

# Physicians' Observations and Interpretations of the Influence of Religion and Spirituality on Health

Farr A. Curlin, MD; Sarah A. Sellergren, MA; John D. Lantos, MD; Marshall H. Chin, MD, MPH

**Background:** In spite of a substantial body of empirical data, professional disagreement persists regarding whether and how religion and spirituality (hereinafter "R/S" and treated as a single concept) influences health. This study examines the association between physicians' religious characteristics and their observations and interpretations of the influence of R/S on health.

**Methods:** A cross-sectional survey was mailed to a stratified, random sample of 2000 practicing US physicians from all specialties. Physicians were asked to estimate how often patients mention R/S issues, how much R/S influences health, and in what ways the influence is manifested.

**Results:** The response rate was 63%. Most physicians (56%) believed that R/S had much or very much influence on health, but few (6%) believed that R/S often changed "hard" medical outcomes. Rather, most physi-

cians believed that R/S (1) often helps patients to cope (76%), (2) gives patients a positive state of mind (75%), and (3) provides emotional and practical support via the religious community (55%). Compared with those with low religiosity, physicians with high religiosity are substantially more likely to (1) report that patients often mention R/S issues (36% vs 11%) ( $P < .001$ ); (2) believe that R/S strongly influences health (82% vs 16%) ( $P < .001$ ); and (3) interpret the influence of R/S in positive rather than negative ways.

**Conclusion:** Patients are likely to encounter quite different opinions about the relationship between their R/S and their health, depending on the religious characteristics of their physicians.

*Arch Intern Med.* 2007;167:649-654

**F**EW TOPICS IN MEDICINE GENERATE more disagreement than the relationship between religion and health. Consensus seems to begin and end with the idea that many (if not most) patients draw on prayer and other religious resources to navigate and overcome the spiritual challenges that arise in their experiences of illness.<sup>1-3</sup> Beyond this limited agreement, and in spite of a substantial empirical literature,<sup>4-6</sup> controversy remains regarding whether, to what extent, and in what ways religion and spirituality (hereinafter "R/S" and treated as a single concept) helps or harms patients' health.<sup>7-9</sup>

In the context of the clinical encounter, physicians enjoy a privileged position from which to observe the influence of R/S on patients. This study takes advantage of physicians' unique perspective to ask what they observe. Yet physicians do not view R/S through uncolored lenses; they also have their own religious beliefs and practices, which may shape the way they interpret their own clinical ex-

periences and the empirical data regarding the relationship between R/S and health. The study examines the hypothesis that, among US physicians, differing interpretations of the ways R/S influences health reflect, in part, differences in physicians' own religious characteristics.

## METHODS

### SURVEY DESIGN AND ADMINISTRATION

This study's methods have been described in detail elsewhere.<sup>10,11</sup> In 2003, we mailed a confidential, self-administered, 12-page questionnaire to a stratified random sample of 2000 practicing US physicians 65 years or younger, chosen from the American Medical Association's physician masterfile—a database intended to include all physicians in the United States. We included modest oversamples of psychiatrists and several other subspecialties that deal particularly with death and severe suffering to enhance the power of analyses that are not central to this study (psychiatric and end-of-life care). Physicians received up to 3 separate mailings of the questionnaire, and the third

**Author Affiliations:** Section of General Internal Medicine, Department of Medicine (Drs Curlin and Chin), MacLean Center for Clinical Medical Ethics (Drs Curlin, Lantos, and Chin), Committee on Human Development, Department of Psychology (Ms Sellergren), Section of General Pediatrics, Department of Pediatrics (Dr Lantos), The University of Chicago, Chicago, Ill.

