Measuring Multiple Dimensions of Religion and Spirituality for Health Research

Conceptual Background and Findings From the 1998 General Social Survey

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Progress in studying the relationship between religion and health has been hampered by the absence of an adequate measure of religiousness and spirituality. This article reports on the conceptual and empirical development of an instrument to measure religiousness and spirituality, intended explicitly for studies of health. It is multidimensional to allow investigation of multiple possible mechanisms of effect, brief enough to be included in clinical or epidemiological surveys, inclusive of both traditional religiousness and noninstitutionally based spirituality, and appropriate for diverse Judeo-Christian populations. The measure may be particularly useful for studies of health in elderly populations in which religious involvement is higher. The measure was tested in the nationally representative 1998 General Social Survey (N = 1,445). Nine

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dimensions have indices with moderate-to-good internal consistency, and there are three single-item domains. Analysis by age and sex shows that elderly respondents report higher levels of religiousness in virtually every domain of the measure.

Keywords: *religiousness; spirituality; health; medicine; aging*

Religiousness and spirituality have entered the agenda of research on psychosocial factors in health. In the past few years, a number of major longitudinal studies have reported both long-term and short-term beneficial effects of individual religiousness on physical health status. For example, in an eight-year study of National Health Interview Survey data, Hummer et al. (1999) showed that regular attendance at religious services is associated with an additional eight years of life expectancy when compared with never attending, despite adjustment for initial health status and a large set of social and behavioral risk factors. These effects of religious attendance were consistent across all age, gender, and race/ethnicity groups and for all major causes of death. A second mortality study, in Utah, found three to seven times as many suicides among male nonmembers of the Mormon church and less active members when compared with active members (Hilton, Fellingham, and Lyon 2002). A third study, of 87 elderly inpatients diagnosed with clinical depression, found that those with higher levels of intrinsic religiosity had significantly shorter times to remission than those who were less religious; for every 10-point increase on a 50-point scale, the time to recovery increased by 70% (Koenig, George, and Peterson, 1998). In a regional U.S. sample of elderly people, frequent attendance at religious services was a strong predictor of better physical functioning after one to six years' follow-up and even up to 12 years later for some groups (Idler and Kasl 1997b). This small set of findings does not constitute a review of the literature, although it does represent a variety of populations, outcomes, study designs, analytic techniques, follow-up periods, and geographic regions; more extensive reviews can be found in

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McCullough, Hoyt, et al. (2000) and in Koenig, McCullough, and Larson (2001). These four studies are meant simply to illustrate both the strengths and weaknesses of research in this field.

One recent critique of studies of religion, spirituality, and medicine characterized the evidence of an association between religion and health as "weak and inconsistent" (Sloan, Bagiella, and Powell 1999) and pointed to a number of methodological flaws in existing studies. Inconsistency is a characteristic of the findings in this field, in the sense that different dimensions of religiousness show protective effects in different populations. The four studies mentioned above provide good examples of how limitations in the measurement of the independent variable lead to apparent inconsistencies in the findings. Hummer et al. (1999) had only a single indicator of attendance at religious services available for their analysis. Hilton et al. (2002) analyzed records of the state of Utah and the Church of the Latter Day Saints (LDS) to measure suicide rates and LDS church membership and commitment but did not have any data representing individual feelings of religiousness. Koenig, George, Cohen, et al. (1998) and Idler and Kasl (1997b) had a small number of additional measures available for both attendance and religious feelings, but even these are at best rudimentary measures of a complex construct that includes a wide variety of behavioral aspects, such as attendance at public worship services, solitary prayer, meditation, or reading sacred texts, as well as attitudinal aspects such as beliefs, values, and feelings.

Among the relatively few studies that do include more than one domain of the construct, there are some apparently inconsistent findings; Idler and Kasl (1997b), for example, found significant protective effects of attendance but no effects of religious feelings on later functional ability in a healthy elderly population, whereas Koenig, George, and Peterson (1998) found significant effects of religious feelings, but not attendance, on remission from major depressive disorder among hospital inpatients. But different studies may highlight different dimensions of the complex construct of religiousness: Seriously ill patients with mobility limitations may use or benefit from different forms of religious involvement than healthy, community-dwelling adults, for example. It is clear that a wider set of dimensions of religiousness and spirituality must be systematically examined before much can be concluded concerning the role of religion in health in the wide range of situations in which it is relevant.

Apart from the interest in the links of religiousness and spirituality to health, there is substantial evidence that for a large proportion of Americans, and particularly for elderly Americans, religion is important for its own sake. Fifty-nine percent of the adult U.S. population and 73% of those age 65 and older consider religion to be "very important" to them, and 53% of older Americans attend services weekly, compared with 43% for adults overall (Princeton Religion Research Center 1994); 73% of Americans age 61 and older pray once or more often every day, compared with 54% overall (Levin and Taylor 1997; Woodward 1997). Moreover, many Americans believe that there is a connection of religion to health: 79% believe that God answers prayers for healing from incurable diseases (Woodward 1997), 25% pray regularly for healing for their own illnesses (Eisenberg et al. 1993), and 64% think doctors should pray with a patient if the patient requests it (M. Kaplan 1996). As the appearance of these surveys in the news media attests, there seems to be a growing interest in these topics in the popular culture in the United States as well as in the research literature.

Objectives of the National Institute on Aging (NIA)/Fetzer Working Group

In 1997, a working group was formed by the Fetzer Institute and the NIA to develop a self-report survey instrument to measure religiousness and spirituality that would be brief, multidimensional, suitable for use in religiously heterogeneous populations among adults of all ages, inclusive of both traditional religiousness and noninstitutionally based spirituality, and likely to be linked to health outcomes. Because the instrument would be used in health research, its dimensions were limited to those thought likely to be related to health, even though some dimensions, such as support from religious congregations or forgiveness, had not been previously examined. The distinction between religiousness and spirituality was important. Whereas many respondents regard the two as indistinguishable, others may have had experiences that they would identify as spiritual or transcendental, to which they do not ascribe traditional religious meaning. Moreover, the instrument was to be as inclusive as possible in its language about

religious practices to get appropriate responses from members of at least the major religious groups in American society.

The instrument was to be brief. There is always limited time available for the measurement of psychosocial factors in health surveys, and brevity is even more of a concern for clinical studies in which participants are already ill. At the same time, these requirements had to be balanced against (1) the need for a psychometrically sound instrument, in which multiple items for each domain were desirable to enhance reliability; (2) the need to include items with negative phrasing to tap any potentially negative aspects of religiousness and to reduce social desirability bias; and (3) the commitment of the group to developing measures for a broad and inclusive list of domains with theoretical relevance to health.

Potential Pathways

There are many dimensions to religiousness and spirituality, and they may be connected to health outcomes in different ways. The view of the working group was that religious or spiritual variables could not be simply combined into a single scale and the effects of religiosity examined; rather, the various dimensions of religiousness and spirituality had to be examined separately for their potential effects on health. Moreover, whereas many of the best known studies have focused on all-cause mortality as an outcome, the conceivable array of mental and physical health outcomes and the importance of different health outcomes at different stages of the life course made a broad approach to domain identification the most desirable. Behavioral, social, psychological, and directly physiological causal pathways from religiousness/spirituality to health were considered, as was the potential for a negative effect of religion on health. The goal for developing the instrument was to provide researchers with the potential to link multiple dimensions of religiousness and spirituality to as many of these potential mechanisms as possible. The relevance of each of the pathways to the health of older adults was also an important concern; the cumulative impact of lifelong, religiously influenced health practices in old age and the new issues of adaptation to chronic illness make the impact of religiousness on health of particular interest in this population.

