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Predictors of complementary and alternative medicine use among older Mexican Americans

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Abstract

To determine predictors of complementary and alternative medicine (CAM) use, we used a cohort of 1,445 non-institutionalized Mexican Americans aged 65 and older from the first wave (1993–1994) of the Hispanic Established Population for the Epidemiologic Study of the Elderly, followed until 2000–2001. The main outcome was use of any CAM (herbal medicine, chiropractic, acupuncture, massage therapy, relaxation techniques or spiritual healing) in the past 12 months and was assessed at 7 years of follow-up. Potential predictors of CAM use at baseline included sociodemographics, acculturation factors, and medical conditions. The overall rate of CAM use among older Mexican Americans was 31.6%. Independent predictors of higher CAM use were female gender, being on Medicaid, frequent church attendance and higher number of medical conditions. In contrast, subjects who were born in US and spoke either Spanish or English at interview had lower CAM use compared with subjects who were born in Mexico.

Keywords

CAM use; elderly; Mexican Americans; Medicaid; religiosity; acculturation

INTRODUCTION

In the past two decades epidemiological research on use of complementary and alternative medicine (CAM) has documented demographic differences among various populations living in the United States.^{1–5} The purpose of this study is to analyse cultural nuances that may exist between older Mexican Americans born in the United States and older Mexicans Americans that migrated to the United States and have lived here most of their adult lives. We will examine the effects of social and demographic factors on use of CAM in order to elucidate and understand differences in use of CAM between older Mexican Americans by their country of birth.

Older minorities are one of the fastest growing groups among the US populations. However, studies related to CAM use among older minorities are limited.^{6–12} Also, there are only a few studies involving older Hispanics,^{6,10,12} and only one study involving older Mexican

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Americans.⁹ In general, Latino adults tend to have lower CAM use than whites in all domains such as body/mind interventions (biofeedback, hypnosis, imagery, relaxation, spiritual healing), biologically based therapies (herbal medicine, diet), manipulative/body-based methods (massage and chiropractic therapies), alternative medical systems (homeopathy, acupuncture) or energy therapies.^{13–15}

In a previous study, using a cross sectional analysis at the first wave of the Hispanic Established Population for the Epidemiological Study of the Elderly (EPESE), but including only use of herbal medicine in the previous 2 weeks as the outcome, but not other CAM therapies, it was found that herbal medicine use was associated with financial strain, disability, and chronic conditions.⁹ The objective of this study was to determine predictors of CAM use (herbal and others) among older Mexican Americans after 7 years of follow-up, using data from the first and fourth waves of the Hispanic EPESE.

METHODS

Data source

Data are from the Hispanic EPESE, a population-based study of 3,050 non-institutionalized Mexican Americans aged 65 and older (83% response rate) residing in five South-western states: Texas, California, New Mexico, Colorado, and Arizona. Sampling and data collection are described elsewhere.¹⁶ In the analysis reported below, we used data from the first wave in home surveys conducted in 1994–1995 to predict CAM use 7 years later (2000–2001). The sample of this study includes 1,445 subjects aged 65 and older.

Measures

The outcome, complementary and alternative medicine (CAM) use was measured at the fourth Wave (2000–2001). Prevalence of CAM use was assessed by asking if during the past 12 months they had used: acupuncture, chiropractic, herbal medicine, massage therapy, relaxation techniques, or spiritual healing.

Potential predictors of CAM use were assessed at the first wave (1994–1995). These included:

a) Socio demographic variables: age (years, continuous), gender (male or female), marital status (married or unmarried), education (≤ 6 years vs. > 6 years), if they had been born in the United States or in Mexico, the language they used in the interview (Spanish or English), the number of years they have been in the US since they migrated (only for subjects born in Mexico), and if they had Medicaid coverage (yes or no).

Church attendance was assessed by the question “How often do you go to church or religious services? Never or almost never, several times a year, once or twice a month, almost every week, or more than once a week”. Church attendance was dichotomized as infrequent attendance (never or almost never, or several times a year, code=0) vs. frequent attendance (once or twice a month, almost every week, or more than once a week, code=1).

b) Medical conditions were assessed with a series of questions asking the respondents if they had been told by a doctor that they had arthritis, diabetes mellitus, a heart attack, hypertension, stroke, cancer, or a fracture of any bone.

Urinary incontinence was evaluated by the question “In the past month, how often have you had difficulty holding your urine until you could get to a toilet - never, hardly ever, some of the time, most of the time or all the time?” If the response was other than never, the subject was considered as having incontinence.

