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Religiousness and headache: Is there a relation? Results from a representative sample of adults living in a low-income community

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Abstract

Background: The use of religious behaviors to alleviate the consequences of stressful life circumstances is a frequent strategy employed by pain sufferers. Specifically in the field of headache research, to date, few studies have assessed spiritual and religious beliefs.

Objective: The objective of this article is to investigate the relation between religiousness (organizational, non-organizational and intrinsic) and headache disorders in a representative sample of adults living in a low-income community.

Methods: This was a cross-sectional, population-based study. In 2005, we conducted door-to-door interviews with 439 people, aged more than 18 years, randomly selected from a low-income community in Brazil. Four regression models were created to explain the relationships between religious involvement and headache, controlling for demographics, depression/anxiety and alcohol use and smoking.

Results: Of the 439 households contacted, at least one member from 383 (87.2%) households participated. We interviewed more women (74.4%) and more subjects aged 18–39 years. The mean age was 41.7 (SD 8.5) years. Bivariate analysis shows that high religious attendance, non-organizational religiousness and intrinsic religiousness were associated with presence of headache and presence of migraine. After the logistic regression models, only high non-organizational religiousness remained associated with presence of headache (odds ratio (OR): 1.22 (1.01–1.49)). All other religious variables were unrelated to the presence of headache and its types.

Conclusion: There is a modest relationship between high non-organizational religiousness and presence of headache. Headache sufferers may use coping strategies such as private religious behaviors to try to overcome suffering.

Keywords

Headache, migraine, spirituality, religion and medicine, behavioral aspects

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Introduction

Headache disorders are common and debilitating conditions, impairing physical, social, occupational and emotional functioning (1), affecting 46% of the adult population worldwide (2).

In order to deal with health concerns, patients generally use strategies to manage their condition, also known as coping (3). Within this context, the use of religious behaviors to try to alleviate the consequences of stressful life events is a frequent strategy employed by pain sufferers (4).

In the last decades, there has been a rapid increase in the number of scientific studies linking spirituality and religiousness (S/R) to health (5). Spiritual and religious beliefs have been associated with several outcomes such as quality of life, mental health, survival, hospitalization and pain, among others (5,6).

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In regard to patients with chronic pain, almost half of them use prayer, religious attendance and spiritual therapies to overcome their difficulties and for health concerns. However, there are conflicting results on whether S/R could have a beneficial or detrimental effect (7–9).

Specifically in the field of headache research, to date, few studies have assessed spiritual and religious beliefs (10,11). In 2008, Wachholtz and Pargament (10) carried out an experimental study showing that spiritual meditation could decrease the frequency of migraine headaches. In 2014, Tronvik et al. (11) evaluated 41,766 Norwegians and found a relationship between headache and religious attendance. Nonetheless, other aspects of religiousness such as private religious behaviors (such as prayer) and intrinsic religiousness have never been assessed.

Therefore, the present study aims to investigate the relation between religiousness (organizational, non-organizational and intrinsic) and headache disorders in a representative sample of adults living in a low-income community.

Methods

The original data were gathered as part of a study examining headache prevalence and risk factors in very low-income communities (12). The full methodology can be seen in previous articles (12–14).

Briefly, this was an observational, cross-sectional study. We conducted door-to-door interviews with 439 subjects aged 18 years or more, from a Brazilian shantytown named ''Paraisópolis Community'' located in the city of São Paulo, Brazil.

We randomly selected households according to the sectors included in the Albert Einstein Family Health Program number 2. This program had 34 Family Health agents and approximately 3400 households included (100 per agent). Then, 10 agents and 45 households for each agent were randomly selected, for an expected total of 450 households. Eleven households were not evaluated by the agents, resulting in 439 for final analysis.

The interview was carried out by previously trained agents from the Family Health Program who presented the study objectives to the household resident who was, if eligible, invited to participate. Only the person who answered the door was invited to participate. If this person was not eligible we asked for another eligible person in the household (we interviewed only one person per household). After agreeing to participate, the volunteer signed a written inform consent. Eligible respondents were aged 18 years or older, a permanent resident of the household, and mentally capable of answering the questions.