**Table 1. Respondent Characteristics**

| Characteristic                       | Respondents<br>(n = 1144)* |
|--------------------------------------|----------------------------|
| Intrinsic religiosity                |                            |
| Low                                  | 407 (37)                   |
| Moderate                             | 292 (27)                   |
| High                                 | 399 (36)                   |
| Religious affiliation                |                            |
| None                                 | 117 (10)                   |
| Catholic                             | 244 (22)                   |
| Jewish                               | 181 (16)                   |
| Other religion                       | 157 (14)                   |
| Protestant                           | 428 (38)                   |
| Region                               |                            |
| South                                | 386 (34)                   |
| Midwest                              | 276 (24)                   |
| Northeast                            | 264 (23)                   |
| West                                 | 216 (19)                   |
| Age, mean (SD), y                    | 49.0 (8.3)                 |
| Women                                | 300 (26)                   |
| Ethnicity                            |                            |
| Asian                                | 138 (12)                   |
| Black, non-Hispanic                  | 26 (2)                     |
| Hispanic/Latino                      | 57 (5)                     |
| White, non-Hispanic                  | 869 (78)                   |
| Other                                | 31 (3)                     |
| Primary specialty                    |                            |
| Family practice                      | 158 (14)                   |
| Internal medicine and subspecialties | 360 (32)                   |
| Obstetrics and gynecology            | 80 (7)                     |
| Pediatrics and subspecialties        | 147 (13)                   |
| Psychiatry                           | 100 (9)                    |
| Surgical subspecialties              | 100 (9)                    |
| Other                                | 197 (17)                   |

\*Unless otherwise indicated, data are reported as number (percentage) of respondents. Totals do not all sum to 1144 because of partial nonresponse.

mailing offered \$20 for participation. The characteristics of survey respondents are summarized in **Table 1**. To decrease error from data entry, all data were double keyed, cross-compared, and corrected against the original questionnaires. This study was approved by the University of Chicago institutional review board.

## SURVEY CONTENT

Criterion variables were measures of physicians' observations and interpretations of the influence of R/S on patients' health. We wrote the questionnaire items, listed in **Table 2**, after review of the spirituality and medicine literature and data gathered from a series of qualitative interviews.<sup>12</sup> The items were then pretested and revised for clarity and cogency through several iterations of expert panel review.<sup>13</sup> Of note, we did not define the terms *religion* and *spirituality* on the questionnaire. Rather, we presented them together and allowed respondents to apply their own working definitions.

The primary predictor variables were measures of physicians' religious characteristics. *Intrinsic religiosity*—the extent to which an individual embraces her religion as the “master motive” that guides and gives meaning to her life<sup>14</sup>—was measured as agreement or disagreement with 2 statements: “I try hard to carry my religious beliefs over into all my other dealings in life,” and “My whole approach to life is based on my religion.” Both statements are derived from Hoge's Intrinsic Religious Motivation Scale<sup>15</sup> and have been validated extensively

**Table 2. Survey Responses Regarding Observations and Interpretations of the Relationship Between Religion and Spirituality and Health\***

| Questionnaire Item   | Response            | Frequency,<br>% |
|--|---------------------|-----------------|
| <b>General Observations†</b>   |                     |                 |
| How often does the experience of illness increase patients' awareness of and focus on R/S?                               | Often/always        | 64              |
|  | Sometimes           | 34              |
|  | Rarely/never        | 2               |
| How often have your patients mentioned R/S issues like God, prayer, meditation, the Bible, etc?                          | Often/always        | 25              |
|  | Sometimes           | 51              |
|  | Rarely/never        | 24              |
| <b>General Interpretations</b>   |                     |                 |
| Overall, how much influence do you think R/S has on patients' health?  | Much/very much      | 56              |
|  | Some                | 35              |
|  | Little/none         | 9               |
| Is the influence of R/S on health generally positive or negative?  | Positive            | 85              |
|  | Negative            | 1               |
|  | Equal               | 12              |
|  | It has NO influence | 2               |
| Do you think God or another supernatural being ever intervenes in patients' health?                                      | Yes                 | 54              |
|  | No                  | 28              |
|  | Undecided           | 18              |
| <b>Potential Positive Influences of R/S†</b>   |                     |                 |
| R/S helps to prevent “hard” medical outcomes like heart attacks, infections, or even death.                              | Often/always        | 6               |
|  | Sometimes           | 33              |
|  | Rarely/never        | 61              |
| R/S helps patients to cope with and endure illness and suffering.  | Often/always        | 76              |
|  | Sometimes           | 23              |
|  | Rarely/never        | 1               |
| R/S gives patients a positive, hopeful state of mind.  | Often/always        | 74              |
|  | Sometimes           | 25              |
|  | Rarely/never        | 1               |
| How often have your patients received emotional or practical support from their religious community?                     | Often/always        | 55              |
|  | Sometimes           | 41              |
|  | Rarely/never        | 4               |
| <b>Potential Negative Influences of R/S†</b>   |                     |                 |
| R/S causes guilt, anxiety, or other negative emotions that lead to increased patient suffering.                          | Often/always        | 7               |
|  | Sometimes           | 38              |
|  | Rarely/never        | 55              |
| R/S leads patients to refuse, delay, or stop medically indicated therapy.  | Often/always        | 2               |
|  | Sometimes           | 30              |
|  | Rarely/never        | 68              |
| How often have your patients used religion/spirituality as a reason to avoid taking responsibility for their own health? | Often/always        | 4               |
|  | Sometimes           | 29              |
|  | Rarely/never        | 67              |