Each medical condition was coded 1 for yes and 0 for no. A summary score for medical conditions was constructed, from 0 to 8, and used as continuous variable.

c) Functional status was assessed by seven Activities of Daily Living items (ADL).¹⁷ ADLs included walking across a small room, bathing, grooming, and dressing, eating, transferring from a bed to a chair, and using the toilet. Subjects were asked if they needed no help vs. they needed help with or were unable to perform the activity. ADL was used as continuous variable (score 0–7).

Analysis

Comparisons are between CAM users and non-CAM users. Descriptive statistics, the chi-square test for categorical variables and the t-test statistic for continuous variables were performed. A stepwise logistic regression analysis was used to estimate the odds of CAM use at seven years later, first in all subjects, and second, in only subjects who were born in Mexico, because these subjects showed the strongest association with CAM use in bivariate analyses. We also examined potential interaction effects among predictors, and evaluated the fit of the regression analyses. All analyses were performed using version 9.1 of the SAS system for Windows (SAS Institute Inc., Cary, NC).

RESULTS

The use of at least one CAM therapy (herbals, massage, chiropractic, relaxation techniques, spiritual healing, or acupuncture) in the 12 months prior to the interview was reported by 31.6% (n=457) of the sample. Of the following therapies herbal medicine was the most commonly used with 27.9%, followed by massage therapy 2.7%, chiropractic 2.4%, relaxation techniques 1.3%, and spiritual healing 0.4%. Acupuncture was not used at all.

Table 1 presents the distribution of the study population comparing CAM users to nonusers. Overall, subjects had a mean age of 71.1 years (SD=5.2), 62% were female, 48% were married, 72.2% had 6 years or less of education, 32.8% were on Medicaid, 77.5% spoke Spanish at interview, 41.7% were born in Mexico, and 69.6% reported frequent church attendance. CAM users tend to be of female gender, unmarried, on Medicaid, born in Mexico, having frequent church attendance, and having a higher number of medical conditions.

There were no differences between CAM users and non-CAM users by age, education, language at interview, and activities of daily living limitations. In addition, using data only for subjects who were born in Mexico, there was no difference between CAM users and non-CAM users by number of years living in the US.

Figure 1 presents the percentage (%) of CAM use at the fourth Wave (2000–2001) according with baseline data (first Wave, 1994–1995) on immigration status and language use at the interview, stratified by gender and Medicaid insurance, in the complete sample (n=1,445).

Among subjects who were on Medicaid, subjects born in Mexico tend to have higher prevalence of CAM use by sex (men and women) compared with those born in US. Women on Medicaid had a prevalence of 52.5% when were born in Mexico, 35.4% when were born in US and spoke Spanish at interview, and 19.1% when were born in US born and spoke English at interview ($p<0.0001$).

Men on Medicaid had a prevalence of 40.7% when were born in Mexico born, 16.3% when were born in US and spoke Spanish at interview, and 33.3% when were born in US and spoke English at interview ($p=0.0148$). Among subjects who were not on Medicaid the differences were not significant. When testing a three-way interaction effect on CAM use between gender,

Medicaid use, and immigration status plus language use, the results were significant for the simple interactions terms ($p=0.0113$) and for the multivariate model ($p=0.0106$) adjusting for all other variables.

Figure 2 presents the percentage (%) of CAM use at the fourth Wave (2000–2001) according with baseline data (first Wave, 1994–1995) on number of years living in the US, since migration, stratified by gender and Medicaid insurance, in part of the sample including Mexico born subjects ($n=602$). There is not a clear pattern across quintiles of years living in the US. The only significant result ($p=0.0002$) was the group of male gender not on Medicaid that showed an approximate ‘bell’ pattern with a lower percentage of CAM use in the period <22 years (12.0%) followed by an increase at a highest percentage at the period between 35–42 years (45.4%), and end with a lowest percentage at >55 years (3.6%). The result for a three-way interaction term between gender, Medicaid use, and number of years living in the US was not significant.

Table 2 presents stepwise multiple logistic regression analyses at baseline (Wave 1) to predict CAM use seven years later (Wave 4). In Model 1, we used the complete sample ($n=1445$). Overall independent predictors of higher CAM use were female gender, being on Medicaid, frequent church attendance and higher number of medical conditions. In contrast, subjects who were born in US and spoke Spanish at interview, and subjects who were born in US and spoke English at interview had lower odds for CAM use (odds ratio=OR 0.64, 95% confidence intervals=CI 0.50–0.82, and OR 0.55, 95% CI 0.40–0.77, respectively) compared with subjects who were born in Mexico. In Model 2, we used only a sub sample of Mexico born subjects ($n=602$). Predictors of higher CAM use among Mexico born subjects were female gender, being on Medicaid, frequent church attendance and higher number of medical conditions. In this sub sample, the odds of CAM use among subjects on Medicaid was about two compared to those who were not on Medicaid. The number of years living at the US was not a predictor of CAM use.

