



## Spiritual and religious identities predict the use of complementary and alternative medicine among US adults

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### ABSTRACT

**Objective.** To determine whether spiritual and religious identities predict complementary and alternative medicine (CAM) use above and beyond other known influences such as gender, region of residence, social status, personality, health, and access to conventional medicine.

**Methods.** Analyzing data from the 1995–1996 National Survey of Midlife Development in the United States (n = 3032), this study examines the correlations between four aspects of spirituality/religiousness—i.e., spiritual only, religious only, both spiritual and religious, and neither spiritual nor religious—and six measures of CAM.

**Results.** Compared with spiritual only persons, the odds of using energy therapies are 86% lower for spiritual and religious persons, 65% lower for religious only persons, and 52% lower for neither spiritual nor religious persons. Compared to spiritual only persons, spiritual and religious individuals are 43% more likely to use body–mind therapies in general; however, when this category does not contain prayer, meditation, or spiritual healing, they are 44% less likely. Religious only individuals are disinclined toward CAM use.

**Conclusions.** After controlling for established predictors including educational attainment, personality, social support, and access to conventional medicine, the present study demonstrates that spirituality and religiousness are associated, in unique ways, with CAM use. Additional research on this topic is clearly warranted.

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### Introduction

Complementary and alternative medicine (CAM) is increasingly embraced in the US as treatment for illness, and as self-care for health and wellness promotion (Barnes et al., 2004; Kessler et al., 2001; Ni et al., 2002). However, relatively little is known about individual correlates of CAM use (Honda and Jacobson, 2005; Ni et al., 2002). Such information can promote the development of evidence-based CAM and maximize adherence to therapeutic recommendations. In particular, despite widespread interest in the religion–health connection (Benjamins, 2006; Koenig et al., 2001), the role of religious and spiritual identities in CAM use has been largely ignored (Hildreth and Elman, 2007; McCurdy et al., 2003). Understanding how these factors are related to CAM use may assist healthcare providers in tailoring their recommendations for treatment because it will help them determine which individuals might be either open to, or completely averse to, such therapies.

Although America remains a comparatively religious nation and most Americans cultivate spirituality through established (mainly Judeo-Christian) religious institutions (Davis et al., 2008), growing numbers of US adults are pursuing highly individualized forms of spirituality (Fuller, 2001; Roof, 2000). They seek out spiritual insights from varied sources, and combine diverse types of beliefs and rituals into highly personalized modes of spiritual expression, resulting in an increase in the percentage of US adults who self-identify as “spiritual but not religious” (Marler and Hadaway, 2002; Shahabi et al., 2002; Zhai et al., 2008; Zinnbauer et al., 1999).

These trends may have important implications for CAM use. Although prayer, meditation, and spiritual healing are considered CAM and are well-received within most Christian circles because they are key components of traditional Christian theology and practice (Newport, 1998; O'Mathuna and Larimore, 2001), many other CAM practices may be denounced because they draw upon Eastern-influenced ideas about spiritual and energy flows, as well as Native American, Theosophist, and New Age belief systems (Fuller, 2001; Levin and Coreil, 1986). Two areas of CAM have elicited particular condemnation from Christian clergy and religious medical professionals: (1) body–mind therapies, especially hypnosis and guided imagery; and (2) energy

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therapies, such as healing touch and Reiki massage (O'Mathuna and Larimore, 2001).

These developments suggest several hypotheses:

**Hypothesis 1.** "Spiritual but not religious" self-identification will be positively associated with use of CAM, especially body–mind therapies and energy therapies.

**Hypothesis 2.** "Spiritual and religious" self-identification will be negatively associated with the use of energy therapies.

**Hypothesis 3.** "Spiritual and religious" self-identification will be negatively associated with the use of body–mind therapies, particularly when this category is defined to exclude prayer, meditation, and spiritual healing.

