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Religious Involvement and Physical Functioning among Older Mexican Americans

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Abstract

Background and purpose—Examine the association between attendance at religious services and incidence of ADL disability over a period of seven years among older Mexican Americans 65 years and older.

Methods—Using data from the Hispanic Established Population for the Epidemiological Study of the Elderly (H-EPESE), logistic generalized estimation equation (GEE) models were used to analyze the contribution of attendance at religious services to the differences in incidence of ADL disability over seven years, controlling for demographics, medical conditions, and physical mobility.

Results—Frequent attendees at religious services had 30% lower odds of developing ADL disability over seven years compared to the non-regular attendance group. The odds were reduced to 23%, but remained significant when physical and mental health were controlled.

Conclusions—In this older Mexican American population, regular attendees at religious services were less likely to develop ADL disability over a period of seven years compared to those who attended services less often.

Keywords

Religion; disability; Hispanics

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Introduction

Over the past two decades, studies have demonstrated the health benefits of religious beliefs and practices (Hummer, Rogers, Nam, & Ellison, 1999; Krause, 1998; Levin, Markides, & Ray, 1996; Rogers, 1996; Strawbridge, Cohen, Shema, & Kaplan, 1997), with some studies showing attendance at religious services associated with better physical functioning (Idler & Kasl, 1997). Most of this body of research, however, has largely focused on non-Hispanic white and non-Hispanic black populations. Little is known of the associations of religious practices to the physical functioning of the older Mexican American population.

Population projections by the United States Census Bureau (Brea, 2003) estimate that by the year 2050 the Hispanic population will be approximately 103 million and will constitute 25% of the nation's total population. To date, about 60% of the Hispanic population is of Mexican origin. This Mexican American population is projected to grow rapidly in the next few decades and is expected to represent a large portion of the United States older population. Current data estimate high disability rates in the older Mexican American population compared to older non-Hispanic whites (Markides et al., 1999). These rates are expected to continue to increase mostly because of high rates of obesity and sedentary lifestyles.

Building on prior research, the aims of this study were to examine the direct effect as well as potential explanatory mechanisms through which attendance at religious services is related to functional disability in an older Mexican American population. We hypothesized that frequent attendance at religious services would be associated with lower incidence of ADL disability over a 7-year period. To test this hypothesis, we used four waves of data collected from a large probability sample of Mexican Americans who reside in the Southwestern United States.

Methods

Sample and Study Design

The Hispanic Established Population for the Epidemiologic Study of the Elderly (HEPESE) is an on-going longitudinal study of 3,050 non-institutionalized Mexican Americans aged 65 and older at baseline (1993–1994) from five Southwestern states: Texas, California, Colorado, New Mexico, and Arizona. The sample is representative of approximately 500,000 older Mexican Americans. Data were collected over a period of seven years at two to three year intervals: baseline, 1993–94, N = 3,050; 1st follow-up, 1995–96, N = 2,439; 2nd follow-up, 1998–99, N = 1,981; 3rd follow-up, 2000–01, N = 1,685. The response rate at baseline (1993–94) was 83%. The sample and sampling procedures have been described elsewhere. (Levin et al., 1996; Markides et al., 1999)

In the analysis reported below, only individuals who were free of ADL disability in 1993 were selected for the analyses (N = 2,620). From this sample, 189 refused to be interviewed at follow-up, 147 died by the second wave, 64 did not have data on ADLs, and 11 had missing values on attendance at services at baseline, yielding a final sample of 2,209. Approximately 87% of the sample identified their religious preference as Catholic, 10% as Protestant, and 3% as other.

Measures

Religious involvement—Respondents were asked how often they attended mass or religious services. Response categories ranged from (1) never or almost never to (5) more than once a week. Forty five percent of the sample reported attending services almost every week or more frequently and 14% reported never attending. Because of the skewed

distribution of the responses, in the analyses that follow, responses were transformed into two categories to reflect regular attendance (almost every week / more than once a week, once or twice a month) and non-regular attendance (never or almost never / several times per year). This categorization of the attendance at services measure is found in the literature on religion and health and allows the establishment of two comparison groups, the regular and non-regular attendee group.

Disability—Disability was measured by the Activities of Daily Living (ADLs) scale (Katz, Ford, Moskowitz, Jackson, & Jaffe, 1993). Respondents were asked if they required the assistance of others or special devices to carry out the following activities: walking across a small room, bathing, grooming, dressing, eating, getting from a bed to a chair, and using the toilet. Respondents were assigned a score of “1” if they were unable to or needed help with any one of the seven tasks and a score of “0” otherwise.