Reduction of behavioral risks. Religious teachings may promote a healthier lifestyle with respect to known risk factors, such as alcohol abuse or promiscuous sexuality. The negative association between substance use and religiousness is relatively well established (Gorsuch 1995; Kendler, Gardner, and Prescott 1997); it is particularly significant among adolescents and college students, for whom it represents a lowering of lifetime risk (Brown et al. 2001; Wallace and Forman 1998). There is also evidence that smoking rates are lower among members of religious groups (Idler and Kasl 1997a; Koenig, George, Cohen, et al. 1998). Certain religious groups, such as Seventh-Day Adventists, promote healthy dietary practices as a major part of their religious doctrine (Phillips et al. 1980). Although not all religions have specific teachings regarding these health risk behaviors, theologians (Vaux 1976) have argued that "purity of life" is a "generic religious value" and that most religions have beliefs about maintaining the purity of the mind, body, and soul. In a 28-year follow-up study by Strawbridge et al. (1997), Alameda County, California, respondents who attended services more often at the start of the study had lower mortality rates, partly because they were also less likely to be smokers; moreover, those who did smoke were more likely to quit smoking during the period of follow-up, and this also accounted for part of the difference in the rates.

Expansion of social support. Religious groups may also represent supportive, integrative communities for many of their members. Religious group membership is one of the major types of social ties available to people, along with family, friends, and other community groups; such ties, including religious group membership, have been shown in a number of important epidemiological studies to reduce mortality in a linear fashion as the number of such ties increases (Berkman and Syme 1979; House, Landis, and Umberson 1988). The support offered by these social ties is conceptualized as either emotional, in the sense of sharing sympathy or encouragement, and/or instrumental, meaning tangible offers to assist with tasks, materials, or money. Religious congregations provide both strong and weak social network ties and are potential sources of all types of support for those in stressful situations. In several regional and national studies, frequent attenders at religious services have also reported larger social networks, more contact, and more social support than those who

attend less often or not at all (Bradley 1995; Ellison and George 1994; Idler and Kasl 1997a). Given the relative social isolation and transportation difficulties of many elderly people, religious congregations that reach out to their members may be providing sources of friendship and support that are critically important.

Enhancement of coping skills. Religious feelings and thoughts may also promote better well-being. Religious groups offer members a complex set of beliefs about God, ethics, human relationships, and life and death, many of which are directly relevant to health. Religious belief systems have been called "symbolic universes" (Berger 1967), which can give the events of life and death a spiritual significance. Individuals can draw on the stories and beliefs of their faith tradition to put their own lives into a much larger context, to learn lessons from others who have faced similar troubles, to allay fear, or to gain hope for the future. Studies have shown that religious beliefs and practices also appear to be associated with higher self-esteem and feelings of self-worth, particularly among older adults (Krause 1995); individuals who describe themselves as having a strong religious faith report themselves to be happier and more satisfied with their lives (Ellison 1991).

Religious involvement appears to have particular protective effects for the well-being of individuals in crisis situations. Religious coping, when compared with other ways of dealing with problems, apparently is especially helpful in situations of bereavement or serious illness, over which little direct control is possible (Mattlin, Wethington, and Kessler 1990). Studies of heart surgery patients (Ai et al. 1998), hospitalized elderly (Koenig, George, and Peterson 1998), older women with hip fractures (Pressman et al. 1990), men with severe disabilities (Idler and Kasl 1992), recent widowers (Siegel and Kuykendall 1990), kidney transplant patients (Tix and Frazier 1998), and parents who had lost a child (McIntosh, Silver, and Wortman 1993) have found significantly lower levels of depression among those in the sample who had religious resources to aid in their coping. Religious belief systems offer resources for understanding tragic or stressful events; religious or spiritual interpretations of difficult circumstances may have the power to bring individuals to a state of peace or acceptance of a situation that cannot be altered and give them the ability to live with it. Religious rituals associated with healing or mourning can assist in the

process of adjustment to difficult life transitions when people must give up old sources of significance and find new ones (Pargament 1997). Given the higher frequency of occurrence of such loss events in old age, here again religious coping resources may be of particular importance to the elderly.

Physiological mechanisms. Religiousness and spirituality may also provide a cushion against both major and minor stressors through direct physiological pathways. Through such neuroendocrine messengers as the catecholamines, serotonin, and cortisol, negative emotions arising from stressful situations have been associated with key pathogenic mechanisms, including myocardial ischemia (Jiang et al. 1996), arrhythmias (Kamarck and Jennings 1991), increased platelet aggregation (Levine et al. 1985), suppressed immune response (Stone and Bovbjerg 1994), and elevated ambulatory blood pressure (Steffen et al. 2001). Certain religious and spiritual practices may elicit the "relaxation response," an integrated physiological reaction in opposition to the "stress response" (Benson 1975). Repeated elicitation of the relaxation response results in a reduction in muscle tension; a reduction in activity of the sympathetic branch of the autonomic nervous system; a reduction in the activity of the anterior-pituitary/adreno-cortical axis; a lowering of blood pressure, heart rate, and oxygenation; and changes in brain wave activity and wave function (Delmonte 1985). To elicit this response, individuals focus on a repetitive word, sound, image, or repetitive action, such as breathing. When given a choice, most individuals choose a prayer or verse from the Bible (Ai et al 1998; Benson 1996). Religious rituals, undertaken in public or in private, may provide individuals with physical, emotional, and cognitive cues for integrating the experience of the mind, body, and spirit and achieving transcendent states.

These potential pathways directed the attention of the working group to aspects of religion that suggested biobehavioral or psychosocial processes that were already known in health research. Some of these pathways have direct cushioning effects that prevent stress and its sequelae from occurring; in primary preventive health practices or early resolution of conflict in important relationships, people with available religious or spiritual resources may sidestep certain health risks or minimize the effects of others. On the other hand, religion and spirituality may also operate through a pathway of

enhancing coping and feelings of self-worth precisely in situations where predictability and control over outcomes, concepts central to most models of stress reduction in health psychology, are limited.

PHASE 1

With these potential causal pathways in mind, then, the members of the working group identified 10 domains of religiousness and spirituality for inclusion in the new measure. In Phase 1, literature reviews were carried out, existing multidimensional instruments in the social scientific study of religion were examined for potential items, and reports were prepared delineating the relevance of the domain to health research. For some domains, extensive testing and item development had already been carried out, in some cases by research teams headed by working group members. In other cases, tested measures did not exist, and original items were written by group members. A justification and long set of items for each domain was compiled and is available from the Fetzer Institute (NIA/Fetzer Institute 1999). Pilot testing of items for the domains was performed in several ongoing projects of working group members, including, among others, 65 coronary artery bypass surgery patients, 296 Oklahoma City residents, and a nationwide sample of Presbyterian Church members. From the preliminary data, a set of 33 items was chosen to represent the domains. Table 1 shows each domain, its potentially testable relevance to health, and the wording of the item as developed for Phase 2.