DISCUSSION

The overall rate of CAM use among older Mexican Americans was 31.6%. This rate was close to that found among other older populations, ranging between 29% and 41%,^{18–20} but much lower than that reported by Ness et al.²¹ using data from the Health and Retirement Study (87%).

Gender

Our finding that female gender was associated with CAM use agrees with other reports on CAM use^{12,15,19,21} or on herbal use.⁹

Chronic medical conditions

We found that that increased numbers of chronic conditions was associated with increased CAM use is consistent with other studies^{20,22} but differs from other studies that, first, found no association between chronic conditions and CAM use,²¹ and second, found an association between chronic conditions and decreased CAM use.^{8,19} On the other hand, we reported in our first study that increased herbal medicine use was associated with arthritis, hip fracture, urinary incontinence, asthma, high depressive symptoms, and any limitation on activities of daily living.⁹

The major contributions of our study to the literature include our findings related to the independent association between CAM use and Medicaid insurance, church attendance and immigration status.

Medicaid Insurance and CAM use

We found an important association between being on Medicaid insurance and increased CAM use. Medicaid insurance was associated with increased rates of CAM use across gender and immigration status. In multivariate analyses, this association was strong in the overall sample and especially for Mexican born subjects. Indeed, for example, among Mexican born subjects, older persons being on Medicaid had almost two times CAM use (OR 1.95) than older persons who were not on Medicaid.

It is known that Medicaid insurance in the Hispanic population is a marker of poverty; however, at the same time, Medicaid may cover CAM use for this population and other underserved populations.

We did not find reports related to Medicaid insurance in the literature, but there are some contradictory reports related to insurance in general. Using data from the Health and Retirement Study, Ness et al.²¹ reported that any type of insurance was associated with less use of herbal supplement and personal practice. Using data from the National Comparative Health Care Survey, Mackenzie et al.,⁵ reported that being uninsured was a predictor of at least one CAM use and predictor of herbs, acupuncture, chiropractic and home remedies. Finally, using data from the 2002 National Health Interview Survey, Graham et al.³ reported that having no insurance was a predictor of higher CAM use. On another hand, in a previous study was reported that herbal medicine use was associated with financial strain.⁹

Religion

We found a report in the literature related to CAM use and religiosity. In a study with pediatric oncology patients, McCurdy et al.²³ reported that families who reported themselves to be very religious were more likely to use CAM than those that are less religious (somewhat or not at all). In our study, frequent church attendance increased the likelihood for CAM use in about 46% in the overall sample and 59% in the separated sample of Mexican born subjects. Studies have shown that frequent religious activities such as church attendance are associated with psychological wellbeing, life satisfaction, less fear of falling, and reduction in mortality.^{24–27} CAM therapies may, in part, reflect shifting cultural paradigms with respect to recognizing the importance of spiritual factors in health; CAM therapies are also attractive because they are seen more compatible with patients' values, worldview, spiritual/religious perspective, or beliefs regarding the nature and meaning of health and illness.^{28–31}

Immigration status and Language

Our study supported the idea that immigration status and language at the interview may influence CAM use. In bivariate analyses, there was a strong association between less CAM uses and being born in the US (Table 1), this association was seen also when considering language at interview, particularly in women (Figure 1) who were on Medicaid. In multivariate analyses, that association persisted when language at the interview was added to immigration status. Indeed, subjects who were born in US and spoke either Spanish or English at interview had lower CAM use compared with subjects who were born in Mexico. Language use is a common behavioural indicator of acculturation.³²

Acculturation is a complex process that occurs when two or more cultural groups come into contact, and as result, there is a change in one or all of the groups involved.³³ Acculturation also involves the acquisition of the cultural elements of the dominant society, like language.³⁴ In our study, the less acculturated subjects- Mexican born- had higher CAM use, while the more acculturated subjects, US born who either spoke Spanish or English at the interview, had lower CAM use. Our results differ from one study by Raji et al.¹² who found that being born in the US was associated with increased CAM use in bivariate analysis but not in multivariate

analysis. The number of years living in the US was not a predictor of CAM use among Mexico born subjects in our study. While in another study, the percentage of CAM use decreased as the number of years living in the US increased.⁷

This study is not without limitations. One limiting factor is the inconsistency in data collection because our list was limited to herbal medicines, chiropractic, massage, spiritual healing, and relaxation that prevent us from making an overall conclusion about CAM therapies in our population. We were unable to determine how the subjects started using a particular CAM therapy, whether it was prescribed by a practitioner or recommended by a family member or friend.

