representative sample of middle-aged and older adults in Mexico ($n=9,890$) to test the association between three facets of religion and three preventive services aimed at detecting chronic conditions or underlying risk factors. The findings show that religious salience is significantly related to the use of blood pressure and cholesterol screenings, even after controlling for a variety of social, demographic, and health-related factors. In addition, attending religious services and participating in religious activities are both positively associated with blood pressure and diabetes screening. This type of research adds to our knowledge of the determinants of preventive service utilization, as well as to the burgeoning literature on religion and health. Furthermore, because the vast majority of research in this field takes place in more developed and Westernized countries, such as the US and Western Europe, analyzing this relationship in a sample of older Mexicans is critical for providing the field with a more comparative orientation.

Keywords Mexico · Older adults · Preventive health services · Religion

Introduction

Over the past 50 years, Mexico has been experiencing an epidemiological transition, resulting in a greater percentage of deaths from chronic conditions compared to infectious

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ones (Tamez and Molina 2000). For example, diabetes and heart disease are now the top two leading causes of death (Reuters 2004). Fortunately, reductions in mortality are possible with the increased use of preventive services designed to detect risk factors for chronic conditions. The challenge is to increase the utilization of preventive services by lowering barriers, such as lack of access, information, and/or motivation. Primary determinants of health care utilization, such as the availability of health care providers, geographic isolation, limited health insurance, and widespread poverty are well-known; however, these factors can not sufficiently explain differences in preventive health care utilization. Thus, while acknowledging the central role of these political, economic, and societal barriers, the current study was designed to explore how social and psychological factors, such as those related to religion, may influence an individual's use of preventive services *despite* the existing structural barriers.

This study focuses on religion because it is one of the most important institutions within the Hispanic culture. For example, nearly fifty percent of Mexicans report attending church services weekly, which places Mexico in the top ten countries in the world for this measure of religious involvement (University of Michigan News and Information Services 1997). Furthermore, nearly all Mexicans report a religious preference, with an estimated 81 to 89% identifying themselves as Catholic (Camp 2000; Central Intelligence Agency 2004). Levels of religious salience, or the importance of religion within a person's life, are also high. Specifically, 84% of Mexicans reported that religion was very important or important, while only 3% claimed that religion had 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 the institution, and religious education in the home, also support the high level of significance given to religion within this culture (Camp 2000).

Religion and health

While many health researchers and professionals are noticeably reluctant to consider the relationship between religion and health, a growing amount of evidence supports religious variation in a wide range of health outcomes and behaviors. The majority of studies find that religious involvement is positively related to a variety of physical and mental health outcomes (for reviews, see Koenig 1998; Koenig *et al.* 2001; McCullough *et al.* 2000), although these conclusions are not without criticism (Sloan *et al.* 1999). Many of the more recent studies from the US include Hispanics, but few studies focus specifically on this ethnic group or on Mexicans.

Of these, one recent study examined the relationship between religious attendance and mortality among older Mexican Americans (Hill *et al.* 2005). Like studies involving other racial and ethnic populations (e.g. Hummer *et al.* 1999), higher levels of attendance were associated with significantly reduced mortality risks. In addition, religious attendance and salience have been found to be significantly associated with a host of other physical and mental health outcomes in Hispanics, including functional health, subjective health, cognitive functioning, and depression (Arredondo *et al.* 2005; Hill *et al.* 2006; Levin and Markides 1985; Levin *et al.* 1996).

The exact mechanisms have not been identified, but researchers generally agree that the relationships may be at least partially due to religion's effect on health behaviors and related beliefs (Ellison and Levin 1998). In support of this, significant associations have been found between religion and a variety of health behaviors, including smoking, drinking, drug use, and utilization of health care services (for review, see Koenig *et al.* 2001). The association of religious attendance with an even wider range of health behaviors was recently studied in

a sample of adults from Texas and, similar to previous findings, greater religious involvement was positively associated with vitamin use, infrequent bar attendance, seatbelt use, and sleep quality, among other behaviors (Hill *et al.* 2006). Although no studies examining religion and health behaviors among Mexicans were found, two recent studies from the US support a positive relationship between religion and health behaviors among Hispanics. In the first study, religious service attendance was found to be related to a healthy diet and increased physical activity among Latinas (Arredondo *et al.* 2005). In the second study, which used a large nationally representative sample, Hispanics who frequently attended religious services were significantly less likely to smoke than those who attended infrequently or never (Gillum 2005).