Physical Mobility—Lower body function was assessed by the Performance Oriented Mobility Assessment developed by Tinetti (Tinetti, 1986) and used in the earlier EPESE studies (Foley, Fillenbaum, & Service, 1990; Guralnik, Seeman, Tinetti, Nevitt, & Berkman, 1994; Ostir, Markides, Black, & Goodwin, 2000). This measure assesses timed repetitive chair stands, timed 8-foot walk across a small room, and standing balance. A summary score that ranges from 0 to 12 was created from these three measures, where the highest score indicates better mobility performance. Inter-observer reliability has been found to be in excess of 0.93 (Nevitt, Kidd, & Black, 1989) with a test-retest correlation of 0.89 (Nevitt et al., 1989).

Medical conditions—At baseline, respondents were asked if a doctor had ever told them that they had a stroke, diabetes, heart disease, hip fracture, and / or arthritis. Data were available on conditions at baseline and at each subsequent follow up. Responses were coded “1” for yes and “0” for no for each condition.

Depressive Symptoms—Depressive symptoms were measured by the Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977), a 20-item self-report symptom scale that identifies the presence and severity of depressive symptomatology in the general population. The CES-D has been validated to have content, concurrent, and discriminant validity and has demonstrated high reliability with Hispanic Populations (Angel & Guarnaccia, 1989; Mendes de Leon & Markides, 1988). Values on this scale ranged from 0 to 51, with higher scores reflecting more depressive symptoms.

Demographics—Sociodemographic variables included in all analyses as control variables included: age (continuous); years of education (continuous); gender (female=1); and marital status (married=1).

Statistical Analysis

Descriptive statistics and bivariate associations were performed with baseline attendance at religious services and selected demographic, physical health, and mental health characteristics. Next, logistic generalized estimation equation (GEE) models were fitted to take into account repeated measurements within the same subjects over time, while allowing estimation of both fixed and time-dependent covariates and the handling of unbalanced data (variations in the number of follow-up data between subjects). The contribution of religious attendance to the differences in incidence of ADL disability was expressed by the reduction in odds ratios across religious attendance categories. The analyses controlled for physical mobility to avoid possible confounding effects of lower body function on the association between religious attendance and ADL disability.

Results

Table 1 shows bivariate statistics comparing at baseline the groups with high and low attendance at religious services with respect to demographic and health characteristics of the sample. The analyses revealed significant associations at $p < 0.001$ between frequency of attendance at services and all demographic variables. All were in the expected direction. Attendance at religious services was significantly associated with being younger, having more years of education, being female, and being married. Among the physical health conditions, the absence of a history of stroke, diabetes, or heart disease was significantly associated with attendance at services.

Generalized estimation equation analyses confirmed a statistically significant association between religious attendance and incidence of ADLs. Model 1 in Table 2 shows a protective association of attendance at services on incidence of ADLs, where subjects in the regular attendance category at baseline had a 30% reduction in the odds of developing ADLs over seven years compared to the non-regular attendance group (OR 0.70, 95% CI 0.57–0.84). Model 2 further adjusted for physical and mental health, which reduced the odds of developing ADLs to 23%, still remaining significant (OR 0.77, 95% CI 0.61–0.96). Model 3 is a time-dependent covariates model using baseline attendance as predictor of ADLs. This model takes into account the possibility of variation in the independent measures over time. Results show that the regular attendance group had a 23% reduction in the odds of developing ADLs over time, compared to the non-regular attendance group (OR 0.77, 95% CI 0.62–0.94). Separate analysis (not shown) that included a time of follow-up * attendance interaction term yielded no significant results.

Discussion

This study addresses the association between attendance at religious services and incidence of ADL disability in an older Mexican American population aged 65 years and older. It was hypothesized that frequent attendance at religious services would be associated with lower incidence of ADL disability over a period of seven years. The findings support the premise that individuals attending religious services almost every week or more than once a week are less likely to develop ADL disability over time. The study also showed that although controlling for physical and mental health and physical mobility levels reduced this effect, the risk of becoming ADL disabled continued to be significantly lower in regular religious services goers. The time-dependent covariates analysis demonstrated that possible changes in health status and changes in mobility over time did not influence the association between frequent attendance at religious services and ADL disability. By statistically controlling for conditions known to be related to disability, such as stroke, diabetes, arthritis, heart disease, hip fracture, and levels of physical mobility, the present study provides evidence of a protective effect of frequency of religious attendance on incidence of ADL disability in older Mexican Americans.

Results of this study are in concordance with previous investigations in non-Hispanic whites and non-Hispanic Blacks. Idler and Kasl (Idler & Kasl, 1997), using data from the New Haven EPESE, examined the likelihood of an association between attendance at religious services and better physical functioning over time. After controlling for initial levels of functioning, the changes in disability that occurred during five years of follow-up were significantly associated with attendance at religious services. Benjamin (Benjamin, 2004), using data from the Assets and Health Dynamics Among the Oldest Old Survey, also found attendance at religious services associated with fewer functional limitations over time. A more recent study examined the association between attendance at religious services and change in physical function among older individuals with residual physical limitations due

to stroke (Berges, Kuo, & Markides, 2007), finding that frequent attendees at religious services had significantly fewer declines in ADL disability compared to infrequent attendees. In all, these findings suggest that attendance at religious services plays a role in the prevention and course of ADL disability.