Conclusion

In conclusion, US born Mexican American elderly subjects (using either Spanish or English at the interview) were less likely to use CAM therapies than Mexican Americans subjects born in Mexico. Frequent church attendees had increased CAM use, suggesting that patients with a spiritual perspective are more likely to use CAM. Medicaid insurance was a predictor of higher CAM use, suggesting that Medicaid coverage may facilitate CAM use among the elderly.

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Figure 1.
Percentage of CAM use by gender, immigration status & language use, and Medicaid among older Mexican Americans (n=1,445)

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Figure 2.
Percentage of CAM use by gender, years living in US, and Medicaid among older Mexican Americans born in Mexico (n=602)

Table 1
Distribution of the study population comparing CAM users to nonusers

	Total (1445)	Non-CAM users (n=988)	CAM users (n=457)	P value
Age (years; 65–95), mean ± SD	71.2 ± 5.2	71.2 ± 5.2	71.1 ± 5.1	0.6990
Gender, N (%)				
Female	896 (62.0)	567 (57.4)	329 (72.0)	<.0001
Male	549 (38.0)	421 (42.6)	128 (28.0)	
Marital status, N (%)				
Unmarried	757 (52.4)	498 (50.4)	259 (56.7)	0.0261
Married	688 (47.6)	490 (49.6)	198 (43.3)	
Education, N (%)				
≤ 6 years	1044 (72.2)	707 (71.6)	337 (73.7)	0.4538
> 6 years	401 (27.8)	281 (28.4)	120 (26.3)	
Being on Medicaid, N (%)				
Yes	474 (32.8)	294 (29.8)	180 (39.4)	0.0002
No	971 (67.2)	694 (70.2)	277 (60.6)	
Language at interview, N (%)				
Spanish	1120 (77.5)	755 (76.4)	365 (79.9)	0.1111
English	325 (22.5)	233 (23.6)	92 (20.1)	
Nativity (with or without language), N (%)				
US born	843 (58.3)	611 (61.8)	232 (50.8)	<.0001 ^b
Mexico born	602 (41.7)	377 (38.2)	225 (49.2)	
US born & Spanish	575 (39.8)	413 (41.8)	162 (35.5)	0.0001 ^c
US born & English	268 (18.6)	198 (20.0)	70 (15.3)	
Church attendance, N (%) ^a				
Frequent	1006 (69.6)	662 (67.0)	344 (75.3)	0.0026
Infrequent	439 (30.4)	326 (33.0)	113 (24.7)	
Number of medical conditions (0–6), mean ± SD	1.3 ± 1.1	1.2 ± 1.1	1.4 ± 1.2	0.0002
Activities of daily living limitations(0–7), mean ± SD	0.2 ± 0.9	0.1 ± 0.8	0.2 ± 0.9	0.4795
Years living in the US ^d	39.3 ± 19.4	39.8 ± 20.0	38.5 ± 18.2	0.4544

^aFrequent church attendance includes: once or twice a month, almost every week, or more than once a week. Infrequent church attendance includes: never or almost never, or several times a year.

^bTesting differences between US born and Mexico born

^cTesting differences between Mexico born, US born plus Spanish, and US born plus English

^dInclude only subjects who were born in Mexico (n=602)

Table 2

Factors at baseline (1994–1995) independently associated with CAM use seven years later (2000–2001) among older Mexican Americans

	Model 1 Total population (n=1445)	Model 2 Subjects born in Mexico (n=602)
Variables	Odds Ratio (95% confidence interval)	Odds Ratio (95% confidence interval)
Gender		
Male	1.00	1.00
Female	1.71 (1.32–2.19)	1.60 (1.10–2.33)
Being on Medicaid		
No	1.00	1.00
Yes	1.40 (1.10–1.77)	1.95 (1.36–2.79)
Acculturation and nativity status		
Mexican born	1.00	
US born and Spanish at interview	0.64 (0.50–0.82)	
US born and English at interview	0.55 (0.40–0.77)	
Church attendance		
Infrequent	1.00	1.00
Frequent	1.46 (1.12–1.89)	1.59 (1.07–2.36)
Number of medical conditions (0–8)	1.18 (1.07–1.30)	1.25 (1.06–1.47)

Model 1: mutual adjustment for age, gender, marital status, education, being on Medicaid, acculturation and nativity status, church attendance, activities of daily living limitations and number of medical conditions

Model 2: mutual adjustment for age, gender, marital status, education, being on Medicaid, language at interview, number of years living in the US, church attendance, activities of daily living limitations and number of medical conditions