Religion and preventive service use

There are many possible explanations for a relationship between religion and health behaviors, such as preventive health care use. To begin, a positive relationship between religious involvement and the use of preventive services could reflect social benefits potentially provided by religious organizations. For example, individuals involved with a church have been found to have larger social networks and receive more types of social support than those who do not attend religious services (Bradley 1995; Ellison and George 1994). These individuals may be exposed to more health information through their religious networks. One of the most commonly cited reasons for not receiving recommended preventive services is a lack of information regarding the value or necessity of the service (Drociuk 1999). Simply hearing about the service or knowing someone who has the disease may be enough to spur utilization.

Beyond increased information, additional benefits of church membership may include other forms of social support. Members may help each other by providing transportation to medical services or by offering to watch someone's children while they visit the doctor, for example. In addition, churches may impact the use of services in a more institutional manner. For example, in the US, many churches have health ministries or parish nurse programs through which health information and services are provided (Health Ministries Association 2004). However, the extent of these services in Mexico (or even in the US) is not well documented.

The mechanisms linking religious salience with preventive service use are a little less clear. It is possible that religious salience may influence preventive service use by providing individuals with a moral incentive to maintain their health. Catholics (and other Christians) hold numerous beliefs that emphasize respect for the body and a connection between spiritual and physical health. For example, Christians may feel obligated to maintain their health due to Biblical teachings that identify Christians' bodies as temples of God (e.g. Corinthians 6:15, 19–20). In addition, religious individuals may be more likely to receive appropriate preventive services because physical well-being is necessary to perform activities that are encouraged by religious teachings, such as volunteering, evangelism, charity, and involvement with one's family. A connection between religious salience and health behaviors may also be a function of this variable's correlation with other facets of religion, including involvement with a religious organization or an individual's level of religious commitment.

For all aspects of religion included in the current study, a final possible mechanism is health status. As noted above, more religious individuals have been found to be healthier across a wide range of outcomes, including mental health and subjective well-being (for review, see Koenig 1998; Koenig *et al.* 2001). Because mental health problems, such as depression and

cognitive impairment, have been found to reduce levels of health care utilization (e.g. Koenig *et al.* 1989; Simon *et al.* 1995; Walsh *et al.* 2003), better mental health may be one mechanism through which religious individuals may achieve greater levels of preventive service use.

Previous studies

Perhaps due to the pathways outlined above, religious differences in preventive health care utilization rates have been found before. For example, individuals who attend religious services (at all or more frequently) or participate in religious activities report a greater use of preventive services, such as mammograms and Pap smears, compared to non-involved individuals (Benjamins 2005, 2006a; Fox *et al.* 1998; Naguib *et al.* 1968). Similarly, affiliation with any denomination is associated with greater utilization of a variety of preventive services compared to the non-affiliated; however, conflicting results prevent summarizing specific denominational differences (Benjamins 2005, 2006a; Benjamins and Brown 2003; Miller and Champion 1993; Miller *et al.* 1980; Yi 1994, 1998). Religious salience has also been found to be related to the use of preventive services. However, it must be noted that few prior studies were found that examined this association and all were conducted in the US. Three of these studies used nationally representative, longitudinal data, and found that older adults with higher levels of salience use more cholesterol screenings, flu shots, Pap smears, and mammograms than individuals who reported that religion is not important in their lives (Benjamins 2005, 2006a; Benjamins and Brown 2003). Similarly, an older study using a church-based sample of women in Los Angeles found that salience was moderately related to clinical breast exams and mammography utilization (Fox *et al.* 1998).

Although the findings linking religion and preventive service use are intriguing, it is important to note that several methodological issues temper the generalizeability of the results within this growing field. For example, many of the previous studies (particularly the older ones) use convenience samples and have limited controls for demographic, social, and health characteristics that may confound the relationship between religion and health service use. Furthermore, the majority of the studies focus on medical services designed to detect female-specific cancers (e.g. Benjamins 2006a; Fox *et al.* 1998; Miller and Champion 1993; Miller *et al.* 1980; Murray and McMillan 1993; Naguib *et al.* 1968; Yi 1994, 1998). Finally, all of the prior studies are based in the US or Ireland and, thus, the results cannot be extended to individuals in other countries, particularly those living in countries with distinctly different cultural backgrounds and health care systems.