Religious affiliation. The question on current religious preference or affiliation taps nominal identification with a religious community without requiring current membership. This item can be supplemented by a probe for a specific denomination of Protestantism and/or branch of Judaism. The approach of the General Social Survey (GSS) (Davis and Smith 1998) is to be comprehensive and detailed in its coverage of American religious groups, allowing researchers the flexibility of grouping affiliation categories for their own purposes. Classification schemes for the GSS variables can be found in Roof and McKinney (1990) and Smith (1990).

The argument for a potential association with health derives from the known doctrinal differences between groups, especially with

(text continues on page 340)

TABLE 1
National Institute on Aging/Fetzer Short Form, Domains and Instrument

Domain	*Potential Pathway to Health*	*1998 GSS Item Wording*[a]	*GSS Variable and Response Scale*
Affiliation	Denomination-specific proscriptions for lifestyle risk factors: alcohol, diet, smoking	What is your religious preference? Is it Protestant, Catholic, Jewish, some other religion, or no religion? (If Protestant: What specific denomination is that? If Jewish: Do you consider yourself Orthodox, Conservative, Reform, or none of these?)	RELIG[b] DENOM[c] JEW[d]
History	Life-changing experience fostering behavior change Exposure to integrated body/mind/spirit states	Did you ever have a religious or spiritual experience that changed your life?	RELEXP[e, t]
Public practices	Exposure to integrated body/mind/spirit states Conformity to risk-reducing behaviors Exposure to social networks and sources of support	How often do you attend religious services? How often do you take part in the activities or organizations of a church or place of worship other than attending services?	ATTEND[f, u] RELACTIV[g, u]
Private practices	Exposure to integrated body/mind/spirit states	How often do you pray privately in places other than at church or synagogue? Within your religious or spiritual tradition, how often do you meditate? How often have you read the Bible in the last year?	PRIVPRAY[h, t, u] MEDITATE[h, t, u] READWORD[i, t, u]

Support	Access to instrumental assistance and expressions of caring Reduction of stress through resolution of conflict Encouragement of compliance with medical treatments Reduction of health risk behaviors Access to medical care and health information through referral networks	If you were ill, how much would the people in your congregation help you out? If you had a problem or were faced with a difficult situation, how much comfort would the people in your congregation be willing to give you? How often do the people in your congregation make too many demands on you? How often are the people in your congregation critical of you and the things you do?	CONGHLP1[j, t] CONGHLP2[j, t] CONGHRM1[k] CONGHRM2[k]
Coping	Reduction of negative impact of stressful life events	Think about how you try to understand and deal with major problems in your life. To what extent is each of the following involved in the way you cope: I think about how my life is part of a larger spiritual force. I work together with God as partners. I look to God for strength, support, guidance. I feel that God is punishing me for my sins or lack of spirituality. I wonder whether God has abandoned me. I try to make sense of the situation and decide what to do without relying on God.	COPE1[l, t] COPE2[l, t] COPE3[l, t] COPE4[l, t] COPE5[l, t] COPE6[l, t]
Beliefs and values	Opportunities for social comparison promote personal well-being Reduction of stress through provision of hope	I believe in a God who watches over me. I feel a deep sense of responsibility for reducing pain and suffering in the world. Do you believe there is life after death? I try hard to carry my religious beliefs over into all my other dealings in life.	GODWATCH[m, t, u] LESSPAIN[m, t, u] POSTLIFE[n, t, u] RELLIFE[m, t, u]
Commitment	Enhancement of well-being through concern for others	During the last year, how much money did you and the other family members in your household contribute to each of the following: to your local congregation?	GIVECONG[o]

(continued)

TABLE 1 (continued)

Domain	*Potential Pathway to Health*	*1998 GSS Item Wording*[a]	*GSS Variable and Response Scale*
Forgiveness	Reduction of stress through resolution of conflict	Because of my religious or spiritual beliefs: I have forgiven myself for things that I have done wrong. I have forgiven those who hurt me. I know that God forgives me.	FORGIVE1[p, t] FORGIVE2[p, t] FORGIVE3[p, t]
Spiritual experience	Exposure to integrated body/mind/spirit states	The following questions deal with possible spiritual experiences. To what extent can you say you experience the following: I feel God's presence. I find strength and comfort in my religion. I feel deep inner peace or harmony. I desire to be closer to or in union with God. I feel God's love for me, directly or through others. I am spiritually touched by the beauty of creation.	FEELGOD[q, t] RELCMFRT[q, t] HARMONY[q, t] UNIONGOD[q, t] GODLOVE[q, t] BEAUSPRT[q, t]
Religious intensity	Indicator of feelings of self-worth	To what extent do you consider yourself a religious person? To what extent do you consider yourself a spiritual person?	RELPERSN[r, t] SPRTPRSN[s, t]

a. GSS = General Social Survey (GSS, 1998).
b. 1 = Protestant; 2 = Catholic; 3 = Jewish; 4 = None; 5 = other; 6 = Buddhism; 7 = Hinduism; 8 = other Eastern; 9 = Moslem/Islam; 10 = Orthodox-Christian; 11 = Christian; 12 = Native American; 13 = interdenominational.
c. Detailed coding for Protestant denominations available from the authors or the GSS.
d. 1 = Orthodox; 2 = Conservative; 3 = Reform; 4 = none of these.
e. 1 = yes; 2 = no.
f. 0 = never; 1 = less than once a year; 2 = about once or twice a year; 3 = several times a year; 4 = about once a month; 5 = 2-3 times a month; 6 = nearly every week; 7 = every week; 8 = several times a week.

g. 1 = never; 2 = less than once a year; 3 = about once or twice a year; 4 = several times a year; 5 = about once a month; 6 = 2-3 times a month; 7 = nearly every week; 8 = every week; 9 = several times a week; 10 = once a day; 11 = several times a day.
h. 1 = more than once a day; 2 = once a day; 3 = a few times a week; 4 = once a week; 5 = a few times a month; 6 = once a month; 7 = less than once a month; 8 = never.
i. 1 = several times a day; 2 = once a day; 3 = several times a week; 4 = once a week; 5 = less than once a week; 6 = not read.
j. 1 = a great deal; 2 = some; 3 = a little; 4 = none.
k. 1 = very often; 2 = fairly often; 3 = once in a while; 4 = never.
l. 1 = a great deal; 2 = quite a bit; 3 = somewhat; 4 = not at all.
m. 1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree.
n. 1 = yes; 2 = undecided; 3 = no.
o. Actual dollar amount coded. Our giving-to-income ratio variable = GIVECONG/INCOME98(midpoints of intervals).
p. 1 = always or almost always; 2 = often; 3 = seldom; 4 = never.
q. 1 = many times a day; 2 = every day; 3 = most days; 4 = some days; 5 = once in a while; 6 = never or almost never.
r. 1 = very religious; 2 = moderately religious; 3 = slightly religious; 4 = not religious at all.
s. 1 = very spiritual; 2 = moderately spiritual; 3 = slightly spiritual; 4 = not spiritual at all.
t. Score was reverse coded.
u. Score was transformed to *z* score before summing with other items.

respect to dietary practices, tobacco, and alcohol use. Epidemiologists have long studied the Amish, Mormons, religious orders, and homogeneous, endogamous religious groups and found lower rates of cancer, hypertension, and overall mortality than in the general population (Jarvis and Northcott 1987). Studies of cancer among Mormons have found particularly low rates of smoking- and alcohol-related cancers, which decline within the group as adherence to church doctrine increases (Gardner and Lyon 1982). More speculatively, some have suggested that a range of denomination-specific beliefs or ritual practices, such as beliefs about sin and divine grace (Watson, Morris, and Hood 1988) or cathartic worship styles (Gritzmacher, Bolton, and Dana 1988), might influence mental or physical health. On the other hand, community studies of mainstream Protestants, Catholics, and Jews have shown no differences in the protective effects of similar levels of attendance at services (Idler and Kasl 1992; Siegel and Kuykendall 1990). Denominational differences in health are especially likely to be confounded with region and the effects of socioeconomic status and should remain an important topic for study and for the adequate description of the population being studied.