Abbreviation: R/S, religion and spirituality, treated as a single concept.

\*There were 1144 total respondents, but this varies slightly by outcome due to partial nonresponse. Table presents survey-design adjusted estimates of population frequencies for the full population of practicing US physicians 65 years or younger. Standard errors are  $\leq 1.7\%$  for all estimates in this table.

†These items preceded by “Considering your experience, how often do you think . . .” or “In your experience . . .” Those who marked “Does not apply” are not included in the denominator.

in prior research.<sup>14-18</sup> Intrinsic religiosity was categorized as low if physicians disagreed with both statements, moderate if they agreed with one but not the other, and high if they agreed with both. Physicians' religious affiliations were categorized as *none* (includes atheist, agnostic, and none), *Protestant*, *Catholic*, *Jewish*, and *other religion* (includes Buddhist, Hindu, Mormon, Muslim, Eastern Orthodox, and other).

We expected the religious characteristics of physicians' patients to influence their observations and interpretations, and

religious persons in the United States are more likely to live in the South and the Midwest.<sup>19</sup> Therefore, we also examined region as a predictor. In multivariate analyses, we included physician age, sex, ethnicity, and primary specialty as controls.

## STATISTICAL ANALYSIS

Case weights<sup>20</sup> were assigned and included in analyses to account for the sampling strategy and modest differences in response rate by sex and foreign medical graduation. Missing data and items marked "Does not apply" were excluded from analyses. We first generated estimated proportions for each survey item. We then used the Pearson  $\chi^2$  test and multivariate logistic regression to examine differences in several dichotomized criterion variables by intrinsic religiosity, religious affiliation, and region of practice. All analyses take into account survey design and case weights by using the survey commands of Stata/SE 9.0 (Stata Corp; College Station, Tex, 2005).

## RESULTS

Of the 2000 potential respondents, an estimated 9% were ineligible because their addresses were incorrect or they were deceased. Among eligible physicians, our response rate was 63% (1144 of 1820). Details of response rate calculation have been reported elsewhere.<sup>10</sup>

Foreign medical graduates were less likely to respond than US medical graduates (54% vs 65%) ( $P < .001$ ), and men were slightly less likely to respond than women (61% vs 67%) ( $P = .03$ ). These differences were accounted for by assigning case weights. Response rates did not differ by age, region, or board certification, and we found no differences in intrinsic religiosity by response wave. The proportion of respondents who reported religious affiliations as atheist, agnostic, or none declined slightly in later waves ( $P = .04$ ), and after the close of formal data collection, we contacted 20 nonrespondents, among whom 75% (compared with 58% of respondents) agreed with the statement, "I try hard to carry my religious beliefs over into all my other dealings in life." These findings suggest that nonreligious physicians may have been slightly more likely to respond than religious physicians.

As detailed in Table 2, two thirds of US physicians believe the experience of illness often or always increases patients' awareness of and focus on R/S issues, though only one quarter say that patients have mentioned R/S issues to a similar extent. A majority of physicians believe that R/S has much or very much influence on health (56%) and that at times a supernatural being intervenes (54%). Although the great majority (85%) believe that the influence of R/S is generally positive, few (6%) believe that R/S often changes "hard" medical outcomes. Rather, most physicians believe R/S often helps patients to cope (76%), gives patients a positive state of mind (74%), and provides emotional and practical support via the religious community (55%). Although few physicians report that R/S often causes guilt, anxiety, or other negative emotions (7%), leads patients to decline medically indicated therapy (2%), or is used by patients to avoid taking responsibility for their own health (4%), about a third believe that R/S has these harmful influences sometimes.