The questionnaire included: questions about sociodemographic characteristics and questions about headache, based on the second edition of the International Classification of Headache Disorders (ICHD-II) (15). Migraine was diagnosed when all ICHD-II criteria were fulfilled. Tension-type headache (TTH) was diagnosed when all ICHD-II criteria were fulfilled. Chronic migraine was diagnosed when respondents who fulfilled all ICHD-II criteria reported 15 or more days of headache per month. Subjects were told to answer the questions based on their most frequent type of headache, if they had more than one type. Therefore, we gave only one diagnosis for each participant.

Religiosity was analyzed using the Duke Religion Index (DUREL) validated by the present study into Portuguese (16). The DUREL is a five-item measure of religious involvement that yields three subscales: (1) organizational religious behavior (religious attendance), (2) non-organizational religious behavior (prayer, meditation, religious reading) (one item), and (3) intrinsic religious motivation. Response options are on a five- or six-point Likert scale. Responses to the items of the organizational and non-organizational subscales are rated on a six-point scale: (1) = never, (2) = once a year or less, (3) = a few times a year, (4) = a few times a month, (5) = once a week, (6) = several times a week. Response options for the intrinsic subscale are on a five-point scale ranging from (1) = definitely not true to (5) = definitely true.

Alcohol use and smoking: Current alcohol consumption was assessed by the following questions: ''Did you use alcoholic beverages last month?'' and ''How many days do you usually drink alcohol beverages per week?'' We defined non-drinkers as those who recorded zero for current consumption of any alcoholic beverage in the last month (14).

Current tobacco use was assessed by the following questions: ''Did you smoke last month?'' and ''How many cigarettes do you usually smoke per day?'' We defined non-smokers as those who recorded zero for current use of any cigarettes in the last month (14).

Anxiety: This was evaluated using the Mini-International Neuropsychiatric Interview (MINI) validated in Portuguese (17).

Depression: This was evaluated using the MINI validated in Portuguese (17).

Statistical analysis

One-year prevalence rates of migraine, chronic migraine and TTH were calculated in a previous study (12).

Student's *t* test and chi-square analysis were used to compare continuous and categoric variables.

A multiple logistic regression (Enter method) was then conducted using presence of primary headache

as the categorical dependent variable and religiousness (organizational, non-organizational and intrinsic) as the independent variables, controlling for potential confounders.

We used models based on the assumption that there are confounders in the relation between religiousness and headaches. We included socio-demographic aspects, psychiatric conditions and substance use since those are the most important confounders in this relationship. Then, we started with an unadjusted model and added these confounders gradually to reach our leading model (model 4).

We created four distinct models for a better comprehension of the magnitude of the results: model 1, unadjusted model; model 2, adjusted model with socio-demographics (gender, education, income, marital status, race, job); model 3, adjusted model with model 2 and depression and anxiety; model 4, adjusted model with model 3 and alcohol use and smoking. This strategy has already been used in other studies of this area.

For this procedure, we dichotomized primary headache as follows: presence of headache, 1 (yes) and 0 (no); presence of migraine, 1 (yes) and 0 (no); presence of chronic migraine, 1 (yes) and 0 (no); and presence of TTH, 1 (yes) and 0 (no).

Finally, we carried out a correlation procedure (Spearman test) in order to evaluate the correlation between different aspects of religiousness and headache days within the last three months and within the last year.

All data were double-entered and cross-checked for consistency. Data were analyzed using SPSS version 17 (SPSS, Chicago, IL, USA). $P \leq 0.05$ was considered statistically significant and odds ratio (OR) was presented with 95% confidence intervals (95% CI).

This study was approved by the ethics committee on research of the Hospital Israelita Albert Einstein in São Paulo, Brazil.

Results

Of the 439 households contacted, at least one member from 383 (87.2%) households participated. In the remaining 56 households, the survey was not completed because no one in the household was eligible or those who were eligible refused to participate.

Table 1 shows the distribution of the survey participants by their socio-demographic characteristics. We interviewed more women (74.4%) and more subjects aged 18–39 years. The mean age was 41.7 (SD 8.5) years. Almost half of the subjects reported a house income of less than two times the Brazilian minimum wage (BMW), 51.2% were mixed race and approximately 30% were unemployed. A deeper socioeconomic analysis of this sample has been published elsewhere (12).

Table 1. Distribution of the respondents, by some socio-demographic characteristics ($n = 83$).

