Changes in Religiousness and Spirituality Attributed to HIV/AIDS

Are There Sex and Race Differences?

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BACKGROUND/OBJECTIVE: Having a serious illness such as HIV/AIDS raises existential issues, which are potentially manifested as changes in religiousness and spirituality. The objective of this study was (1) to describe changes in religiousness and spirituality of people with HIV/AIDS, and (2) to determine if these changes differed by sex and race.

METHODS: Three-hundred and forty-seven adults with HIV/AIDS from 4 sites were asked demographic, clinical, and religious/spiritual questions. Six religious/spiritual questions assessed personal and social domains of religiousness and spirituality.

RESULTS: Eighty-eight participants (25%) reported being “more religious” and 142 (41%) reported being “more spiritual” since being diagnosed with HIV/AIDS. Approximately 1 in 4 participants also reported that they felt more alienated by a religious group since their HIV/AIDS diagnosis and approximately 1 in 10 reported changing their place of religious worship because of HIV/AIDS. A total of 174 participants (50%) believed that their religiousness/spirituality helped them live longer. Fewer Caucasians than African Americans reported becoming more spiritual since their HIV/AIDS diagnosis (37% vs 52%, respectively; $P < .015$), more Caucasians than African Americans felt alienated from religious communities (44% vs 21%, respectively; $P < .001$), and fewer Caucasians than African Americans believed that their religiousness/spirituality helped them live longer (41% vs 68% respectively; $P < .001$). There were no significantly different reported changes in religious and spiritual experiences by sex.

CONCLUSIONS: Many participants report having become more spiritual or religious since contracting HIV/AIDS, though many have felt alienated by a religious group—some to the point of changing their place of worship. Clinicians conducting spiritual assessments should be aware that changes in religious and spiritual

experiences attributed to HIV/AIDS might differ between Caucasian and African Americans.

KEY WORDS: HIV/AIDS; religion; spirituality; coping; chronic illness.

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Affliction with life-threatening illnesses raises existential issues.^{1–5} Such issues are exemplified in people with HIV/AIDS, many of whom may grapple with questions such as: “Why me?”; “Will my life end prematurely?”; “What is really most important in my life?”; and/or “What kind of God would do this to me?”^{6–8} Many people with HIV/AIDS will seek transcendence over or a greater understanding of these illness-related questions through religious and/or spiritual means,^{7,9–11} whereby “religious means” typically refer to behaviors such as attendance at religious services or prayer, and “spiritual means” typically refer to broader concepts of achieving meaning and purpose in life.^{12,13}

Such religiousness and/or spirituality would be solely of ethnographic interest if it were not for the fact that high levels of religiousness and spirituality in people with HIV/AIDS have been associated with numerous improved health outcomes,^{9,14} and that recent evidence suggests that patients with “spiritual struggles” are at risk for poor outcomes.⁹ Consequently, knowing more about the changes in religiousness and spirituality that people with HIV/AIDS perceive to be attributable to HIV/AIDS itself may inform efforts to include spiritual assessments in clinical interactions with patients with HIV/AIDS, assessments that not only have clinical implications but also are required for all inpatients by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) standards.¹⁵ Information on spiritual and religious change related to HIV/AIDS could shed light on what types of questions providers of people with HIV/AIDS should ask in meeting these requirements.

As an HIV/AIDS diagnosis carries with it unique stigma and prejudice,¹⁶ general measures of spirituality, while useful to compare across disease populations, do not tap into the unique experiences of people with HIV/AIDS with regards to potential changes in their religiousness and spirituality. As a result, we proposed in this study: (1) to describe the changes in religiousness and spirituality in people with HIV/AIDS that they perceive to be attributable to their HIV/AIDS diagnosis;

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and, as such perceived changes are likely to vary within the HIV/AIDS population by sociodemographic characteristics, (2) to determine if these perceived changes differ by sex and race. We hypothesized that the majority of participants would perceive themselves to have experienced changes in their religiousness and/or spirituality since being diagnosed with HIV/AIDS, and that changes would differ by race and sex. Specifically, we speculated that women and African Americans would report more religiousness and spirituality since their HIV/AIDS diagnosis and greater belief that their religious/spiritual beliefs had lengthened their life than men and Caucasians, respectively.