## Methods

Data come from the baseline National Survey of Midlife Development in the United States (MIDUS), 1995–96 (Brim et al., 2003). Our objective is to examine whether spiritual and religious identities are associated with CAM use above and beyond other known predictors, so our models include controls for other known

predictors, as detailed in a previous study in this journal (Honda and Jacobson, 2005). Following previous research (Marler and Hadaway, 2002; Shahabi et al., 2002; Zhai et al., 2008), our measures of spiritual/religious (S/R) categories are constructed using two questions: "How religious are you?" and "How spiritual are you?" We categorized persons answering "very" or "somewhat" as "yes" and those answering "only a little" or "not at all" as "no," and then created the "religious and spiritual," "religious only," "spiritual only," and "neither religious nor spiritual categories." Missing data are handled using multiple imputation in Stata (Royston, 2005). All variable definitions and descriptive statistics are provided in Table 1.

## Results

Table 2 shows findings from binary logistic regression models that test our hypotheses. They reveal several important results. First, based on models adjusted for many known correlates of CAM use, spiritual only persons are vastly more likely than others to use energy therapies. In model 1 the odds of using energy therapies are 86% lower (OR = .14, [.10,.22]) for spiritual and religious persons, 65% lower (OR = .35, [.18,.67]) for religious only persons, and 52% lower (OR = .48 [.32,.73]) for neither spiritual nor religious persons in

**Table 1**  
Variable overview and descriptive statistics.

| Variable  | Description  | Range | Proportion/mean <sup>a</sup> | Std. dev. |
|---|--|-------|------------------------------|-----------|
| <b>CAM use</b>  |  |       |                              |           |
| Alternative medical systems   | Acupuncture (stimulation of specific body/pressure points) and homeopathy (small doses of diluted preparations or substances)  | 0–1   | 03.0%                        | -         |
| Body–mind therapies   | Biofeedback (manipulation of physiological functions), hypnosis (manipulation of mental states), imagery techniques (positive imagination), prayer (connection to a higher power), meditation/relaxation (self-induced mode of consciousness), and spiritual healing (channeling healing energy) | 0–1   | 31.5%                        | -         |
| Body–mind therapies (besides prayer, meditation, and spiritual healing) | Biofeedback, hypnosis, and imagery techniques  | 0–1   | 04.%                         | -         |
| Biology-based therapies   | Herbal medicine (dietary supplements), highdose megavitamins (large amounts of vitamins), and special diets (balanced nutrients)   | 0–1   | 15.3%                        | -         |
| Energy therapies  | Healing touch (use of hands to manipulate and balance energy fields)   | 0–1   | 02.1%                        | -         |
| Manipulative / body-based therapies                                     | Massage therapies (manipulate muscles), exercise/movement therapies (physical activity to stimulate physical and emotional health), and chiropractic (manipulation of mechanical/musculoskeletal systems)  | 0–1   | 25.1%                        | -         |
| <b>Spirituality/religiousness</b>                                       |  |       |                              |           |
| Spiritual but not religious   | Spiritual and religious identities   | 0–1   | 16.3%                        | -         |
| Religious but not spiritual   |  | 0–1   | 07.4%                        | -         |
| Both spiritual and religious  |  | 0–1   | 58.5%                        | -         |
| Neither spiritual nor religious   |  | 0–1   | 17.8%                        | -         |
| Religious or spiritual attendance                                       | Frequency of attendance  | 1–5   | 2.788                        | 1.345     |
| Age   | In years   | 25–74 | 47.058                       | 13.161    |
| Female  | Sex  | 0–1   | 50.9%                        | -         |
| Education   | In years   | 1–12  | 6.724                        | 2.468     |
| Married   | Marital status   | 0–1   | 64.6%                        | -         |
| West Region   | Region of residence  | 0–1   | 20.1%                        | -         |
| Depression  | Depressive symptoms (sum of 7 items)   | 0–7   | 0.674                        | 1.850     |
| Generalized anxiety disorder  | Anxious symptoms (sum of 10 items)   | 0–10  | 0.165                        | 0.965     |
| Panic disorder  | Panic symptoms (sum of 6 items)  | 0–6   | 0.351                        | 1.078     |
| Neuroticism   | Neurotic personality (4 items; $\alpha = .74$ )  | 1–4   | 2.240                        | 0.662     |
| Agreeableness   | Agreeable personality (5 items; $\alpha = .80$ )   | 1–4   | 3.480                        | 0.489     |
| Conscientiousness   | Conscientious personality (4 items; $\alpha = .57$ )   | 1–4   | 3.405                        | 0.457     |
| Extraversion  | Extraverted personality (5 items; $\alpha = .78$ )   | 1–4   | 3.198                        | 0.571     |
| Openness  | Open personality (7 items; $\alpha = .77$ )  | 1–4   | 3.042                        | 0.522     |
| Persistence   | Persistence in goal striving (5 items; $\alpha = .77$ )  | 1–4   | 3.238                        | 0.551     |
| Positive reappraisals   | Secondary control (4 items; $\alpha = .78$ )   | 1–4   | 3.154                        | 0.609     |
| Support from friends  | Emotional support from friends (4 items; $\alpha = .88$ )  | 1–4   | 1.788                        | 0.675     |
| Strain from partner   | Stress from partner (4 items; $\alpha = .81$ )   | 1–4   | 2.761                        | 0.649     |
| Strain from other family members  | Stress from other family (4 items; $\alpha = .80$ )  | 1–4   | 2.873                        | 0.617     |
| BMI   | Body mass index  | 9–64  | 26.806                       | 5.438     |
| Heart trouble   | Ever had heart trouble   | 0–1   | 12.5%                        | -         |
| Cancer  | Ever had cancer  | 0–1   | 07.0%                        | -         |
| Health insurance  | Has health insurance   | 0–1   | 87.4%                        | -         |