As summarized in **Table 3**, physicians' observations and interpretations are strongly associated with their religious characteristics. Physicians with higher intrinsic religiosity are much more likely to (1) report that their patients bring up R/S issues, (2) believe that R/S strongly influences health, and (3) interpret the influence of R/S in positive rather than negative ways. These associations persist in multivariate analyses that control for religious affiliation, region of practice, age, sex, ethnicity, and specialty. In multivariate analyses comparing physicians with those with no religious affiliation, Protestants are more likely to report that their patients bring up R/S issues and are more likely to believe that (1) God intervenes in patients' health, (2) R/S helps patients to cope, and (3) R/S sometimes prevents hard medical outcomes. Catholics are more likely to believe that God intervenes and that R/S helps patients to cope, and they are less likely to believe that R/S causes negative emotions. Physicians of other religious affiliations are more likely to report that their patients bring up R/S issues, that God intervenes, and that R/S strongly influences health and sometimes prevents hard medical outcomes.

Finally, physicians who practice in the South were more likely than those in other regions to report that their patients often mention R/S issues (**Table 4**). Those in the South and Midwest were generally more likely, while those in the West and Northeast were less likely, to believe that R/S influences health in strong and positive ways.

## COMMENT

Most US physicians believe that R/S has a substantial and generally positive influence on patients' health and that on occasion the influence is due to divine intervention. Yet, whatever the mechanism, few physicians report that R/S often influences hard medical outcomes. Rather, as our group found in an earlier qualitative study,<sup>12</sup> physicians tend to interpret the influence of R/S by reference to the ways that religions provide paradigms for understanding and making decisions related to illness and communities in which illness is coped with and endured. The study also demonstrates that physicians' notions about the relationship between R/S and patients' health are strongly associated with physicians' own religious characteristics, even after controlling for region of practice and other covariates.

Earlier, more limited surveys also found that physicians are more likely to believe that religion influences patients' experiences than to believe that it instrumentally affects health outcomes. For example, 2 surveys in 1 academic health center found that large majorities of physician respondents agreed with the statement "Like other health-related patient behaviors (eg, regular exercise, proper diet, no tobacco use), patient religious beliefs positively affect health,"<sup>21,22</sup> and that religion "provides a support system for patients/families during times of crisis."<sup>22</sup> In contrast, much smaller proportions agreed with the statement, "Religious involvement reduces patient morbidity and mortality."<sup>21,22</sup> In a related pattern, Koenig and colleagues<sup>23</sup> found that family physician re-

**Table 3. Observations and Interpretations of the Influence of Religion and Spirituality on Health, Stratified by Physician Religious Characteristics**