Current study

The current study will address these limitations by examining the relationship between religion and preventive service use in a nationally representative sample of older Mexicans. In particular, the influence of religious salience, service attendance, and participation in religious activities on the use of blood pressure screening, diabetes screening, and cholesterol screening will be investigated with multivariate regression models. Based on the previous studies and the theoretical assumptions discussed above, it is expected that higher levels of salience or involvement will be associated with greater utilization of these services.

Subjects and Methods

Data

Data for this study come from the first and second waves of the Mexican Health and Aging Study (MHAS 2001–2003). The MHAS is a nationally representative sample of Mexican adults over 50 years of age (i.e. those born prior to 1951). In-person interviews were conducted on a variety of topics, including health status, migration history, family, intergenerational transfers, socioeconomic status, and living environment (Mexican Health and Aging Study (MHAS) 2004). Interviews were completed for 15,186 individuals in Wave 1 (2001), with an individual response rate of 93%. In 2003, 13,704 of these individuals completed Wave 2 surveys. After exclusions for proxies, next-of-kin interviews, those under 50 years of age at baseline, and those missing the primary independent and dependent outcomes (at Wave 1 or 2), 9,890 individuals remained in the sample.

Measures

Religion variables

Religious salience is the only measure of religion included in the first wave of interviews, while salience, attendance at religious services, and participation in church activities were all asked in Wave 2. The question wording for religious salience is as follows: “How important is religion in your life? Would you say it is very important, somewhat important, or not important?” Those who say religion is not important are 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).

Preventive service outcomes

This study inquires about the utilization of three preventive services—screenings to detect high blood pressure, cholesterol, and diabetes. Specifically, respondents were asked, “In the past two years, have you had any of the following medical exams or procedures?” The procedures examined in the current study were described as follows: “A test for hypertension or high blood pressure,” “A blood test for cholesterol,” and “A test for diabetes.” The reference category for each variable is individuals who did not use the service. These outcomes were measured in Wave 2.

Demographic and social covariates

Controls include numerous established predictors of preventive service use, such as age, gender, and socioeconomic status (Barr *et al.* 2001; Kirkman-Liff and Kronenfeld 1992; Nelson *et al.* 2002). Age and education are continuous variables, measured in years. Gender is measured dichotomously with males as the reference group. Net worth, which is generally a better indicator of financial status than income for older adults (Hurd 1989; Smith and Kington 1997), is a dichotomous variable, indicating whether or not the individual is in the bottom third of the distribution. In addition, a variable that indicates whether or not the individual ever lived or worked in the US is included in the models. This may be

significant because it is an indirect measure of exposure to the health-related norms and practices of the US. The US has significantly higher rates of preventive service utilization and it is possible that individuals who have spent time there may benefit from the information and behaviors acquired while in the US.

Access to health care

Access to health care is measured with the following three variables: health insurance, use of health care services, and urban–rural residency. An individual is said to have health insurance if the he or she claims the right to medical attention through federal programs or has private insurance. The second measure of access to care indicates whether or not the individual visited a physician in the past year. The final variable indicates whether the individual lives in an urban or non-urban area. It is expected that individuals in urban areas will have greater access to health care services and, thus, higher levels of utilization.

Health status

Health status, which also predicts the use of preventive services (Nelson *et al.* 2002), is measured three ways. First, a global subjective health question asks respondents to rate their health as “Excellent, Very Good, Good, Fair, or Poor.” This ordinal variable was recoded to differentiate those with fair or poor health from those with more positive responses. The second health measure is a count of depressive symptoms, using a shortened version (9-item) of the Centers for Epidemiologic Study-Depression (CES-D) scale. The final measure of health reflects cognitive functioning. The following five domains are included: attention (visual scanning), primary verbal memory (word recall), secondary verbal memory (delayed word recall), constructional praxis (copying figures), and visual memory (figure recall). The suggested cut-off score of 2 out of 5 domains impaired was used to separate individuals into two groups: those with cognitive impairments and those without (Glosser *et al.* 1993; Mejia *et al.* 2006).