	Total	
Socio-demographic characteristic	n	%
Gender		
Male	98	25.6
Female	285	74.4
Age, years		
18–40	222	57.9
41–60	130	34.0
>60	31	8.1
Race		
White	143	37.3
Black	43	11.2
Mixed	196	51.2
Indian	1	0.3
Education level, years of school		
Illiterate	39	10.2
Less than 4 years	118	30.8
5–8	118	30.8
8–11	104	27.2
>11	4	1
Marital status		
Single	133	34.7
Married or cohabitating	217	56.7
Divorced	24	6.3
Widowed	9	2.3
Household income, BMW		
≤1	47	12.7
1.1–2	127	34.2
2.1–4	166	44.7
4.1–6	19	2.1
>6	12	3.2
Job status		
Working	127	33.2
Unemployed	114	29.8
Housewife	74	19.3
Other	68	17.7
Religious affiliation		
Catholic	278	72.6
Evangelical Protestant	51	13.3
No religious affiliation	34	8.9
Spiritists	2	0.5
Others	18	4.7
Religious attendance		
Never	35	9.1
Once a year or less	62	16.2
A few times a year	73	19.1

(continued)

Table 1. Continued.

Socio-demographic characteristic	Total n	Total %
A few times a month	77	20.1
Once a week	69	18.0
More than once a week	67	17.5
Private religious activity		
Rarely or never	55	14.4
A few times a month	32	8.4
Once a week	22	5.7
Two or more times/week	51	13.3
Daily	198	51.7
More than once a day	25	6.5
Intrinsic religiousness (DUREL)		
3–10	57	14.9
11–14	99	25.8
15	227	59.3

BMW: Brazilian minimum wage; DUREL: Duke Religious Index.

Headache within the last year was reported by 172 subjects. The prevalence of migraine was 20.4%, chronic migraine 8.9%, TTH 6.2% and no headache 51.7%. More than 20% reported tobacco use, 17.5% alcohol use and 7.8% alcohol abuse.

Concerning religiousness, 35.5% reported they attended religious services at least once a week, 58.2% were engaged in private religious activity at least daily, and the majority scored high on intrinsic religiosity. Roman Catholic was the most common religious affiliation (72.6%), followed by Evangelical Protestants (13.3%) (Table 1).

Table 2 (bivariate analysis) shows that high religious attendance, non-organizational religiousness and intrinsic religiousness were associated with presence of headache and presence of migraine.

After the logistic regression models (model 4), only high non-organizational religiousness remained associated with presence of headache OR: 1.22 (1.01–1.49). All other religious variables were unrelated to the presence of headache and its types (Table 3).

The correlation procedure found no relation between religiousness and frequency of headache (headache days within the last three months and within the last year) (Table 4).

Discussion

The present study found a modest relationship between high non-organizational religiousness (private religious activities such as prayer, meditation or Bible study) and presence of headache. Interestingly, our study did not find a relation between different aspects of religiousness and frequency of headache. These findings are contrary to most of the evidence from this field, in which religiousness has a protective role for several conditions (5,6). We believe these apparently contradictory results are justified by some factors.

First, patients generally use religious beliefs and behaviors to try to alleviate the negative emotional consequences of chronic pain. This statement is strongly supported by previous studies (3,8,9).

Büssing et al. (8) evaluated 580 patients with chronic pain conditions and observed that the use of spirituality/religiosity can be regarded as an active coping process. Similar results were detected by Dunn and Horgas (9), who found most of the respondents prayed for God to work along with them to manage their pain. On the other hand, Baetz and Bowen (7) investigated 37,000 individuals from Canada and found the population with chronic pain was less likely to use positive coping strategies and exercise, and more likely to use negative coping strategies, prayer or seeking spiritual help.

Second, prayer is a very common resource used in hard times. Wachholtz and Sambamthoori (18) evaluated 52,386 people from a United States National Health Interview Survey and found recent use (within 12 months) of prayer for health concerns significantly increased from 43% in 2002 to 49% in 2007. Barnes et al. (19) investigated 31,044 adults age 18 years and over and the most commonly used complementary and alternative therapies during the past 12 months were use of prayer specifically for one's own health (43.0%) and prayer by others for one's own health (24.4%).