Personal religious/spiritual history. This measure distinguishes individuals who have had steady lifelong religious commitment from those whose experience may have been marked by conversion or an experience of deepening religious/spiritual commitment. It may be particularly important in large regions of the United States where evangelical denominations predominate. The experience of salvation or "being saved" may be a sensitive indicator of perceptions of group membership (or nonmembership) commonly held in these cultures. The item is adopted from Koenig et al. (1994a).

Evidence for the relationship of this domain to health comes primarily from population-based and clinical studies conducted in North Carolina showing that respondents reporting life-changing religious or spiritual experiences have fewer depressive disorders and symptoms (Koenig et al. 1994a), fewer anxiety disorders and symptoms (Koenig et al. 1993), and less alcohol abuse and dependence (Hays et al. 2001; Koenig et al. 1994b). Life-changing experiences in the religious or spiritual arena may be accompanied by behavior changes in substance use, for example, which could have direct physical or mental health consequences.

Public religious practices. The involvement of the respondent with a formal public religious institution, such as a church, synagogue, temple, mosque, ashram, and so forth, is a behavioral rather than an attitudinal measure. It indicates exposure to the spiritual, emotional, and social resources of the religious group. Surveys that measure any domain of religiousness apart from affiliation most commonly measure the frequency of attendance at religious services. We include one item for attendance at services and another to assess the frequency of participation in nonworship activities such as education programs, volunteer efforts, or musical activities. One or both of these items have been used for decades in national surveys, including the GSS (Davis and Smith 1998).

Cross-sectional and longitudinal studies (Koenig et al. 2001) consistently find significant associations between religious attendance and physical health status indicators, including specific conditions such as hypertension, general measures of functional disability, and overall mortality. Frequency of attendance at services may indicate the frequency with which heightened states of religious consciousness, or the experience of the sacred, is achieved through prayer, music, architecture, or rituals (Bygren, Konlaan, and Johansson 1996; Williams 1994). Regularity of attendance may be associated with behavioral conformity to religious beliefs regarding alcohol use, smoking, dietary practices, or sexual intercourse (Gorsuch 1995; Wallace and Forman 1998). Frequent contact with the social network of the congregation may make spiritual, emotional, or instrumental social support more readily available (Ellison and George 1994). The constant reinforcing of the belief structure may provide improved perception of control, understanding, and comfort in times of crisis (Pargament 1997). In short, attendance may be a marker for a complex set of processes. Frequency of attendance indicates the level of potential exposure to these multiple mechanisms.

Private religious practices. These behavioral items assess private religious practices, a conceptual domain that is alternatively referred to by the terms nonorganizational, informal, or noninstitutional religiousness. The domain of private religious practices is distinct in that the behaviors take place in the home, or generally in daily life, alone or with family. The frequency of these practices may indicate piety or

devoutness or the penetration of religious rituals or messages into everyday life. We adapted the items from Taylor and Chatters (1991), Stark and Glock (1968), and the GSS (Davis and Smith 1998).

A review of gerontological research on religion through the late 1980s concluded that, particularly for elderly people, there was an important distinction to be made between public worship practices ("organizational" religiousness) and private activities ("nonorganizational" religiousness) (Levin 1989); a number of studies of elderly populations has found that declining attendance at services was accompanied (or precipitated) by declining health, but these declines were not matched by declines in private religious practices. Cross-sectional studies, then, may report inverse associations between health and private religious practice, reflecting a causal direction in which changes in health status preceded increases in prayer or private devotional practices (Idler 1995).

The study of private religious practice and its potential effect on health is thus a complex one, requiring longitudinal study designs. At the same time, there is a great deal of public and scholarly interest in the subject of prayer and meditation (Levin and Taylor 1997; Woodward 1997), and some evidence for the efficacy of prayerlike repetition of sacred phrases in producing the relaxation response (Benson 1996). Thus, these items are of particular importance for health research not only because of the apparent tendency of people in poor health to engage in them more frequently but also because of their potential to produce psychophysical states that may have subsequent effects on health.

Social support. There is a rich literature on the relationship between social support and health and a substantial body of work on the measurement of various aspects of social support. Even casual observation would suggest that religious congregations provide support for their members; thus, this dimension appeared to be an obvious one for inclusion, although there were no existing measures of the dimension. The items are modified versions of items developed by Liang (Krause 1995, 1997; Rook 1984), which specify that the source of the support be the religious group. The types of support offered remained the same. We focused on two of the several aspects of social support because of their demonstrated relationship to health: anticipated support (Krause 1997) and negative interaction (Rook 1984).

Anticipated support is defined as the belief that others are willing to provide help should the need arise; membership in a formal religious organization carries with it the implicit promise that members of the religious community will provide help in the future if it is needed. The items concerning negative interactions were important to include because congregational settings can be sites of conflict as well as comfort and support.

Religious support is likely to be related to health and well-being in the same ways that secular social support is, including improved compliance with medical treatments and greater use of preventive options through encouragement, referrals, and modeling. In the absence of distinct stressors, support from a religious group may increase self-esteem, bolster feelings of control, and provide the benefits of embeddedness in an integrated social network with strong as well as weak ties. Furthermore, assistance from a congregation may help to offset the adverse effects of serious stressful life events such as the death of a loved one or financial loss. In a word, religious social support may act to prevent stress from occurring and to provide resources that enhance coping when it does.

Religious coping. Studies of religious coping focus on people in adverse situations seeking comfort and understanding in religion (Ellison 1994; Pargament 1997). A number have shown that religion is especially effective in coping with situations of loss or illness (e.g., Mattlin et al. 1990), when the situation is not amenable to change. Major life events can threaten or harm many objects of significance—the sense of meaning, intimacy with others, personal control, physical health, one's sense of security. Religion offers a variety of coping methods for conserving these objects of significance or, if that is no longer possible, transforming them. The items we propose assess (1) positive religious coping reflective of benevolent religious methods of understanding and dealing with life stressors and (2) negative religious coping reflective of religious struggle and are taken from Pargament et al. (1998) and Pargament, Koenig, and Perez (2000).

Measures of religious coping have been associated with indicators of physical health, mental health, and spiritual outcomes (Ellison 1994); methods of religious coping may serve as antidotes to anxiety, as checks on human impulses, as sources of meaning in the world, as stimuli for personal growth and development, or as bases of social

cohesiveness. Recent studies show that religious coping methods are distinct from global religious orientations in influencing the outcomes of stressful events (Pargament 1997). The motivation to find and experience the sacred may also have intrinsic health benefits that cannot be "reduced" to other psychosocial mechanisms.

Beliefs and values. One of the central features of religiousness is the cognitive dimension of belief; members of religious groups are identified as "believers." The items chosen indicate the presence or absence of beliefs in (1) the existence of a protective God, (2) responsibility for others who are less fortunate, (3) the existence of life after death, and (4) the importance of religious beliefs for other areas of life. By definition, beliefs differ from one religion to another. These items met the criteria of being commonly held by many (not all) of the major religious groups in Western society; they were adopted from multiple sources (Benson and Elkin 1990; Davis and Smith 1998; Hoge 1972; King and Hunt 1975).