n = 3032.

<sup>a</sup> Proportions (labeled with %) are provided for dichotomous variables, and means are shown for all others. Additional information on these variables can be found in Honda and Jacobson (2005). Data come from the 1995–1996 National Survey of Midlife Development in the United States (MIDUS).

**Table 2**  
Associations between spirituality/religiousness and CAM use (selected odds ratios).

|  | Model 1  |                          | Model 2   |                           |
|--|--|--------------------------|---|---------------------------|
|  | Comparison of spiritual only individuals with all others on different types of CAM use |                          | Comparison of spiritual and religious individuals with all others on different types of CAM use |                           |
|  | Crude  | Adjusted                 | Crude   | Adjusted                  |
| <i>Body–mind therapies</i>   |  |                          |   |                           |
| Spiritual only   | -  | -                        | <b>0.77 (0.61, 0.99)</b>  | <b>0.70 (0.54, 0.91)</b>  |
| Religious only   | <b>0.36 (0.23, 0.56)</b>   | <b>0.37 (0.23, 0.57)</b> | <b>0.28 (0.19, 0.42)</b>  | <b>0.26 (0.17, 0.38)</b>  |
| Spiritual and religious  | <b>1.28 (1.01, 1.63)</b>   | <b>1.43 (1.09, 1.86)</b> | -   | -                         |
| Neither spiritual nor religious  | <b>0.22 (0.15, 0.33)</b>   | <b>0.28 (0.19, 0.43)</b> | <b>0.17 (0.12, 0.25)</b>  | <b>0.20 (0.14, 0.29)</b>  |
| <i>Body–mind therapies (besides prayer, meditation, and spiritual healing)</i> |  |                          |   |                           |
| Spiritual only   | -  | -                        | <b>2.25 (1.49, 3.40)</b>  | <b>1.79 (1.12, 2.83)</b>  |
| Religious only   | <b>0.37 (0.15, 0.94)</b>   | 0.49 (0.18, 1.30)        | 0.84 (0.34, 2.07)   | 0.87 (0.34, 2.26)         |
| Spiritual and religious  | <b>0.44 (0.29, 0.67)</b>   | <b>0.56 (0.35, 0.89)</b> | -   | -                         |
| Neither spiritual nor religious  | <b>0.22 (0.10, 0.46)</b>   | <b>0.33 (0.14, 0.75)</b> | 0.49 (0.24, 1.02)   | 0.58 (0.24, 1.36)         |
| <i>Biologically-based therapies</i>  |  |                          |   |                           |
| Spiritual only   | -  | -                        | 0.91 (0.69, 1.23)   | 0.90 (0.66, 1.24)         |
| Religious only   | <b>0.53 (0.32, 0.88)</b>   | 0.61 (0.35, 1.07)        | <b>0.49 (0.31, 0.77)</b>  | <b>0.56 (0.34, 0.92)</b>  |
| Spiritual and religious  | 1.09 (0.81, 1.46)  | 1.11 (0.80, 1.51)        | -   | -                         |
| Neither spiritual nor religious  | <b>0.45 (0.29, 0.71)</b>   | 0.68 (0.42, 1.08)        | <b>0.42 (0.28, 0.61)</b>  | <b>0.61 (0.40, 0.93)</b>  |
| <i>Alternative medical systems</i>   |  |                          |   |                           |
| Spiritual only   | -  | -                        | 1.66 (0.99, 2.81)   | 1.39 (0.77, 2.51)         |