Methods

Univariate statistics provide the distributions for each of the independent, dependent, and control variables. The frequencies are given for the total sample, as well as by level of Wave 1 religious salience. Chi-square tests are used to determine if differences by level of religious salience are significant. Next, multivariate regression models are run. Logistic regression is used due to the dichotomous nature of the outcome variables. The longitudinal relationships between religious salience and the preventive service outcomes are displayed first. Then, regression models estimating the cross-sectional associations between religious attendance, participation in religious activities, and the outcomes (all measured in Wave 2) are shown. Individual-level weights provided by MHAS are used in the regression analyses to account for sample selection probabilities.

Results

Descriptive statistics are shown in Tables I and II, and the primary independent and outcome variables are discussed here. As seen in Table I, the vast majority of respondents report that religion is very important in their lives, with another 25% responding that

Table I Descriptive Statistics for the Religion Variables in the MHAS (2001–2003)^{a,b}

	Number (Percent)
W1 Religious salience	
Very important	7,065 (71%)
Somewhat important	2,500 (25%)
Not important	325 (3%)
W2 Religious attendance	
Attends services	8,587 (86%)
Does not attend services	1,303 (14%)
W2 Religious activities	
Weekly or more often	3,797 (38%)
Sometimes	4,197 (42%)
Never	1,896 (19%)

^a Unweighted data; $N=9,890$

^b Percentages may not add to 100 due to rounding

religion is somewhat important. Less than five percent of the sample report that religion is not important. The religious attendance measure shows that the vast majority of respondents attend religious services. Finally, the question regarding participation in religious activities reveals that over one-third of respondents are involved in some religious activity each week (or more frequently), while almost half report that they “sometimes” participate in such activities. Just under 20% of respondents never take part in religious activities.

Levels of preventive service utilization can be seen in Table II. Overall levels vary by type of service. For example, over three-fourths of respondents had their blood pressure tested in the past two years, while just over one-half of the respondents had received a cholesterol screening during that period and slightly over two-thirds reported having been tested for diabetes. Significant differences in screening rates for blood pressure and diabetes can also be seen by level of salience. For these preventive services, higher levels of salience are associated with higher screening rates (this trend is also seen for cholesterol screening, but fails to reach significance). Moreover, for diabetes screening (and blood pressure screening, to a lesser extent) there is a linear relationship in which individuals reporting higher levels of salience are more likely to report having the screening.

Frequencies for the demographic, socioeconomic, and health-related control variables are also shown here. Again, many significant differences can be seen when looking across levels of religious salience. For example, individuals who say that religious salience is very important are more likely to be older and female compared to those reporting that religion is less important. Individuals with high religious salience are also more likely to have a low net worth and a lower level of education. The health care access frequencies indicate that individuals who are not religious are less likely to have health insurance or have visited a doctor in the past year compared to their more religious counterparts. They are slightly less likely to have lived in the US. In terms of health status, more religious individuals are more likely to rate their health negatively and have more depressive symptoms and cognitive impairments.

Blood pressure screening

Logistic regression odds ratios representing the associations between religious salience and the preventive service outcomes are shown in Table III. For blood pressure screening, the findings show that high religious salience is associated with a 60% higher likelihood of

Table II Descriptive Statistics of Religious Salience, Preventive Service Utilization, and Covariates from the Mexican Health and Aging Study (MHAS 2001–2003)^a

	Total sample (%)	By level of W1 salience			Group differences ^b
		Very important (%)	Somewhat important (%)	Not important (%)	
W2 Preventive service use					
Blood pressure screening	76	76	76	68	d,e
Cholesterol screening	55	55	54	51	
Diabetes screening	68	69	67	61	c,d,e
W1 Sociodemographic variables					
Age (mean, in years)	61.6	62.0	60.7	61.0	c,d
Female	56	62	43	30	c,d,e
Married	69	68	74	71	c
Low net worth	33	33	32	38	e
Education (mean, in years)	4.5	4.3	4.9	5.8	c,d,e
Lived in US	9	8	10	10	c
W1 Access to health care					
Health insurance	63	63	65	59	e
Physician visit past year	65	67	61	56	c,d
Rural residence	33	33	32	34	
W1 Health status					
Fair/poor self-rated health	63	65	60	56	c,d
Depressive symptoms (mean)	3.5	3.6	3.3	3.3	c
Cognitive impairment	60	61	57	55	c,d