Beliefs are central to health and healing as well as to religion. The power of the placebo effect, a change in a patient's illness attributable to the symbolic import of a treatment rather than a specific pharmacologic or physiological property, is a familiar feature of medical practice and research (Kaptchuk 2002; Papakostas and Daras 2001; Turner et al. 1994). Religious faith may mobilize placebo effects by enhancing the memory of repeated, familiar, positive therapeutic states. Belief in a benevolent God and an afterlife may be key to a generalized expectation of positive outcomes. Moreover, religious beliefs offer individuals cognitive resources beyond these relatively simple or naive beliefs in good outcomes. Beliefs about the meaning of suffering and death are in some way central to all religions (Bowker 1970); they create webs of meaning and comprehensibility that may comfort and sustain believers even in the midst of acute tragedy or long-term suffering.

Belief in the importance of concern for others is a value promoted by all of the major world religions. Studies in 20 countries and with four different faith traditions show that more highly religious people consistently show a more collectivist orientation and place little value on self-indulgence or sensation seeking (Schwartz and Huismans 1995); such religiously motivated orientations might reduce risky behaviors such as heavy drinking, fast driving, and promiscuous sex.

Other researchers have also identified the prosocial orientation of religious respondents; there are direct teachings in many faiths on the subject of love and concern for others, and feelings of divine protection may encourage feelings of security and friendliness to strangers (Ellison 1992; Pollner 1989). Moreover, "downward comparisons," or the consistent tendency of people to compare themselves with others who are worse off than themselves, is commonly shown to enhance feelings of well-being and reduce depression (Affleck and Tennen 1991); opportunities for such comparisons may occur more frequently for individuals who regularly perform charitable acts or concern themselves with the needs of others.

Commitment. This domain attempts to capture a behavioral expression of commitment to one's religious faith or spiritual beliefs. Recent work in the sociology of religion argues that commitment is best conceptualized and measured in terms of the offerings, of time or money, that individuals are willing to make (Iannaccone 1994), because these represent sacrifices of resources that could be spent otherwise. Some evidence exists to suggest that behaviorally oriented "hard" measures of religious commitment are more strongly linked to health status than attitudinally oriented "soft" ones (Gartner, Larson, and Allen 1991); thus, we include a measure of the contribution of household income to religious congregations (Davis and Smith 1998). Because the amount contributed could be biased by the total household income available, we also present a variable for the ratio of dollars given to total family income.

Forgiveness. The concept of forgiveness is a fundamentally religious concept for those in the Judeo-Christian tradition. It is the focus of a major Jewish holiday (Yom Kippur) and a theme in much of Jewish scripture. It is also the core belief of the Christian faith, celebrated in Easter, the most important Christian holiday. Jews and Christians have concepts of both divine and interpersonal forgiveness, the latter being modeled on the former. The concept is also found in Zen Buddhism, Confucianism, and Islam (Kaplan, Munroe-Blum, and Blazer 1993). A psychological model of forgiveness shows the parallel development of cognitive and moral reasoning: As individuals develop cognitively, they become able to take the perspective of others, to empathize with others' weaknesses, and to value them despite their

faults (Enright, Gassin, and Wu 1992; McCullough and Worthington 1994). Our three items are adapted from Mauger et al. (1992).

There is some evidence in experimental studies of correlations between high levels of forgiveness and lower levels of blood pressure and negative emotions; other, nonexperimental studies have shown forgiveness associated with lower levels of depression and anxiety and higher levels of self-esteem (Enright et al. 1992). The tendency to forgive may be associated with lower levels of hostility and aggression (Coyle and Enright 1997) and lower psychopathology on the Minnesota Multiphasic Personality Inventory (Gordon and Baucom 1998). In the psychotherapeutic literature, healing, in the spiritual sense, is often linked with forgiveness; however, research in this area has hardly begun (McCullough, Pargament, and Thoresen 2000).

Daily spiritual experience. This domain measures the individual's emotional perception of the transcendent in daily life. The items capture feelings of direct interaction with, or immersion in, the transcendent rather than simply a cognitive understanding of it. They aim to capture aspects of ordinary, day-to-day spiritual experience rather than rare, extraordinary experiences of intense mysticism. Daily spiritual experience may be evoked by a religious context or by ordinary events in everyday life, in nature, with other people, or in solitude. They are intended to reflect experiences of spirituality that include, but are not limited to, the Judeo-Christian tradition. The six items were developed from the research literature, theological works, discussions with representatives of various religious traditions, and current scales attempting to measure some aspect of spiritual experience (Elkins et al. 1988; Hood et al. 1995; Kass et al. 1991; Underwood and Teresi 2002).

Existing scales of extraordinary mystical or spiritual experiences have shown that they may be associated with psychological well-being (Hood et al. 1995), but there is little empirical work that links the ordinary spiritual experiences of daily life with physical health outcomes. However, one of the questions most strongly predictive of positive health outcomes in the Oxman, Freeman, and Manheimer (1995) study of cardiac surgery taps one of these dimensions ("strength and comfort from my religion"). The emotional and physical feelings described by these items may buffer individuals from stress-related illnesses (Cohen, Kessler, and Underwood-Gordon 1995). Positive

emotional experiences also have been seen to have beneficial effects on the immune system, independent of the negative effects of stress (Roberts et al. 1995; Stone and Bovbjerg 1994). Endorsing a "sense of deep peace" may reflect a condition that leads to or emanates from direct neurological and endocrine processes similar to those identified during meditation (Delmonte 1985). This domain offers the opportunity to assess potential effects on physical and mental health of spiritual experiences in daily life, apart from participation in religious services.

Overall self-ranking. The final domain asks the individuals to rate themselves with respect to their overall religiousness and spirituality. For many respondents, these answers will be closely correlated; Marler and Hadaway (2002) found parallel trends over time in Americans' self-reports of being religious and being spiritual. It may also be of interest to estimate the prevalence of individuals who identify themselves as spiritual but not religious and/or religious but not spiritual and to compare the health of these groups with that of the conventionally religious group. Global self-report measures (e.g., of health) can be very sensitive to subjective states, even when compared with well-crafted multiple-item measures; this domain provides a yardstick against which other domains can be measured.

PHASE 2

Method

The 33 items were fielded in the 1998 GSS of the University of Chicago National Opinion Research Center (NORC). This is a nationally representative household survey that samples English-speaking persons in the United States older than age 18 (Davis and Smith 1998). The 1998 survey employed split-sample balloting; the number of respondents completing the NIA/Fetzer module was 1,445, representing a response rate of 75.6%. The 1998 GSS also contained a module for a comparative international study of religious values. The international study items, combined with the items on religion usually present in the GSS, provided us with opportunities for validity testing. Table 1 shows the items as administered (Davis and Smith 1998).

Analysis of the data was performed in SAS. Principal components factor analysis with orthogonal rotation was carried out within and across related domains. Indices were created by summing scores for items, reversing where appropriate. If indices with two, three, or four items were missing more than one item, the index was coded missing. The scale with six items could miss one to three items. If items in a domain had unequal ranges, each item was normalized and the resulting *z* scores summed. Cronbach's alphas were estimated for the resulting indices. Finally, Pearson correlation coefficients were estimated for all indices, single items, and a selected set of additional previously validated religion items from the GSS. Mean scores by age and sex were estimated compared first at the bivariate level with *t* tests and then jointly with analysis of covariance.