METHODS

Participants

Between February 2002 and February 2003, 450 outpatients at various stages of HIV/AIDS were recruited into a longitudinal study from the University of Cincinnati Medical Center and the Cincinnati Veterans Affairs (VA) Medical Center, Cincinnati, OH; George Washington University Medical Center, Washington, DC; and the VA Pittsburgh Healthcare System, Pittsburgh, PA. Patients were made aware of the study by the following methods: (1) by posted fliers at the clinics, (2) by telephone calls from clinic nurses, and (3) by patients' physicians or nurses at patients' regularly scheduled visits. In order to recruit patients who were demographically representative of outpatients followed at each of these medical centers' HIV/AIDS clinics, we recruited women and minorities from each medical center-specific HIV/AIDS clinic to be proportional to their representation at each medical center-specific HIV/AIDS clinic. The current analyses are based on data obtained by trained interviewers from 347 of the baseline participants who returned for a second follow-up interview.

The 347 follow-up participants were more likely to have a viral load below detectable levels (≤ 400 copies/mL), to be Caucasian, and to have more health disclosure worries than the 450 baseline participants. Otherwise, there were no significant demographic, clinical, or psychosocial differences between baseline and follow-up participants.

Participants received \$30 at the interview's end. Institutional review boards from each participating site approved the study and all participants provided informed consent.

Measure

Demographic and Clinical Variables. Demographic and clinical data were collected from interviews and from chart reviews. Demographic data included age, sex, race, sexual orientation, marital status, number of children, health insurance status, education level, employment status, and housing status. Clinical data included year diagnosed with HIV/AIDS; CD4 cell count; viral load; use of injection drugs and alcohol; and receipt of highly active antiretroviral therapy (HAART). Religious affiliation was assessed by asking "What is your religious preference?"

Development of Religious and Spiritual Variables. Six questions that assess personal and social aspects of potential religious and spiritual changes in people with HIV/AIDS were developed via an iterative process using mixed methods (Table 1). Initially, 10 items were developed by members of our research

team (S.N.S., J.T., W.C.H., J.F.) to assess the perceptions of people with HIV/AIDS regarding the level of acceptance they felt from their faith community, and how they thought the religious hierarchy of their own and other faith traditions felt toward people with HIV/AIDS. Initial questions ranged in scope from "Currently, my religion is supportive of me as a person with HIV/AIDS" and "Clergy from my religion, such as ministers, priests, or rabbis, say that HIV/AIDS is a punishment from God" to "People in religious communities other than mine, in general, condemn people with HIV/AIDS." A 5-point Likert scale agreement response option was provided (with "neither agree nor disagree" as the midpoint), along with a "not applicable" option.

We then conducted cognitive interviews¹⁷—also referred to as think-aloud interviews—with 10 participants recruited from 1 city using those initial 10 items. Cognitive interviewing is a questioning technique often used when testing an early version of a questionnaire draft on a small number of individuals, who are asked to read each question aloud, answer each question aloud, and describe aloud everything they are thinking in regards to each question and response option. The purpose of cognitive interviewing is to capture information about how participants comprehend questions, retrieve answers, and formulate their answers to fit the response options in order to refine the questionnaire.

In the cognitive interviews, many of the 10 individuals indicated that when given the option to choose "not applicable," they were less likely to force themselves to choose another answer option because: (1) their religious affiliations had changed dramatically since having HIV/AIDS, (2) they had changed from being primarily religious to being primarily spiritual, and/or (3) they had other religious and/or spiritual changes that occurred as a result of having HIV/AIDS, such that the questions were not as relevant to them. We subsequently pretested the 10 items, removing the "not applicable" option and discovered that the patterns of responses in a pretest sample of 122 participants who completed the initial set of questions supported earlier reports from the cognitive interviewees, with over one-third of the respondents choosing the "neither agree nor disagree" option.

Given that reported religious and spiritual changes associated with having HIV/AIDS appeared to be so common—among those who considered themselves to be spiritual or religious—we completely revised the questions with the intent of allowing future description of these apparent religious/spiritual changes attributed to HIV/AIDS diagnosis. Six new items were thus developed using the qualitative and quantitative data of the 132 individuals from the pretesting process (10 cognitive interviewees and 122 participants who filled out the initial 10-item version). These 6 questions were rewritten to assess the personal and social aspects of changes in religiousness and spirituality of people with HIV/AIDS (Table 1). We chose our response options to allow a characterization of whether change had occurred and, if so, how, and included a response option stating that the question was not relevant because the respondent was not religious, not spiritual, and/or did not belong to a faith community.

Based on our pretesting experience, we did not anticipate that these 6 questions could easily be conceptualized as a dimensional scale (in the psychometric sense), but rather we thought of them as describing the religious and spiritual changes people with HIV/AIDS attributed to their diagnosis.