^a Unweighted data; $N=9,890$ ^b Based on chi-square tests, differences significant at $p \leq .05$ ^c Very Important different from Somewhat Important^d Very Important different from Not Important^e Somewhat Important different from Not Important

using this type of preventive service compared to individuals with the lowest level of salience (O.R.=1.60, C.I.=1.28–2.00). The estimate for medium levels of salience is almost identical (O.R.=1.65, C.I.=1.31–2.08). Of the covariates, being older and female is associated with a higher likelihood of having a blood pressure screening, as is having a higher net worth and education. In addition, having health insurance and a physician visit in the past year is associated with greater use of blood pressure screening compared to those with no insurance, or no physician visits. Finally, the health variables indicate that having poor subjective health, more depressive symptoms, and less cognitive impairment is associated with an increased likelihood of reporting a blood pressure screening.

Cholesterol screening

The association between religious salience and cholesterol screening is displayed in the middle of Table III. This model indicates that religious salience is also significantly

Table III Estimates of the Longitudinal Relationships Between Religious Salience, Covariates, and Three Types of Preventive Services (MHAS 2001–2003)^{a,b}

	Blood pressure screening ^c		Cholesterol screening		Diabetes screening	
	O.R.	95% C.I.	O.R.	95% C.I.	O.R.	95% C.I.
W1 Religion salience ^d						
Very important	1.60	1.28–2.00	1.35	1.08–1.70	0.99	0.79–1.24
Somewhat important	1.65	1.31–2.08	1.26	0.99–1.59	0.97	0.77–1.23
Sociodemographic variables						
Age (mean, in years)	1.02	1.01–1.02	1.01	1.01–1.02	1.01	1.00–1.02
Female	1.58	1.42–1.75	1.29	1.17–1.42	1.58	1.44–1.75
Married	1.01	0.90–1.13	1.06	0.96–1.17	1.17	1.06–1.30
Low net worth	0.72	0.65–0.80	0.83	0.75–0.91	0.71	0.65–0.78
Education (mean, in years)	1.03	1.01–1.04	1.08	1.06–1.09	1.03	1.02–1.05
Lived in US	0.89	0.75–1.07	1.19	1.00–1.41	0.98	0.83–1.16
Access to health care						
Health insurance	1.81	1.63–2.01	2.64	2.40–2.90	1.83	1.67–2.02
Physician visit past year	2.02	1.83–2.23	2.04	1.85–2.24	1.84	1.68–2.02
Rural residence	0.91	0.82–1.02	0.90	0.81–0.98	0.72	0.65–0.79
Health status						
Fair/poor self-rated health	1.23	1.11–1.38	1.24	1.12–1.37	1.29	1.16–1.42
Depressive symptoms (mean)	1.02	1.00–1.04	0.98	0.96–0.99	1.01	1.00–1.03
Cognitive impairment	0.75	0.67–0.84	0.83	0.75–0.91	0.78	0.71–0.87
-2 Log likelihood	10,405.71		12,023.94		11,640.35	
Adjusted R-Square	0.12		0.19		0.14	
Wald Chi-Square	790.33		1,267.27		907.08	
N	9,890		9,890		9,890	

^a Logistic Regression Odds Ratios (O.R.) and 95% Confidence Intervals (C.I.)

^b Weighted data

^c All outcomes measured in Wave 2

^d Reference category is “Not Important”

associated with reporting a cholesterol screening. However, unlike before, only individuals who say that religion is very important are more likely to report a cholesterol screening compared to those who say religion is not important (O.R.=1.35, C.I.=1.08–1.70). (The intermediate level of salience shows a similar relationship to the outcome, but just misses the significance cut-off with a *p* value of 0.056.) All of the control variables (and proposed mediators) are also significantly associated with the use of cholesterol screenings, with the exception of marital status.