Results

Univariate. Table 2 shows the range, mean, and standard deviation for individual items in each domain. Consistent with other surveys on the subject, the 1998 GSS shows a moderately high level of religious interest and involvement on the part of the American public in this nationally representative sample.

Fifty-four percent of the sample was Protestant, 2% was Catholic, just less than 2% was Jewish, and nearly 14% reported having no religion. Thirty-nine percent said they have had a religious experience that changed their life. Average attendance at religious services was closest to once a month, with about 49% attending at least once a month. Of those who reported having a congregation, about two thirds said they would expect to receive some or a great deal of help if they were sick or had problems and well more than half said their congregation never made too many demands or was critical of them. Greater than 60% of U.S. households donated money to their local congregation; among those who gave anything, the median level of giving was $600 per year. For respondents with nonmissing data (20.5% were missing on either family income or religious giving) on both giving and family income, we created a ratio of religious giving-to-total income. Within the 60% who donated to their congregation, 5% were at or above the "tithing" level of 10%.

Greater than two thirds of the sample said they pray privately at least once a week, with half praying at least once a day. By contrast,

TABLE 2
Descriptive Statistics for NIA/Fetzer Religion and Spirituality Items

	Range	*Mean*	SD	*Female Mean*	*Male Mean*	p *for* t *Test of Difference*
Public activity						
Service attendance	0–8	3.63	2.77	3.91	3.28	***
Other public activities	1–11	3.43	2.71	3.60	3.22	*
Private activity						
Private prayer	1–8	5.49	2.50	5.98	4.90	***
Meditation	1–8	3.39	2.72	3.53	3.23	*
Bible reading	1–6	2.22	1.42	2.37	2.03	***
Congregation support						
Help with illness	1–4	3.17	.94	3.20	3.13	
Help with problem	1–4	3.32	.88	3.24	3.29	
Makes too many demands	1–4	3.50	.73	3.53	3.46	
Critical	1–4	3.67	.67	3.72	3.59	**
Coping						
Life is part of larger force	1–4	2.36	1.05	2.50	2.21	***
Work with God	1–4	2.48	1.04	2.65	2.27	***
Look to God for strength	1–4	2.94	1.09	3.14	2.71	***
Feel God is punishing	1–4	3.69	.64	3.71	3.67	
Wonder if abandoned	1–4	3.83	.49	3.84	3.83	
Make sense without God	1–4	2.97	1.02	3.11	2.80	***
Intensity						
Religious strength	1–4	2.65	.95	2.75	2.52	***
Spiritual strength	1–4	2.72	.94	2.83	2.59	***
Forgiveness						
Forgiven self	1–4	3.19	.88	3.28	3.08	***
Forgiven others	1–4	3.29	.81	3.34	3.23	**
Know that God forgives	1–4	3.61	.77	3.69	3.52	***
Spiritual experience						
Feel God's presence	1–6	3.77	1.67	3.99	3.52	***
Find comfort in religion	1–6	3.77	1.66	4.02	3.47	***
Feel inner peace	1–6	3.74	1.40	3.89	3.55	***
Desire to be closer to God	1–6	3.86	1.62	4.07	3.60	***
Feel God's love	1–6	3.89	1.59	4.09	3.64	***
Touched by creation	1–6	4.29	1.51	4.47	4.08	***
Beliefs and values						
Carry over beliefs	1–4	2.93	.88	3.04	2.79	***
God watches over	1–4	3.44	.78	3.56	3.30	***
Desire to reduce pain	1–4	2.72	.82	2.78	2.66	**
Belief in afterlife	1–3	2.55	.76	2.57	2.51	
Commitment						
Giving amount (in thousands of dollars)	0–60	.88	3.72	.77	1.02	
Giving ratio	0–0.10	.01	.03	.01	.01	
History						
Religious experience	0–1	.39	.49	.38	.40	

* $p < .05$. ** $p < .01$. *** $p < .001$.

46% said they never meditate. With respect to the types of religious coping, 43% of respondents said that they look to God for strength and comfort, and 85% said they have never felt that God had abandoned them. Only about 27% of the sample said that most or all of the time they try to make sense of a situation without relying on God.

Fifty-eight percent strongly believe that God is watching over them, and 70% believe that there is life after death. Respondents were slightly less likely to say that they always forgave themselves (43%) than that they always forgave others (46%) and much more likely to feel that God always forgives them (72%). In daily life, about 40% to 50% of respondents have some spiritual feelings at least once a day, whereas only about 6% said they never feel a sense of deep inner peace or feel touched by the beauty of nature, and only about 10% said they never perceive God's presence or love or have a desire to be closer to God. Nineteen percent of the U.S. population considers itself "very religious," and another 42% said they are "moderately religious." Slightly more (22%) said they are "very spiritual," and slightly fewer said they are "moderately spiritual," making the proportion in these two top categories almost identical for religiousness and spirituality. Slightly more respondents (15%) said they are "not religious" than "not spiritual" (12%).

Table 2 also shows that women score significantly higher than men on virtually every item in the domains of public activity, private activity, coping, intensity, forgiveness, spiritual experience, and beliefs. However, women were not more likely to have had a religious experience that changed their life, they did not give more of their household income to their congregation, they did not feel more supported by their congregation, and in fact, women were more likely than men to feel that their congregation was critical of them.

Reliability. Table 3 shows alpha reliabilities and item-total correlations for the multi-item domains. Initially, we performed a factor analysis using all the items which could be thought of as "religious activities," including the items from the public practices, private practices, and commitment domains. This analysis produced two factors, one containing all of the public and private practices, and the other consisting of just the commitment measure (religious giving). However, we decided for theoretical reasons to keep the public and private practices items separate, as they would likely behave differently in nonhealthy

populations. The alpha for the two public practices items is .82, and for the three private practices it is .72. Scales for both were constructed by creating *z* scores for each item and summing.

The analysis for the four congregation support items, on the other hand, produced two factors when we had proposed only one domain. The two items assessing positive support show alpha = .86, whereas the two assessing negative interactions show alpha = .64. With the four-item scale, alpha equals only .51; thus, we recommend considering the four items as two pairs of items. A similar situation occurred with the six coping items: Two clear factors emerged, one for the positively phrased items of thinking that life is part of a larger force, working with God, and looking for strength and comfort (alpha = .81), and one for the two negative items of feeling that God is punishing or abandoning (alpha = .54). The negative coping item of "making sense of the situation without God" had a weak negative loading on the positive coping factor, and we eliminated it from the scale.

The three items measuring different types of forgiveness factored together (alpha = .66). The items measuring intensity of spirituality/religiousness show alpha = .77. The four belief items factored together and show alpha = .64. And finally, the newly developed scale for daily spiritual experiences contained just a single factor and has alpha = .91. Thus, these analyses produce moderately good-to-excellent reliability statistics for nine scales, leaving us with three stand-alone items with distinctive response scales, for religious affiliation, dollars contributed, and having had a life-changing religious experience.