| Religious only   | <b>0.07 (0.01, 0.55)</b>   | <b>0.11 (0.01, 0.85)</b> | <b>0.12 (0.02, 0.90)</b>  | 0.15 (0.02, 1.14)         |
| Spiritual and religious  | 0.60 (0.36, 1.01)  | 0.72 (0.40, 1.29)        | -   | -                         |
| Neither spiritual nor religious  | <b>0.15 (0.05, 0.49)</b>   | <b>0.25 (0.07, 0.87)</b> | <b>0.25 (0.08, 0.78)</b>  | 0.35 (0.10, 1.17)         |
| <i>Energy therapies</i>  |  |                          |   |                           |
| Spiritual only   | -  | -                        | <b>6.47 (4.84, 8.66)</b>  | <b>6.91 (4.59, 19.40)</b> |
| Religious only   | <b>0.28 (0.17, 0.46)</b>   | <b>0.35 (0.18, 0.67)</b> | <b>1.79 (1.08, 2.97)</b>  | <b>2.38 (1.27, 4.48)</b>  |
| Spiritual and religious  | <b>0.15 (0.12, 0.21)</b>   | <b>0.14 (0.10, 0.22)</b> | -   | -                         |
| Neither spiritual nor religious  | <b>0.58 (0.42, 0.79)</b>   | <b>0.48 (0.32, 0.73)</b> | <b>3.74 (2.78, 5.03)</b>  | <b>3.32 (2.23, 4.94)</b>  |
| <i>Manipulative body-based</i>   |  |                          |   |                           |
| Spiritual only   | -  | -                        | 1.04 (0.81, 1.34)   | 1.12 (0.86, 1.47)         |
| Religious only   | 0.91 (0.61, 1.37)  | 0.91 (0.59, 1.39)        | 0.95 (0.66, 1.37)   | 1.02 (0.69, 1.49)         |
| Spiritual and religious  | 0.96 (0.75, 1.23)  | 0.89 (0.68, 1.16)        | -   | -                         |
| Neither spiritual nor religious  | <b>0.63 (0.45, 0.88)</b>   | 0.74 (0.52, 1.06)        | <b>0.66 (0.50, 0.87)</b>  | 0.83 (0.62, 1.13)         |

n = 3032. Cell entries are selected odds ratios (95% confidence intervals in parentheses) from logistic regression models. Cells containing a “-” are reference categories, and bold denotes significant relationships (p < 0.05). Crude estimates are unadjusted odds ratios, and adjusted estimates include controls for respondent's frequency of attendance at religious services, age, sex, race, education, marital status, region of residence, depression, generalized anxiety disorder, panic disorder, Big Five personality traits (neuroticism, agreeableness, conscientiousness, openness, and extraversion), persistence, positive reappraisals, support and strain from both partners and friends, BMI, heart trouble, cancer, and health insurance status. Additional information on these variables, as well as all covariates, can be found in [Honda and Jacobson \(2005\)](#). Data come from the 1995–1996 National Survey of Midlife Development in the United States (MIDUS).

comparison with their spiritual only counterparts. According to model 2, the odds of using energy therapies are nearly 6 times greater (OR = 6.91 [4.59, 19.40]) for spiritual only persons, as well as 2.3 times greater (OR = 3.32 [2.23, 4.94]) for neither spiritual nor religious persons and more than twice as great (OR = 2.38 [1.27, 4.48]) for religious only persons, as compared with those who self-identify as spiritual and religious. Taken together, these results are consistent with [Hypotheses 1 and 2](#).