Third, there is a relation between prayer and negative outcomes. Hank and Schaan (20) evaluated 14,500 people from 10 European countries and found frequency of prayer is negatively associated with self-perceived general health and general physical health, and positively associated with functional limitations and depression. Andersson (21) investigated 118 individuals with chronic pain and observed associations between praying and pain interference and impairment. Follow-up prayer was predicted by pain interference at the first measurement occasion. In accordance, Rippentrop et al. (22) noticed private religious practice (e.g. prayer, meditation, consumption of religious media) was inversely related to physical health outcomes, indicating that those who were experiencing worse physical health were more likely to engage in private religious activities, perhaps as a way to cope with their poor health.

Finally, since headaches are highly debilitating conditions, those sufferers use several coping strategies.

Table 2. Bivariate association analysis between religiousness and different types of headache.

	Headache		Migraine		Chronic migraine		Tension type	
	Yes	No	Yes	No	Yes	No	Yes	No
How often do you attend church or other religious meetings?[a]								
Less than once a week	113 (59.5%)	134 (69.8%)	42 (53.8%)	201 (67.0%)	19 (55.9%)	136 (68.7%)	22 (78.6%)	221 (63.1%)
Once a week or more	77 (40.5%)	58 (30.2%)	36 (46.2%)	99 (33.0%)[c]	15 (44.1%)	62 (31.3%)	6 (21.4%)	129 (36.9%)
How often do you spend time in private religious activities, i.e. prayer, meditation or Bible study?[a]								
Less than once a day	64 (33.7%)	96 (50.0%)	23 (29.5%)	135 (45.0%)	13 (38.2%)	99 (50.05%)	151 (43.1%)	7 (25.0%)
Daily or more	126 (66.3%)	96 (50.0%)[d]	55 (70.5%)	165 (55.0%)[d]	21 (61.8%)	99 (50.0%)	199 (56.9%)	21 (75.0%)
In my life, I experience the presence of the Divine (i.e. God)[b]	4.82 (0.58)	4.55 (1.06)[d]	4.82 (0.59)	4.65 (0.92)	4.82 (0.71)	4.67 (0.88)	4.89 (0.31)	4.67 (0.89)
My religious beliefs are what really lie behind my whole approach to life[b]	4.55 (0.97)	4.29 (1.28)[c]	4.60 (0.85)	4.37 (1.21)	4.74 (0.79)	4.39 (1.17)[c]	4.39 (1.22)	4.42 (1.14)
I try hard to carry my religion over into all other dealings in life[b]	4.33 (1.20)	3.96 (1.49)[d]	4.44 (1.12)	4.06 (1.42)[c]	4.41 (1.20)	4.12 (1.38)	4.36 (0.98)	4.12 (1.40)
Intrinsic religiosity	13.70 (2.17)	12.79 (3.29)[d]	13.85 (2.13)	13.07 (2.97)[d]	13.97 (2.15)	13.17 (2.87)	13.64 (1.85)	13.20 (2.89)

[a]Chi-square. [b]Mann-Whitney. [c]$p < 0.05$. [d]$p < 0.01$.

Table 3. Logistic regression models between religiousness and different types of headache controlled for confounding factors.

	Model 1 (unadjusted)				Model 2				Model 3				Model 4			
	Headache	Migraine	Tension type	Chronic headache	Headache	Migraine	Tension type	Chronic headache	Headache	Migraine	Tension type	Chronic headache	Headache	Migraine	Tension type	Chronic headache
OR	1.17 (1.03–1.33)[a]	1.22 (1.03–1.44)[a]	0.87 (0.68–1.13)	1.13 (0.90–1.43)–	1.09 (0.95–1.26)	1.14 (0.95–1.35)	–	–	–	–	–	–	–	–	–	–
NOR	1.23 (1.08–1.41)[b]	1.29 (1.07–1.56)[b]	1.13 (0.86–1.47)	1.12 (0.88–1.43)	1.15 (1.01–1.33)[a]	1.22 (1.01–1.48)[a]	–	–	1.24 (1.02–1.51)[a]	1.21 (0.96–1.53)	–		1.22 (1.01–1.49)[a]			
IR	1.12 (1.04–1.21)[b]	1.12 (1.01–1.25)[a]	1.06 (0.91–1.24)	1.14 (0.96–1.35)	1.09 (1.01–1.19)[a]	1.09 (0.97–1.23)	–	–	1.01 (0.88–1.15)	–	–	–	–	–	–	–

[a]$p < 0.05$. [b]$p < 0.01$. OR: organizational religiosity; NOR: non-organizational religiosity; IR: intrinsic religiosity. Model 2: gender, education, income, marital status, race and job. Model 3: depression and anxiety. Model 4: smoking and alcohol use.