| Physician Observation or Interpretation                     | Intrinsic Religiosity |               |                            | Religious Affiliation |               |                           |
|---|-----------------------|---------------|----------------------------|-----------------------|---------------|---------------------------|
|   |                       | Bivariate, %* | Multivariate, OR (95% CI)† |                       | Bivariate, %* | Multivariate OR (95% CI)† |
| Patients have mentioned R/S issues (often/always)           | Low                   | 18            | 1 [Reference]              | None                  | 15            | 1 [Reference]             |
|   | Moderate              | 19            | 0.8 (0.5-1.3)              | Protestant            | 33            | 2.1 (1.0-4.4)‡            |
|   | High                  | 36            | 1.8 (1.2-2.7)‡             | Catholic              | 24            | 1.4 (0.7-3.1)             |
| R/S influences health (much/very much)                      |                       |               |                            | Jewish                | 9             | 0.6 (0.2-1.3)             |
|   |                       |               |                            | Other                 | 28            | 2.5 (1.1-5.7)‡            |
|   |                       |               |                            | None                  | 34            | 1 [Reference]             |
|   |                       |               |                            | Protestant            | 69            | 1.5 (0.8-2.6)             |
|   |                       |               |                            | Catholic              | 58            | 1.0 (0.5-1.8)             |
| God intervenes in patients' health                          |                       |               |                            | Jewish                | 29            | 0.5 (0.3-1.0)‡            |
|   |                       |               |                            | Other                 | 68            | 1.9 (1.0-3.8)‡            |
|   |                       |               |                            | None                  | 14            | 1 [Reference]             |
|   |                       |               |                            | Protestant            | 68            | 5.2 (2.6-10)‡             |
|   |                       |               |                            | Catholic              | 69            | 6.1 (3.0-12)‡             |
| R/S prevents hard medical outcomes (sometimes/often/always) |                       |               |                            | Jewish                | 22            | 1.5 (0.6-3.4)             |
|   |                       |               |                            | Other                 | 58            | 3.7 (1.7-8.2)‡            |
|   |                       |               |                            | None                  | 15            | 1 [Reference]             |
|   |                       |               |                            | Protestant            | 51            | 3.0 (1.5-5.9)‡            |
|   |                       |               |                            | Catholic              | 37            | 2.0 (0.9-4.1)             |
| R/S helps patients cope (often/always)                      |                       |               |                            | Jewish                | 25            | 1.7 (0.8-3.7)             |
|   |                       |               |                            | Other                 | 47            | 2.8 (1.3-6.1)‡            |
|   |                       |               |                            | None                  | 51            | 1 [Reference]             |
|   |                       |               |                            | Protestant            | 85            | 2.1 (1.2-3.9)‡            |
|   |                       |               |                            | Catholic              | 82            | 2.1 (1.1-4.2)‡            |
| R/S causes negative emotions (sometimes/often/always)       |                       |               |                            | Jewish                | 61            | 1.2 (0.6-2.3)             |
|   |                       |               |                            | Other                 | 76            | 1.5 (0.7-3.0)             |
|   |                       |               |                            | None                  | 64            | 1 [Reference]             |
|   |                       |               |                            | Protestant            | 42            | 0.7 (0.4-1.3)             |
|   |                       |               |                            | Catholic              | 34            | 0.5 (0.3-1.0)‡            |
|   |                       |               |                            | Jewish                | 55            | 0.9 (0.5-1.6)             |
|   |                       |               |                            | Other                 | 45            | 0.9 (0.5-1.6)             |

Abbreviations: CI, confidence interval; OR, odds ratio; R/S, religion and spirituality, treated as a single concept.

\*Percentage (population estimates accounting for survey design) of physicians from each religious category who agree with each of the criterion measures ( $P \leq .001$  for all bivariate associations in this table by  $\chi^2$  analysis).

†For agreement with each criterion measure after adjustment for all other covariates listed in Table 1.

‡ $P < .05$ .

spondents were more likely to believe that religion has a positive effect on the mental health (67%) than on the physical health (42%) of elderly patients.

With respect to physicians' religious characteristics, Siegel and colleagues<sup>24</sup> found that pediatricians in 1 medical center who had stronger levels of religious and spiritual orientation were more likely to believe that faith plays a role in healing and that pediatric patients would like to discuss R/S issues with their physicians. Our findings suggest that similar relationships are found between physicians' religious characteristics and a range of their observations and interpretations of the relationship between R/S and health.

We find it notable, particularly in light of perennial discussions about the relationship between science and faith, that most physicians apply medical science while maintaining a belief that God intervenes in patients' health. This also indicates a way that religious characteristics may influence the care of patients in clinical contexts like end-of-life care in which some patients and families articulate hopes for miracles.<sup>25</sup> Compared with their secular colleagues, religious physicians may be more likely to

share such hopes and to understand the religious frameworks from which they emerge. Further study is required to explore how these differences may affect the care patients receive.

As a cross-sectional survey, our study is not able to explain why religious and nonreligious physicians differ so markedly in their observations and interpretations of the influence of R/S on health. Perhaps physicians with different religious characteristics are exposed to different bodies of evidence. For example, we have found that religious physicians are much more likely than their secular colleagues to report that they regularly inquire about and discuss R/S issues with their patients.<sup>10</sup> This topic may bear semblance to others in clinical medicine (eg, the use of alternative therapies) in which the physician cannot know the beliefs and practices of a patient until and unless inquiries are made and "evidence" thereby gathered. If so, the evidence that physicians encounter will depend on those preexisting casts of mind that lead some to inquire about and discuss R/S with patients and lead others to consider such issues irrelevant or inappropriate.