Second, when body–mind therapies include prayer, meditation, and spiritual healing, spiritual and religious persons are much more likely than others, including spiritual only persons, to use this form of CAM. For example, in model 2, the odds of using body–mind therapies are 30% lower (OR = .70 [.54, .91]) for spiritual only persons, 74% lower (OR = .26 [.17, .38]) for religious only persons, and 80% lower (OR = .20 [.14, .29]) for neither religious nor spiritual persons than for their spiritual and religious counterparts. Compared to spiritual only persons, those who self-identify as spiritual and religious are still more likely (OR = 1.43 [1.09, 1.86]) to use body–mind therapies in general. However, when the body–mind therapy category is redefined to exclude religious forms of CAM, this pattern shifts significantly. In model 2, the odds of using non-religious body–mind therapies are 79% higher (OR = 1.79, [1.12, 2.83]) for spiritual only persons than for spiritual and

religious persons. Given that including prayer, mediation, and spiritual healing within the definition of CAM greatly increases the prevalence of CAM use ([Barnes et al., 2004](#)), and may even bias findings on the relationship between spirituality / religious and CAM use, examining CAM with and without these components, as our study has done, is an important contribution. No other differences among S/R identity groupings are significant. These findings tend to support [Hypothesis 3](#).

We also note in passing two other interesting patterns that emerge from our analyses: (1) Compared to most others, spiritual and religious persons are relatively likely to employ biologically based therapies, such as herbal treatments, high dose vitamins, etc.; and (2) Spiritual only persons are comparatively likely to utilize alternative medical systems, such as acupuncture and homeopathy.

## Discussion and conclusion

CAM has attracted attention and gained popularity among the medical community, government agencies, and the general public ([Kessler et al., 2001](#); [Ni et al., 2002](#)). Many mainstream physicians refer patients to CAM modalities, and individuals use CAM for self-care to promote health and well-being ([Honda and Jacobson, 2005](#); [Ni et al., 2002](#)). Our study adds to the base of knowledge about individual

dispositional factors that are associated with use of CAM. Over and above a host of demographic, physical health, psychiatric, personality, and psychosocial factors—as well as frequency of religious attendance—religious and spiritual identities are independent predictors of certain types of CAM use.

Persons who self-identify as spiritual and religious are particularly likely to use religious forms of CAM such as prayer, meditation, and spiritual healing, but spiritual only persons are more likely to use other types of body–mind therapies. In addition, spiritual only persons are especially likely, and spiritual and religious persons are especially disinclined, to use energy therapies, such as healing touch and Reiki. Spiritual only persons also exhibit an attraction to alternative medical systems, such as acupuncture, and spiritual and religious persons have an affinity for biologically based therapies. These findings suggest that religious and spiritual identities may influence the market for various CAM modalities, and may condition adherence to treatment regimens if prescribed by medical professionals—i.e., some individuals may be more or less likely to adhere to CAM-based therapies in the first place, and possibly even to benefit more from their use compared with others, based on their spiritual/religious identities. These associations may become even more important as the numbers of spiritual only persons continue to grow in the contemporary US (Fuller, 2001; Zhai et al., 2008).

The study is limited by several factors: (a) use of cross-sectional data, which makes it possible to discuss only associations, and not casual relationships; (b) use of single-item measures to classify respondents into spiritual-religious categories; (c) reliance on a sample of 25–74 year-olds, precluding generalization to younger or older persons; and (d) use of self-report data, with all the potential biases of this mode of data collection. Future research should seek to expand our understanding of spirituality/religiousness and CAM use by examining the role of specific denominational subcultures and theological beliefs. It might be particularly important to examine whether conservative orientations such as those associated with evangelical Protestantism and Mormonism inhibit CAM use, and alternatively, whether the beliefs of various non-Judeo-Christian faiths such as Buddhism and other Eastern religions facilitate the use of CAM. Understanding these influences could help healthcare providers identify individuals who might utilize, and possibly even benefit from, CAM.

#### Conflict of interest statement

None.

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