Therefore, religious and spiritual practices are very common in our sample. Our population is poor, underserved, with limited access to health care. Religiosity/spirituality practices are one of the few supporting resources these patients can find in the community.

A few studies have assessed the role of S/R in the prevalence of headache. Recently, Tronvik et al. (11) evaluated the relationship between headache and religious activity using prospective data from a large population-based study (41,766 Norwegian residents). They found the presence of migraine and non-migrainous headache at baseline predisposed more strongly to religious attendance at 11 years of follow-up and that the odds of being a frequent religious attendee increased 48% among those with migraine at baseline compared to subjects without headache.

This study is in accordance with our results, in which high religiousness was associated with high prevalence of headache. However, after adjusting for confounding variables, our study failed to replicate the data on religious attendance and only non-organizational religiousness was related to presence of headache. In our interpretation, some reasons could justify these distinct findings: (1) our sample was smaller, therefore, only differences with higher effect sizes could be detected; (2) our sample had a female predominance. In the study carried out in Norway, they did not find a significant association between religious attendance and headache in females; (3) cultural and religious differences are remarkable between these populations, and (4) our design was cross-sectional, in contrast to the prospective design used by Tronvik et al. (11). In regard to other religiousness measures, unfortunately, the study conducted in Norway did not assess non-organizational religiousness and intrinsic religiousness in order to compare with our findings.

Another study in this area (10), now with an experimental design, compared the role of spiritual meditation, internally focused secular meditation, externally focused secular meditation and muscle relaxation in 83 meditation-naïve individuals. Those who practiced spiritual meditation had greater decreases in the frequency of migraine headaches, as well as greater increases in pain tolerance and headache-related self-efficacy. These results underscore that the use of S/R can be adaptive (with better outcomes) or maladaptive (with worse outcomes).

This study has several limitations. First, the data are cross-sectional, not allowing us to say anything about time sequence. Second, ''Paraisopolis shantytown'' may not represent general communities worldwide, because of some local peculiarities, such as race, economics (poverty, unemployment), habitation status (lack of treated water supply) and stressful situations. These peculiarities could be responsible for the high frequency

Table 4. Correlation between religiousness and headache frequency (headache days within the last three months and the last year).

	OR	NOR	IR	Headache days in the last three months	Headache days in the last year
OR	–				
NOR	0.319 [b]	–			
IR	0.328 [b]	0.265 [b]	–		
Headache days in the last three months	0.008	0.060	0.071	–	
Headache days in the last year	0.014	0.019	0.125	0.726 [b]	–

[a] $p \leq 0.05$. [b] $p \leq 0.01$. OR: organizational religiosity; NOR: non-organizational religiosity; IR: intrinsic religiosity; three months: headache days within the last three months: last year: headache days within the last year.

of chronic migraine found. In addition, in the present study a female majority was found, which can be explained by the following: (i) interviews were conducted during the day and some men were working at this time; (ii) usually in this type of community, women are responsible for housework; and (iii) women usually take care of their children at home and therefore were eligible for the interview. Therefore, more studies are necessary in order to replicate these findings in other settings. Third, although we controlled for some confounders, other potential confounding factors could not be taken into consideration. Fourth, since most participants were Roman Catholics, extrapolation to other, less-common religious groups should be performed with caution.

Although our study does not support conclusions on S/R effectiveness, one can speculate about their possible effects. First, if they improve headache outcomes over time, making patients less disabled, a previously more severe group with a benefit from S/R practices would be over time part of a less-severe group, thus confounding our current cross-sectional results. On the other hand, if S/R practices are not effective, patients would stop looking for them, being part of a less religious involvement group, again confounding the results. In addition, patients could be so debilitated by the headaches and pessimistic about their future, they could have lost their faith in S/R practices. Longitudinal studies would clarify those questions. It is also possible that some religious practices may negatively influence anxiety and headache outcomes, for instance, if a practice or belief is too punitive, increasing patients' guilt, or if a practice or a prayer is over-emotional, bringing despair, evoking sadness and crying, that would probably increase patients' headaches.