In addition, physicians' experiences will vary to the extent that patients and physicians aggregate based on religious concordance. Some such aggregation will occur by default because of regional variations in patients' and physicians' religious characteristics. For example, patients and physicians in the South are more likely to be religious than are those in other regions. It is not surprising, therefore, that physicians who practice in the South are more likely to report that their patients' often mention R/S issues. Likewise, if religious patients are more likely to talk about what they believe is God's intervention in their lives, that may explain why physicians in the South (even after controlling for physicians' religious characteristics) are more likely to believe such intervention actually occurs.

Patients and physicians with shared religious commitments may also aggregate more self-consciously. We might expect that patients for whom religion has stronger and more positive influence are more likely to seek out religious physicians and talk with them about the benefits of their religious experience. Likewise, patients for whom religion has more limited or negative influence may be more likely to select secular physicians and talk with them about the harms of their religious experience. To the extent that religious physicians more often inquire about their patients' R/S concerns and patients and physicians aggregate based on religious concordance, physicians of different religious characteristics will be exposed to different bodies of clinical evidence regarding R/S and health.

Yet it is also possible that, other factors being equal, physicians with different religious (or secular) commitments interpret the same body of evidence in very different ways. Notable in this regard is the fact that even within the empirical literature, intense scrutiny of the data has produced more conflict than consensus.<sup>7-9</sup> Our findings suggest that in the clinical domain, patients are likely to encounter very different ideas about the relationship between their R/S and their health, depending on the religious frameworks of their physicians. What the secular physician may not notice or may ignore, the religious physician may emphasize or exaggerate. The influence that one may interpret as weak and/or negative, the other may interpret as strong and/or positive.

It is not surprising that physicians' judgments are influenced by factors beyond scientific evidence. Indeed, the body of data collected by Wennberg<sup>26</sup> demonstrates that patterns of physician practice are often less related to empirical evidence than to regional economics, specialization, and cultural norms. It is perhaps also not surprising that studies have found religious characteristics to be associated with the ways physicians behave in talking about R/S issues and praying with patients in the clinical encounter.<sup>10,27,28</sup> However, the present study suggests something more—that the religious beliefs and practices of physicians also strongly influence the ways physicians interpret their clinical observations and the empirical data.

The study has important limitations. Although our study had a better-than-average response rate<sup>29</sup> and we did not find substantial evidence to suggest response bias, religious and other characteristics may have sys-

**Table 4. Observations and Interpretations of the Influence of Religion and Spirituality on Health, Stratified by Region of Practice**

| Physician Observation or Interpretation                     | Bivariate, %* |     | Multivariate OR (95% CI)† |
|---|---------------|-----|---------------------------|
| Patients have mentioned R/S issues (often/always)           | South         | 36  | 1 [Reference]             |
|   | Midwest       | 21‡ | 0.4 (0.3-0.7)§            |
|   | West          | 18  | 0.4 (0.2-0.6)§            |
|   | Northeast     | 19  | 0.5 (0.3-0.8)§            |
| R/S influences health (much/very much)                      | South         | 63  | 1 [Reference]             |
|   | Midwest       | 64‡ | 1.1 (0.7-1.6)             |
|   | West          | 54  | 0.9 (0.6-1.4)             |
|   | Northeast     | 43  | 0.6 (0.4-0.9)§            |
| God intervenes in patients' health                          | South         | 64  | 1 [Reference]             |
|   | Midwest       | 59‡ | 0.7 (0.5-1.1)             |
|   | West          | 47  | 0.7 (0.4-1.1)             |
|   | Northeast     | 41  | 0.5 (0.3-0.7)§            |
| R/S prevents hard medical outcomes (sometimes/often/always) | South         | 44  | 1 [Reference]             |
|   | Midwest       | 41  | 0.9 (0.6-1.4)             |
|   | West          | 40  | 1.1 (0.7-1.7)             |
|   | Northeast     | 29  | 0.7 (0.4-1.1)             |
| R/S helps patients cope (often/always)                      | South         | 84  | 1 [Reference]             |
|   | Midwest       | 79‡ | 0.6 (0.4-0.9)§            |
|   | West          | 75  | 0.7 (0.4-1.2)             |
|   | Northeast     | 62  | 0.3 (0.2-0.5)§            |
| R/S causes negative emotions (sometimes/often/always)       | South         | 42  | 1 [Reference]             |
|   | Midwest       | 42  | 1.0 (0.7-1.5)             |
|   | West          | 53  | 1.4 (0.9-2.1)             |
|   | Northeast     | 46  | 1.0 (0.7-1.6)             |

Abbreviations: CI, confidence interval; OR, odds ratio; R/S, religion and spirituality, treated as a single concept.