Validity. The content validity of the questionnaire was a major focus of the effort. Many areas of religious experience with potential relevance to human health were considered for inclusion whether or not there were existing scales to measure them. Our domains span behavioral, cognitive, social, biographical, and psychological dimensions of religiousness in the Judeo-Christian context; although we cannot be sure that no content areas were omitted, several of our domains are entirely original for this effort, constituting a primary contribution to content validity. As we noted at the outset of this article, the content validity of measures of religiousness in health research has been uniformly poor; this area had the most potential for improvement.

TABLE 3
Reliability Tests for National Institute on Aging/Fetzer Indices

Index	*Alpha*	*Items*	r *With Total*
Public religious activities	.82	Religious service attendance	.70
		Other public religious activities	.70
Private religious activities	.72	Private prayer	.55
		Meditation	.51
		Bible reading	.56
Congregation benefits	.86	Congregation help with illness	.76
		Congregation with problems	.76
Congregation problems	.64	Congregation makes too many demands	.47
		Congregation is critical	.47
Positive religious coping	.81	Life is part of a larger force	.58
		Work with God as a partner	.75
		Look to God for support	.65
Negative religious coping	.54	Feel that God is punishing	.37
		Wonder if God has abandoned	.37
Religious intensity	.77	Religious person	.63
		Spiritual person	.63
Forgiveness	.66	Forgiven self	.47
		Forgiven others	.50
		Know that God forgives	.43
Daily spiritual experiences	.91	Feel God's presence	.77
		Find comfort in religion	.81
		Feel deep inner peace	.70
		Desire to be closer to God	.79
		Feel God's love	.82
		Touched by beauty of creation	.63
Beliefs and values	.64	God watches over me	.51
		Responsibility to reduce pain and suffering	.34
		Life after death	.30
		Carry beliefs to other areas of life	.56

The discriminant validity of the domains was also examined. Conventionally the term *discriminant validity* refers to the assessment of new instruments when standard measures are available for related but differentiable phenomena. We use it in an effort to identify redundancy between domains in our multidimensional instrument. If the items developed for one domain overlap in content with another and if their indices are highly correlated, then the discriminatory power of the measures is called into question.

We assess discriminant validity with the correlation matrix presented in Table 4. The lower part of the triangle shows zero-order

correlations between all of the NIA/Fetzer indices and the single items. About 80% of the between-domain correlations are statistically significant at $p < .01$. Those that are not involve the two negatively phrased indicators (congregation problems and negative coping); the signs, however, are negative as expected. No other pairwise correlations in the matrix have negative signs. At the top end, three correlations of .7 are obtained between the indices for daily spiritual experience, with private practices, positive religious coping, and intensity, which are domains that stress subjective aspects of religiousness/spirituality. The high correlations in this area show less discrimination than we would like; however, these domains clearly have different behavioral and cognitive emphases. All other pairwise correlations in the table range from .0 to .6, with half below .3.

There are a few additional findings related to discriminant validity to note. First, lines 9 and 10 allow us to compare the unadjusted variable for dollars given to congregation with the ratio of dollars given to total income. The two measures are correlated .53, but the ratio measure has a consistently higher correlation with nearly every one of the other domain indices, suggesting that it should be preferred. The ratio form actually has a higher correlation with the public practices measure than it does with the unadjusted dollars given measure. Second, there was no significant correlation between the positive and negative indicators for religious coping and support. This confirms the findings from the factor analysis and suggests that these concepts do not represent polar ends of a continuum; that is, the same respondent may express strong negative and strong positive feelings simultaneously. In short, we find overall that the domains are related to each other as we would expect but that they are also sufficiently different from one another that they appear to represent distinct aspects of religious experience that do not fully covary with any other measure in the group.

Finally, we assess the convergent validity of our measures with four single items that were fielded simultaneously in the 1998 GSS and were closely related to several of our own domains/items; the text for the questions can be found at the bottom of the table. Our general hypothesis for establishing convergent validity is that these additional items should have their highest correlation with the NIA/Fetzer index or item to which they are most similar in content.

The first item, for in-home hours spent in religious activities, should be most highly correlated with our private practices measure.

TABLE 4
Zero-Order Correlations Between National Institute on Aging (NIA)/Fetzer Items and Indices and Key General Social Survey (GSS) Items

NIA/Fetzer Indices and Items	*v1*	*v2*	*v3*	*v4*	*v5*	*v6*	*v7*	*v8*	*v9*	*v10*	*v11*	*v12*	*v13*	*v14*	*v15*	*v16*	*v17*
v1: Life-changing experience	—																
v2: Public practices	**.32**	—															
v3: Private practices	**.47**	**.62**	—														
v4: Congregation benefits	**.21**	**.34**	**.31**	—													
v5: Congregation problems	**–.12**	**–.12**	**–.16**	–.04	—												
v6: Positive religious coping	**.41**	**.54**	**.67**	**.30**	**–.10**	—											
v7: Negative religious coping	.06	–.05	–.00	**–.12**	**–.15**	.05	—										
v8: Beliefs	**.38**	**.49**	**.57**	**.33**	**–.11**	**.67**	.03	—									
v9: Money given to congregation	**.12**	**.27**	**.21**	**.12**	–.04	**.15**	–.04	**.15**	—								
v10: Giving-to-income ratio	**.25**	**.56**	**.48**	**.23**	**–.15**	**.37**	–.03	**.33**	**.53**	—							
v11: Forgiveness	**.22**	**.35**	**.42**	**.23**	.00	**.48**	**–.09**	**.46**	**.10**	**.24**	—						
v12: Daily spiritual experience	**.41**	**.58**	**.70**	**.39**	**–.13**	**.76**	–.00	**.67**	**.15**	**.40**	**.52**	—					
v13: Religious intensity	**.42**	**.57**	**.65**	**.34**	**–.13**	**.69**	–.02	**.64**	**.17**	**.37**	**.44**	**.72**	—				
Related GSS variables																	
v14: In-home activity amount[a]	**.26**	**.37**	**.48**	**.18**	**–.09**	**.36**	–.00	**.29**	**.10**	**.32**	**.22**	**.39**	**.36**	—			
v15: Outside home activity amount[b]	**.21**	**.44**	**.36**	**.20**	**–.09**	**.30**	–.03	**.24**	**.16**	**.42**	**.21**	**.31**	**.30**	**.50**	—		
v16: Born again[c]	**.52**	**.37**	**.49**	**.25**	**–.14**	**.43**	.06	**.40**	**.11**	**.31**	**.29**	**.43**	**.42**	**.26**	**.22**	—	
v17: Strength of affiliation[d]	**.31**	**.61**	**.55**	**.26**	**–.11**	**.51**	–.06	**.49**	**.20**	**.44**	**.35**	**.54**	**.59**	**.33**	**.30**	**.35**	—

NOTE: Coefficients in bold are significant at $p < .01$.
a. "In the past month, about how many hours have you spent doing religious activities in your home (such as time spent praying, meditating, reading religious books, listening to religious broadcasts, etc.)?"
b. "In the past month, about how many hours have you spent doing religious services activities outside your home (such as attending religious services, prayer groups, Bible studies, fellowship meetings, church leadership meetings, etc.)?"
c. "Would you say you have been 'born again' or have had a 'born again' experience—that is, a turning point in your life when you committed yourself to Christ?"
d. "Would you call yourself a strong (PREFERENCE NAMED ABOVE) or not a very strong (PREFERENCE NAMED ABOVE)?"