Table 1. Change in Religious/Spiritual Experiences Attributable to HIV/AIDS Item Responses

1. Do you feel that you are more spiritual, less spiritual or equally spiritual as you were before you were diagnosed? (circle 1 answer below)	
a. More spiritual	142 (41%)
b. Less spiritual	33 (10%)
c. Equally spiritual	140 (40%)
d. I've never been spiritual	32 (9%)
2. Do you feel that you are more religious, less religious or equally religious as you were before your diagnosis? (circle 1 answer below)	
a. More religious	88 (25%)
b. Less religious	60 (17%)
c. Equally religious	153 (44%)
d. I've never been religious	46 (13%)
3. Has your HIV diagnosis ever caused you to feel alienated from or less welcomed by any religious group? (circle 1 answer below)	
a. Yes	84 (24%)
b. No	174 (50%)
c. I'm not involved with any religious group	89 (26%)
4. Has your HIV diagnosis ever caused you to feel more welcomed by any religious group? (circle 1 answer below)	
a. Yes	48 (14%)
b. No	208 (60%)
c. I'm not involved with any religious group	91 (26%)
5. Since being diagnosed with HIV, have any specific experiences caused you to change your place of worship within the same religious group? (circle 1 answer below)	
a. Yes	36 (10%)
b. No	212 (61%)
c. I'm not involved with any religious group	99 (29%)
6. Do you think that your spiritual or religious beliefs have lengthened your life or helped you live longer? (circle 1 answer below)	
a. Yes	174 (50%)
b. No	53 (15%)
c. Don't know	95 (27%)
d. I don't have spiritual or religious beliefs	25 (7%)

The 6 items assess: recalled changes in spirituality (1 item) and religiousness (1 item) from before to after HIV/AIDS diagnosis; alienation from places of worship as a result of having HIV/AIDS (3 items); and perceived role of spirituality/religiousness on one's prognosis (1 item). We once again conducted cognitive interviews to test these 6 items and found that participants perceived the items as having both face and content validity.

Statistical Analyses

We calculated frequencies of responses (including cross-tabulations) for the 6 changes in religiousness/spirituality questions. Participants whose race was neither Caucasian nor African American were excluded from the race analyses because of the small number of such participants.

If a significant bivariate association between sex and any item and/or race and any item existed, the relationship(s) between sex and/or race and the particular item(s) was modeled using logistic regression for a dichotomous outcome (in the case of items 3 through 6) and/or ordinal logistic regression for ordered categorical outcomes (in the case of items 1 and 2). For each regression analysis, those participants who answered "I've never been religious/spiritual," "I'm not involved with any religious group," or "I don't have spiritual or religious beliefs," were excluded, because we considered these responses

as not being in the "risk set" for having potential changes in religiousness and spirituality. Because choosing one of these options in 1 item did not necessitate choosing it in another item, the participants retained across the different regressions potentially were different.

In order to address whether the different sets of retained participants across item-specific models limited the ability to make comparisons across item-specific regressions, we assessed descriptive statistics for covariates (see below) from each regression. We compared them with those for the total sample using a 10% difference as the threshold for which a potentially significant difference in the retention set (vs total sample) was indicated.

In addition, we constructed a set of augmented regressions constructed as follows: for each of the 6 models, we constructed 5 pairs of additional models, with each pair controlling for whether participants were included in the regression of each one of the other 5 items. In each pair of augmented models, 1 model included whether each participant was included in the other item's regression as a main effect, while the second model included that main effect and its interaction with sex and/or race. So, for example, the regression for item #1 was augmented first with a variable that indicated whether each participant was retained in the regression for item #2; and augmented next with that retention-variable along with an interaction term for the retention-variable $\times$ sex or retention-variable $\times$ race. We were particularly interested in whether there were any significant interaction terms.

All models included a set of covariates that acted as proxies for socioeconomic status (SES; education level, housing status, and employment status) and for disease severity (CD4 cell count, viral load, and years since diagnosis). The purpose of the additional covariates was to adjust any sex and/or race effects for variables reported in the literature (SES) or considered theoretically (disease severity) to confound the estimate of the effect for sex and/or race.¹²

Education level was defined as "high school only" or "beyond high school"; employment status was defined as "not working" versus "working full- or part-time"; and housing status was defined as "unstable" (transient, living in a shelter, homeless, or other) versus "stable" (owning, renting, or living with parents/friends). Because these additional covariates were included simply to control for their joint effect on the main variables of interest (i.e., sex and race), they were all left in the final models regardless of individual significance levels in those final models.

A P -value $\leq .05$ was used as the cutoff for significance on all statistical tests. All analyses were performed using SPSS, version 13.0 or SAS, version 9.1.

RESULTS

A total of 302 (87%) participants were male and 159 (48%) were African American (Table 2). The mean (SD) age of participants was 44.8 (8.3) years and the mean (SD) time since HIV diagnosis was 9.5 (5.2) years. Other characteristics not in the table include 280 (80%) participants having reported a religious preference, with the most common affiliations being Baptist (21%) and Roman Catholic (15%). Two-thirds of participants were gay/bisexual; 71% were single; and most (69%) did not have children.