\*Percentage (population estimates accounting for survey design) of physicians from each region who agree with each of the criterion measures (tests of association by  $\chi^2$  analysis).

†For agreement with each criterion measure after adjustment for all other covariates listed in Table 1.

‡ $P < .001$ .

§ $P < .05$ .

|| $P = .01$ .

¶ $P = .09$ .

tematically affected physicians' willingness to respond in unmeasured ways. It is also possible to operationalize physician religiosity in different ways, using more items or different constructs,<sup>30</sup> though in other analyses our group found similar relationships for frequency of attendance at religious services and self-reported religiousness ("To what extent do you consider yourself a religious person?").

Limitations notwithstanding, these findings challenge any aspirations to a consensus interpretation of the relationship between R/S and health. Indeed, consensus is probably an unrealistic aim if disagreements are rooted in differences that go as deep as religion. These findings might rather lend support to the Association of American Medical Colleges<sup>31</sup> recommendation that physicians "recognize that their own spirituality... might affect the ways they relate to, and provide care to, patients." Future studies should examine the ways physicians' religious (and secular) commitments shape their clinical engagements in these and other domains.

Accepted for Publication: December 7, 2006.

Correspondence: Farr A. Curlin, MD, Section of General Internal Medicine, Department of Medicine, The Uni-

versity of Chicago, 5841 S Maryland Ave, MC 2007, Chicago, IL 60637 (fcurlin@medicine.bsd.uchicago.edu)

**Author Contributions:** Dr Curlin has had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. *Study concept and design:* Curlin and Chin. *Acquisition of data:* Curlin. *Analysis and interpretation of data:* Curlin, Sellergren, Lantos, and Chin. *Drafting of the manuscript:* Curlin and Sellergren. *Critical revision of the manuscript for important intellectual content:* Curlin, Sellergren, Lantos, and Chin. *Statistical analysis:* Curlin. *Obtained funding:* Curlin and Chin. *Administrative, technical, and material support:* Curlin, Sellergren, Lantos, and Chin. *Study supervision:* Curlin.

**Financial Disclosure:** None reported.

**Funding/Support:** This study was funded by a grant from the Greenwall Foundation, New York, NY (Drs Curlin and Chin), and by the Robert Wood Johnson Clinical Scholars Program (Drs Curlin, Lantos, and Chin). Dr Curlin is also supported by grant K23/AT002749 from the National Center for Complementary and Alternative Medicine of the National Institutes of Health.

**Role of the Sponsor:** The funding agencies did not have any role in the design, conduct, analysis, and interpretation of the study, nor in the preparation of the manuscript.

**Acknowledgment:** We are indebted to Colm O'Muircheartaigh, PhD, and Martha Van Haitsma, PhD, for their assistance with sampling design and survey methods; to Terri Rossi and Michelle Schumacher for their tireless assistance in data collection and management; and to Daniel Hall, MD, MDiv, and an anonymous reviewer for their insightful comments on an earlier version of this manuscript.