In fact, it has its highest correlation (.50) with its paired item for hours spent in religious activities outside the home, to which it is closely related in wording, but its next highest correlation is with private practices (.48). Second, the number of hours spent in religious activities outside the home should be most closely related to our measure of public practices. The findings show that it also has its highest correlation with the previous item, for hours spent in home, but its second highest correlation (.44) is with our public practices index, as hypothesized.

Also as we hypothesized, the GSS item for having been "born again" is most highly correlated with our item for having had a life-changing religious experience. The GSS tracks trends in American culture; for this purpose, the "born again" language is suitable, but for the purposes of health research and in the interest of being inclusive of diverse religious/spiritual experiences, we prefer our own, more ecumenical wording. Finally, we expected the GSS question about whether the respondent was "a strong (Lutheran, Conservative Jew, etc.)" to be most closely associated with our religious intensity index, measuring how strongly religious/spiritual the respondent was. In fact, the highest correlation (.61) for this GSS variable was with the public practices index, which should not be surprising, given the GSS question's emphasis on institutional affiliation. The second highest correlation (.59) for the GSS variable is with the intensity index. Overall, we conclude that our measures converge very well with measures of similar concepts, some of which are standard in the literature. In each case, however, we feel that our measures are preferable, because they contain at least two items (with one exception), hence reducing measurement error, and because they are worded for the inclusiveness of diverse religious and spiritual traditions.

Table 5 summarizes the results of our analysis of the 12 domains (excluding religious preference) by age and sex. Our *t* tests of the difference of means show that GSS respondents older than the age of 65 scored significantly higher than younger respondents in most domains (their significantly lower score for negative religious coping is consistent with the overall pattern), except for congregation benefits and problems, in which there were no significant differences. The inconsistent finding is that older respondents are less likely than younger respondents to say they have had a life-changing religious experience. The table also shows that women score significantly higher than men

in most domains, as in Table 2. Because a disproportionate number of elderly respondents were also women, we ran the analysis by age again, adjusting for sex. This produced only minor changes in the results, because older respondents were no longer significantly less likely than younger respondents to have had a life-changing religious experience.

Conclusion

This article has described the components of the NIA/Fetzer Short Form for the Measurement of Religiousness and Spirituality. The instrument is not intended to be a comprehensive measure of all aspects of religion and spirituality; it has the limited goal of assessing aspects of those phenomena that may bear some relationship to health. That religiousness and spirituality have any effect at all on health may be a relatively new idea for researchers who have become accustomed to considering psychosocial factors such as marital status or social support in their models. One of the major barriers to research has been the absence of reliable and validated measures for the concept.

This article has presented the arguments underpinning several domains of religiousness and spirituality identified as relevant to health and proposed items that represent those domains. The items were pilot tested in several small projects and then fielded in a nationally representative sample of American adults. Findings from the 1998 GSS showed that all of the indicators of religious and/or spiritual experience were endorsed by substantial numbers of respondents, that the items formed reliable indices within domains, that the indices were moderately but most not highly correlated with each other, and that they had the expected relationships with other measures of the concepts. Overall, the instrument has the appropriate characteristics of reliability and validity to be used in further research.

There are limitations to the analysis, however. One weakness of the instrument is the relatively small number of items for each domain; scores may be less stable and more prone to measurement error than those from longer scales. The consequence, however, is that this relatively brief instrument contains many potentially relevant domains. A second limitation is that some of the scales overlap more than some investigators would like. The high pairwise correlations between the

TABLE 5
Age and Sex Differences for National Institue on Aging/Fetzer Scales, 1998 General Social Survey

	Mean for Age			*Mean for Sex*			
	Younger Than 65	p *for* t *Test of Difference*	*Older than 65*	*Male*	p *for* t *Test of Difference*	*Female*	F *Value for Age, Adjusted for Sex*
Public religious activities	–.04	**	.17	–.11	***	.08	13.02 ***
Private religious activities	–.04	***	.24	–.14	***	.12	35.44 ***
Congregation benefits	3.24		3.20	3.19		3.25	1.35
Congregation problems	3.58		3.62	3.53	*	3.63	3.02
Positive religious coping	2.57	**	2.77	2.40	***	2.76	13.45 ***
Negative religious coping	1.25	*	1.18	1.25		1.23	26.84 ***
Religious intensity	2.66	**	2.82	2.56	***	2.79	19.11 ***
Forgiveness	3.35	*	3.44	3.27	***	3.43	11.84 ***
Daily spiritual experience	3.82	***	4.19	3.64	***	4.09	22.51 ***
Beliefs and values	–.01	*	.11	–.11	***	.10	8.31 **
Life-changing religious experience	.41	***	.29	.40		.38	3.12
Giving-to-income ratio	.01	***	.03	.01		.02	45.22 ***

*$p < .05$. **$p < .01$. ***$p < .001$.

Daily Spiritual Experiences scale and three others (Positive Religious Coping, Private Religious Practices, and Religious Intensity) show strong correspondences between very different indicators, some of which tap behaviors, some of which tap perceptions, and others that tap cognitive processes. Moreover, the Daily Spiritual Experiences scale was intended to emphasize nontraditional, noninstitutionalized spiritual feelings, by contrast with the more traditionally religious language of the other three scales. The relatively high correlations between the two may offer investigators the opportunity to select among those measures that are most appropriate for the population under study. A third limitation is that although there is a theoretical basis for the relationship of each domain to health, the empirical relationships for these measures are still untested; the GSS contains little data on health. Moreover, the cross-sectional nature of the GSS data could provide misleading results that primarily reflect selection processes rather than causal relationships. A fourth and very significant limitation is that although the GSS data represent the nation's religious diversity as a whole, there are insufficient numbers of the small but important groups of non-Judeo-Christians in the United States for whom this instrument may be less relevant.

The goal of the working group project was to develop a set of items and scales that could be used freely, as a whole or in part, by other researchers to suit the objectives of their own studies of religion and health. The GSS data reported in this article are also publicly available for further research. Systematic research on religion and health is only at a beginning stage. The complexity of the construct and the large number of potential mechanisms at work will require a very large number of studies in different settings, with different populations of patients and healthy respondents of different ages, before a clear picture can emerge of what the important domains and mechanisms really are. As a group, the authors have no interest in promoting the use of these items other than to foster research in a field we collectively consider very important. Nor do we expect that researchers will be equally interested in all of the domains we have identified. This presentation of the conceptual basis and descriptive characteristics of the instrument is only a small, early step toward understanding the complex religion-health relationship, with its probable multiple pathways and differences by population subgroup.

Gerontology as a field has always been comparatively friendly to research in religion and health. One reason for this may be that its interdisciplinary nature is founded on respect and mutually supportive relations between disciplines that have different approaches to research, training, and fields of study. But the other reason, which this new survey underscores, is that religion continues to be very important in the lives of elderly Americans. If all aspects of the lives of elderly people are important for gerontological research, it would be hard to leave out such a key social institution or this central facet of identity for so many. Likewise the strong beliefs derived from religious teachings about the end of life and after. Future cohorts may or may not attain the high levels of religious participation and beliefs that the current cohort of elderly Americans report, but the importance of religion in their lives is still understudied, and its connection with health still a nascent field. The development of better instruments for measuring the multiple domains of this complex phenomenon will contribute to the understanding of religion as a psychosocial factor in health in populations of all ages, but the contribution may be greatest in gerontology, where this resource is found so widely. The development of a multidimensional instrument is merely a start, but it is a necessary first step to the broad program of research that will be required if we are to understand the heretofore largely overlooked role of religion and spirituality in health.

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