In conclusion, there is a modest relationship between high non-organizational religiousness and presence of headache. Headache sufferers may use coping strategies such as private religious behaviors to overcome suffering.

Clinical implications

- The present study found a modest relationship between high non-organizational religiousness (private religious activities such as prayer, meditation or Bible study) and presence of headache.
- These findings are contrary to most of the evidence from this field, in which religiousness has a protective role for several conditions.
- Headache sufferers may use coping strategies such as private religious behaviors to overcome suffering.

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Conflict of interest

None declared.

References

1. Pryse-Phillips W. Evaluating migraine disability: The headache impact test instrument in context. *Can J Neurol Sci* 2002; 29 (Suppl 2): S11–S15.
2. Stovner L, Hagen K, Jensen R, et al. The global burden of headache: A documentation of headache prevalence and disability worldwide. *Cephalalgia* 2007; 27: 193–210.

3. Peres MF and Lucchetti G. Coping strategies in chronic pain. *Curr Pain Headache Rep* 2010; 14: 331–338.
4. Martin PR. Managing headache triggers: Think 'coping' not 'avoidance'. *Cephalalgia* 2010; 30: 634–637.
5. Koenig HG. Religion, spirituality, and health: The research and clinical implications. *ISRN Psychiatry* 2012; 2012: 278730.
6. Lucchetti G, Lucchetti AL and Koenig HG. Impact of spirituality/religiosity on mortality: Comparison with other health interventions. *Explore (NY)* 2011; 7: 234–238.
7. Baetz M and Bowen R. Chronic pain and fatigue: Associations with religion and spirituality. *Pain Res Manag* 2008; 13: 383–388.
8. Büssing A, Michalsen A, Balzat HJ, et al. Are spirituality and religiosity resources for patients with chronic pain conditions? *Pain Med* 2009; 10: 327–339.
9. Dunn KS and Horgas AL. Religious and nonreligious coping in older adults experiencing chronic pain. *Pain Manag Nurs* 2004; 5: 19–28.
10. Wachholtz AB and Pargament KI. Migraines and meditation: Does spirituality matter? *J Behav Med* 2008; 31: 351–366.
11. Tronvik E, Sørensen T, Linde M, et al. The relationship between headache and religious attendance (the Nord-Trøndelag health study-HUNT). *J Headache Pain* 2014; 15: 1.
12. Lucchetti G and Peres MF. The prevalence of migraine and probable migraine in a Brazilian favela: Results of a community survey. *Headache* 2011; 51: 971–979.
13. Lucchetti G, Peres MF, Lucchetti AL, et al. Generalized anxiety disorder, subthreshold anxiety and anxiety symptoms in primary headache. *Psychiatry Clin Neurosci* 2013; 67: 41–49.
14. Lucchetti G, Peres MF, Lucchetti AL, et al. Religiosity and tobacco and alcohol use in a Brazilian shantytown. *Subst Use Misuse* 2012; 47: 837–846.
15. The International Classification of Headache Disorders: 2nd edition. *Cephalalgia* 2004; 24 (Suppl 1): 9–160.
16. Lucchetti G, Granero Lucchetti AL, et al. Validation of the Duke Religion Index: DUREL (Portuguese version). *J Relig Health* 2012; 51: 579–586.
17. Sheehan DV, Lecrubier Y, Sheehan KH, et al. The Mini-International Neuropsychiatric Interview (M.I.N.I.): The development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. *J Clin Psychiatry* 1998; 59(Suppl 20): 22–33; quiz 4–57.
18. Wachholtz AB and Sambamthoori U. National trends in prayer use as a coping mechanism for depression: Changes from 2002 to 2007. *J Relig Health* 2013; 52: 1356–1368.
19. Barnes PM, Powell-Griner E, McFann K, et al. Complementary and alternative medicine use among adults: United States, 2002. *Adv Data* 2004; 343: 1–19.
20. Hank K and Schaan B. Cross-national variations in the correlation between frequency of prayer and health among older Europeans. *Res Aging* 2008; 30: 36–54.
21. Andersson G. Chronic pain and praying to a higher power: Useful or useless? *J Relig Health* 2008; 47: 176–187.
22. Rippentrop EA, Altmaier EM, Chen JJ, et al. The relationship between religion/spirituality and physical health, mental health, and pain in a chronic pain population. *Pain* 2005; 116: 311–321.