The influence of attendance at religious services on the incidence of disability could have occurred by pathways not explored in the present study, such as possible genetic predispositions or environmental factors that could play an active role in the development of physical limitations over time among this particular study group. It can also be argued that individuals who attend religious services may have been more physically active throughout their lifespan and may remain more physically and socially active than those that do not, thereby minimizing their chances of developing physical limitations due to inactivity as they approach old age. Moreover, the presence of intrinsic characteristics of the study participants such as personality traits or more profound religious attitudes and beliefs could have also impacted disability outcomes.

Important strengths of this study are the large dataset, the longitudinal design that allows estimation of the time-order of the events, and the focus on the largest and fastest growing minority group in the United States. An additional strength is the detailed measure of ADL disability, IADL disability and physical mobility. However, the study has a number of limitations. First, the measure of attendance at religious services is the only measure of religious involvement at baseline limiting the analysis to include other non-organizational forms of religious involvement such as prayer and meditation or more subjective forms related to the private perception of the individual on the importance of religion in their lives as well as the extent to their religious commitment. Second, although the study produced results similar to other studies in different populations, the observed association between attendance at religious services and incidence of ADL disability may still be mediated by factors not measured in the study. To build upon the existing knowledge of the role attendance at religious services have in the development of ADL disability, future investigations may study factors that describe the religious individual in terms of personality, measures of deeper devotion to religious commitment, and patterns of engagement in physical and social activities in adult age.

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Bivariate Statistics of Baseline Frequency of Attendance at Religious Services by Selected Sociodemographic and Health Characteristics (N = 2,209).

Table 1

Variable	Value	Frequent Attendance			
		Low ^a	High ^b	χ ^{2c}	p
Demographics					
Age $\bar{M}$ (SD)	65–96	72.8 (6.4)	71.9 (5.6)	–3.24	0.0012
Education $\bar{M}$ (SD)	0–20	4.5 (3.9)	5.1 (3.9)	3.53	0.0004
Gender (%)	Male	56.3	35.6		
	Female	43.7	64.4	87.6	0.0001
Married (%)	No	37.5	44.3		
	Yes	62.5	55.7	9.56	0.0020
Physical health					
Stroke	No	94.5	96.5		
	Yes	5.5	3.5	4.92	0.0265
Diabetes	No	76.2	81.6		
	Yes	23.8	18.4	8.83	0.0030
Heart Disease	No	93.8	90.7		
	Yes	6.2	9.3	8.44	0.0146
Hip Fracture	No	98.4	97.8		
	Yes	1.6	2.2	1.10	0.2925
Arthritis	No	63.2	60.8		
	Yes	36.8	39.2	1.34	0.5101
POMA $\bar{M}$ (SD)	0–12	7.3 (3.2)	7.5 (2.7)	1.79	0.0730
CES-D $\bar{M}$ (SD)	0–51	9.0 (9.2)	8.7 (8.8)	–0.71	0.4770

^aLow attendance : never or almost never / several times per year; once or twice per month.

^bHigh attendance: Almost every week / more than once a week.

^cT-tests were performed for the continuous variables : age, education, Performance Oriented Mobility Assessment (POMA), CES-D.

Table 2

General Estimation Equation Models Assessing the Association between Regular Attendance at Religious Services and Incidence of ADL Disability (N = 2,209)

	Model 1	Model 2	Model 3^a
Variables	OR (95% CI)	OR (95% CI)	OR (95% CI)
Regular Attendance	0.70 (0.57 – 0.84)	0.77 (0.61 – 0.96)	0.77 (0.62 – 0.94)
POMA		0.82 (0.79 – 0.85)	0.83 (0.81 – 0.86)
Age		1.09 (1.08 – 1.11)	1.08 (1.06 – 1.10)
Gender (<i>Male = 1</i>)		1.21 (0.95 – 1.55)	1.19 (0.95 – 1.50)
Education		0.99 (0.96 – 1.02)	0.99 (0.96 – 1.01)
Marital Status (<i>Married = 1</i>)		0.84 (0.67 – 1.05)	0.89 (0.72 – 1.09)
Stroke		1.22 (1.32 – 1.99)	1.40 (1.00 – 1.97)
Diabetes		2.26 (1.77 – 2.89)	2.08 (1.68 – 2.58)
Heart Disease		1.28 (1.16 – 1.90)	1.38 (1.04 – 1.84)
Hip Fracture		2.17 (1.29 – 3.65)	1.70 (1.11 – 2.60)
Arthritis		1.16 (0.93 – 1.43)	1.25 (1.02 – 1.54)
Depressive Symptoms		1.01 (0.99 – 1.02)	1.00 (0.99 – 1.01)

^aTime dependent covariate model.