Diabetes screening

The final model displays the estimates for the relationships between religious salience, covariates, and screening for diabetes. The findings indicate that religious salience is not associated with the likelihood of receiving a diabetes screening once demographic, socioeconomic, and health variables are included in the model. In contrast, variables that are significantly associated with screening for this condition include age, gender, marital status, net worth, education, access to care, and the health-related indicators.

Table IV Estimates of the Cross-sectional Relationships Between Religious Attendance, Covariates, and Preventive Service Outcomes (MHAS 2003)^{a,b}

	W2 Blood pressure screening		W2 Cholesterol screening		W2 Diabetes screening	
	O.R.	95% C.I.	O.R.	95% C.I.	O.R.	95% C.I.
W2 Religious attendance ^c						
Attends services	1.42	1.23–1.64	1.02	0.89–1.16	1.40	1.22–1.61
W2 Religious activities ^d						
Weekly or more often	1.26	1.09–1.45	0.90	0.80–1.03	1.32	1.16–1.51
Sometimes	1.00	0.87–1.15	0.75	0.67–0.85	1.16	1.02–1.32
<i>N</i>	9,890		9,890		9,890	

^a Logistic Regression Odds Ratios (O.R.) and 95% Confidence Intervals (C.I.); Weighted data

^b Separate models for attendance and religious activities; each model includes the following control variables: age, gender, marital status, net worth, education, past US residency, health insurance, physician visit, urban–rural status, self-rated health, depressive symptoms, and cognitive limitations

^c Reference category is “Does Not Attend Services”

^d Reference category is “Never”

Religious attendance and use of screenings

In Table IV, the cross-sectional relationships between religious service attendance, participation in religious activities, and the three screening outcomes are shown. Although the estimates for the control variables are not displayed, the models are fully adjusted. The first row of odds ratios indicates that individuals who attend religious services are significantly more likely to report having a blood pressure screening and a diabetes screening in the past 2 years (O.R.=1.42, C.I.=1.23–1.64; O.R.=1.40, C.I.=1.22–1.61, respectively). In contrast, service attendance is not related to reporting a cholesterol screening.

Participation in religious activities

The bottom of Table IV displays the models estimating the relationship between participation in religious activities and the use of preventive screening services. These odds ratios indicate that participating in religious activities weekly or more often is significantly associated with a higher likelihood of reporting a blood pressure screening and a diabetes screening, compared to those who never participate (O.R.=1.26, C.I.=1.09–1.45; O.R.=1.32, C.I.=1.16–1.51, respectively). Individuals who participate “sometimes” are also significantly more likely to report a diabetes screening compared to the reference group (O.R.=1.16, C.I.=1.02–1.32). Interestingly, individuals with medium levels of participation are significantly less likely to report a cholesterol screening in the past 2 years (O.R.=0.75, C.I.=0.67–0.85).

Discussion

Mortality in Mexico is slowly shifting from deaths due to infectious diseases to those resulting from chronic conditions, such as diabetes and heart disease. Consequently, preventive services that detect the presence of, or risk factors for, these conditions are increasingly important. However, many middle-aged and older adults in Mexico fail to utilize these preventive screening services. For example, despite recent reports that the

number of people in Mexico with diabetes (4.4 million) ranked it in the top ten of all countries (International Diabetes Foundation (IDF) 2004), the current study shows that nearly one-third of older Mexicans have not been tested for diabetes in the past two years. Just as worrisome, significant percentages of older adults neglected cholesterol and blood pressure screenings as well.

The current study examines the relationship between various facets of religion and preventive services related to these chronic conditions. The findings indicate that individuals for whom religion is more important are more likely to report blood pressure and cholesterol screenings (but not diabetes screening), even after controlling for demographic, social, and health variables. In addition, individuals who attend religious services and who participate in weekly religious activities are more likely to receive screenings for high blood pressure and diabetes. Although religiously involved adults in the US have been found to have healthier lifestyles (e.g. Hill *et al.* 2006) and more frequent use of preventive services (e.g. Benjamins 2006a), no previous studies were found that linked religion and health behaviors in Mexican adults. While more work in this area is clearly needed, the current study suggests that relationship between religion and preventive service use may be similar in the US and Mexico.