## REFERENCES

1. Sloan RP, Bagiella E, Powell T. Religion, spirituality and medicine. *Lancet*. 1999; 353:664-667.
2. Post SG, Puchalski CM, Larson DB. Physicians and patient spirituality: professional boundaries, competency, and ethics. *Ann Intern Med*. 2000;132:578-583.
3. Curlin FA, Hall DE. Strangers or friends? a proposal for a new spirituality-in-medicine ethic. *J Gen Intern Med*. 2005;20:370-374.
4. Koenig HG, McCullough ME, Larson DB. *Handbook of Religion and Health*. New York, NY: Oxford University Press; 2001.
5. Ellison CG, Levin JS. The religion-health connection: evidence, theory, and future directions. *Health Educ Behav*. 1998;25:700-720.
6. Gartner JD, Larson DB, Allen GD. Religious commitment and mental health: a review of the empirical literature. *J Psychol Theol*. 1991;19:6-25.
7. Sloan RP, Bagiella E. Claims about religious involvement and health outcomes. *Ann Behav Med*. 2002;24:14-21.
8. Levin JS. Religion and health: is there an association, is it valid, and is it causal? *Soc Sci Med*. 1994;38:1475-1482.
9. Koenig HG, Idler E, Kasl S, et al. Religion, spirituality, and medicine: a rebuttal to skeptics. *Int J Psychiatry Med*. 1999;29:123-131.
10. Curlin FA, Chin MH, Sellergren SA, Roach CJ, Lantos JD. The association of physicians' religious characteristics with their attitudes and self-reported behaviors regarding religion and spirituality in the clinical encounter. *Med Care*. 2006; 44:446-453.
11. Curlin FA, Lantos JD, Roach CJ, Sellergren SA, Chin MH. Religious characteristics of U.S. physicians: a national survey. *J Gen Intern Med*. 2005;20:629-634.
12. Curlin FA, Roach CJ, Gorawara-Bhat R, Lantos JD, Chin MH. How are religion and spirituality related to health? a study of physicians' perspectives. *South Med J*. 2005;98:761-766.
13. Presser S, Blair J. Survey pretesting: do different methods produce different results? *Social Methodol*. 1994;24:73-104.
14. Allport G, Ross J. Personal religious orientation and prejudice. *J Pers Soc Psychol*. 1967;5:432-443.
15. Hoge DR. A validated intrinsic religious motivation scale. *J Sci Study Relig*. 1972; 11:369-376.
16. Koenig H, Parkerson GR Jr, Meador KG. Religion index for psychiatric research. *Am J Psychiatry*. 1997;154:885-886.
17. Donahue MJ. Intrinsic and extrinsic religiousness: the empirical research. *J Sci Study Relig*. 1985;24:418-423.
18. Gorsuch RL, McPherson SE. Intrinsic-extrinsic measurement: I/E-Revised and Single-Item Scales. *J Sci Study Relig*. 1989;28:348-354.
19. Newport F. Update: eighty-four percent of Americans identify with a Christian religion. The Gallup Poll. December 23, 2004.
20. Groves RM, Fowler FJ, Couper MP, Lepkowski JM, Singer E, Tourangeau R. *Survey Methodology*. Hoboken, NJ: John Wiley & Sons Inc; 2004.
21. Chibnall JT, Brooks CA. Religion in the clinic: the role of physician beliefs. *South Med J*. 2001;94:374-379.
22. Armbruster CA, Chibnall JT, Leggett S. Pediatrician beliefs about spirituality and religion in medicine: associations with clinical practice. *Pediatrics*. 2003;111: e227-e235.
23. Koenig HG, Bearon LB, Dayringer R. Physician perspectives on the role of religion in the physician-older patient relationship. *J Fam Pract*. 1989;28:441-448.
24. Siegel B, Tenenbaum AJ, Jamanka A, Barnes L, Hubbard C, Zuckerman B. Faculty and resident attitudes about spirituality and religion in the provision of pediatric health care. *Ambul Pediatr*. 2002;2:5-10.
25. Sulmasy DP. Spiritual issues in the care of dying patients: "... it's okay between me and god". *JAMA*. 2006;296:1385-1392.
26. Wennberg J. *The Dartmouth Atlas of Health Care in the United States*. Chicago, Ill: American Hospital Publications Inc; 1996.
27. Luckhaupt SE, Yi MS, Mueller CV, et al. Beliefs of primary care residents regarding spirituality and religion in clinical encounters with patients: a study at a mid-western U.S. teaching institution. *Acad Med*. 2005;80:560-570.
28. Monroe MH, Bynum D, Susi B, et al. Primary care physician preferences regarding spiritual behavior in medical practice. *Arch Intern Med*. 2003;163:2751-2756.
29. Asch DA, Jedrzewski MK, Christakis NA. Response rates to mail surveys published in medical journals. *J Clin Epidemiol*. 1997;50:1129-1136.
30. Hall DE, Koenig HG, Meador KG. Conceptualizing "religion": how language shapes and constrains knowledge in the study of religion and health. *Perspect Biol Med*. 2004;47:386-401.
31. Association of American Medical Colleges Contemporary Issues in Medicine: Communication in Medicine: Medical School Objectives Project, Report III. October 1999. <http://www.aamc.org/meded/msop/msop3.pdf>.