Although most of the proposed mechanisms could not be tested with the current data set, several possible explanations were hypothesized. To begin, it was hypothesized that belonging to a religious organization offers individuals various types of social support, which may increase their use of health care services. For example, individuals involved with a church may be exposed to more health information through their larger social networks. Involvement with a religious organization may include more tangible social support as well, such as transportation assistance or child care. In addition, churches may impact the use of preventive services more directly by providing free or reduced cost services. This type of direct involvement is seen in the US, where a large number of churches have health ministries or parish nurse programs (Health Ministries Association 2004). However, the existence of these programs in Mexico (or even in the US) is not well documented, and even less is known about the actual services that these types of programs may provide.

The mechanisms linking religious salience with preventive service use are even less obvious. One possible explanation is that religious teachings often incorporate messages concerning the importance of physical health, which may motivate healthy behaviors. Moreover, there is some evidence that religion may influence health-related beliefs, such as how much individuals trust their physicians and the health care system (Benjamins 2006b). It was also suggested that a significant relationship between salience and preventive service use may be a result of the strong correlation between salience and other dimensions of religion, such as service attendance. Results from this study indicate that salience and attendance are associated with different preventive services and, thus, are not likely to be measuring the same thing. However, salience may still be acting as a proxy for other facets of religion that were not measured here, such as private religious practices.

Finally, as noted earlier, the influence of religious salience and involvement in religious activities may, at least partially, be explained by other mediators, such as mental health status. However, in the current study, the positive associations between various measures of religion and the preventive services remain despite the inclusion of subjective health, depressive symptoms, and cognitive impairment. This indicates that there is no support for the mediating role of these aspects of health among this sample. Unfortunately, until better data become available, we can not say which mechanism (or combination of mechanisms) explains the relationship between salience and preventive service use.

Although the positive associations between religion and blood pressure, cholesterol, and diabetes screenings seen in this study may work through many potential pathways, the findings indicate it is not always a dose–response relationship. For example, the likelihood of using blood pressure services does not increase as levels of religious salience increase. Explanations for this are not apparent in the data; however, one could speculate on possible reasons. For example, it is possible there is a ceiling effect, in which holding any religious beliefs is sufficient to influence one’s health-related behaviors. Similarly, those who say that religion is somewhat important are likely to be members of a religious organization and, thus, are exposed to the same social benefits of membership. Similar effects have been found in other studies examining religion and health. For example, one recent study found that levels of self-rated health were more positive for those who attend church compared to those who never attend, but that differences between frequent and infrequent attendance were not significant (Arredondo *et al.* 2005).

Interestingly, the various facets of religion were inconsistently associated with the different types of preventive services. Unfortunately, there are no obvious reasons to explain why religious salience would be associated with blood pressure and cholesterol screenings, but not diabetes screenings, for example. Likewise, it is difficult to understand why the two measures of religious involvement were positively related to blood pressure and diabetes screening, while the relationships with cholesterol screening were non-significant or negative. More work in this area, particularly quantitative or qualitative research that more directly examines possible mechanisms of the relationships seen here, is needed.

Before the implications of this type of research are discussed, several limitations of the data must be addressed. To begin, the measures of religion are less than ideal. More diverse measures, such as those involving frequency of church attendance, prayer, spirituality, or specific religious beliefs would provide a better understanding of the influence of religion. Information about church-based health programs would also be valuable, as would measures of social support (religiously-based and otherwise) and social involvement. Finally, the current study uses survey data to address health care utilization in Mexico, which is a complex social issue influenced by innumerable national, cultural, and historical factors. Comparative studies using more ethnographic methods would be better able to deal with concerns such as the cross-cultural comparability of concepts and measurements.

Despite these limitations, this type of research adds to our knowledge of the correlates of preventive service utilization, as well as to the burgeoning literature on religion and health. In particular, because the vast majority of research in this field takes place in more developed and westernized countries, such as the US and Western Europe, analyzing this relationship in a sample of older Mexicans is critical for providing the field with a more comparative orientation. However, since this study is the first (to our knowledge) to study how religion is related to preventive service utilization in Mexico, more work in this area is needed before any specific implications of this study are broached.

The current study finds that more religious individuals report greater utilization of certain preventive services. The mechanisms behind these relationships, as well as the implications for public health, are currently unknown. More research is needed to better understand the impact of this social factor on the health behaviors of older adults in Mexico.

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