Table 2. Characteristics of Total Sample Compared with Characteristics of Participants Included in Each Item-Specific Regression

Variables	Total Sample	"Personal" Religious/Spiritual Items			"Social" Religious/Spiritual Items		
		More Spiritual	More Religious	Life Lengthened	Less Welcomed	More Welcomed	Changed Place
Race (%)							
African American	48	49	50	54*	51	49	54
Caucasian	52	51	50	46	49	51	46
Sex (%)							
Women	13	13	13	14	14	15	15
Men	87	87	87	86	86	85	85
Education level (%)							
High school only	42	43	44	44	42	42	44
Beyond high school	59	57	56	56	58	58	56
Employment status (%)							
Not working	51	51	51	55	50	50	51
Working full- or part-time	49	49	49	45	50	50	49
Housing status (%)							
Unstable housing	5	6	6	5	7	7	7
Stable housing	95	94	94	95	93	93	93
CD4 cell count, mean (SD)	440 (310)	438 (318)	435 (321)	449 (330)	457 (332)	457 (332)	455 (336)
Viral load (%)							
≤ 400 copies/mL	59	60	59	58	59	60	59
> 400 copies/mL	41	40	41	42	41	40	41
Years since diagnosis, mean (SD)	9.52 (5.23)	9.55 (5.27)	9.55 (5.26)	9.78 (5.15)	9.44 (5.11)	9.31 (5.14)	9.41 (5.08)
Number of participants	347	297	282	212	241	240	232

**Bold values indicate those subgroups for which there is a 10% characteristic-specific difference between the total sample and the retention set (for the item-specific regressions).*

In only a few instances were there differences (at the 10% threshold) between the participant characteristics for the sample as a whole and those for each of the item-specific regressions (Table 2). Of 48 instances where differences could have existed, only 7 (15%) variables indicated a difference, and then for only one of the subgroups of the covariate and to a degree that was minimally more than the 10% threshold. Furthermore, of all the follow-up augmented models completed to test for whether retention-related interaction terms were significant, only one of 30 (3%) of the interaction terms (retention-variable $\times$ race) was significant (Table 3, last footnote), indicating a minimal impact on the results resulting from differences in subject characteristics from model to model.

"Personal" Religious and Spiritual Items

One hundred forty-two participants (41%) said they were more, 140 (40%) were equally, and 33 (10%) were less spiritual now than before their HIV/AIDS diagnosis; 32 (9%) said they were never spiritual (Table 1). Men's and women's reports about changes in spirituality attributable to HIV/AIDS were not significantly different. A smaller proportion of Caucasians than African Americans reported becoming more spiritual since their HIV/AIDS diagnosis (37% vs 52%, respectively; odds ratio [OR] = 0.58, confidence interval [CI] = 0.38 to 0.90, $P < .015$), a difference that increased after adjustment for the variables noted in Table 3 (adjusted odds ratio [AOR] = 0.55, CI = 0.34 to 0.88, $P = .01$).

Eighty-eight participants (25%) said they were more, 153 (44%) were equally, and 60 (17%) were less religious now than before their HIV/AIDS diagnosis; 46 (13%) said that they were never religious (Table 1). There were no significantly different changes in religiousness attributable to HIV/AIDS by sex or race.

Eighty-two participants (24%) indicated they were both more spiritual and more religious since their HIV/AIDS diagnosis; 22 (6%) reported being more spiritual but less religious; and only 1 participant (<1%) reported being more religious but less spiritual.

One hundred and seventy-four (50%) participants believed that their religiousness and/or spirituality had lengthened their life. Beliefs about whether religious/spiritual beliefs lengthened their life did not differ significantly by sex. However, fewer Caucasians than African Americans believed in the salutary effect of religion/spirituality on their longevity (41% vs 68%, respectively; OR = 0.27, CI = 0.13 to 0.52, $P < .001$), a difference that increased after adjustment (AOR = 0.17, CI = 0.08 to 0.39, $P < .001$).

"Social" Religious and Spiritual Items

Eighty-four participants (24%) reported that their HIV/AIDS diagnosis made them feel alienated from or less welcome by a religious group; 174 (50%) reported never having felt alienated. Rates of alienation did not differ significantly by sex. Caucasians felt alienated from religious communities more commonly than did African Americans (44% vs 21%, respectively; OR = 2.85, CI = 1.63 to 4.98, $P < .001$), a difference that increased after adjustment (AOR = 3.04, CI = 1.63 to 5.61, $P < .001$).

Forty-eight (14%) participants actually felt more welcomed by a religious group owing to their HIV/AIDS diagnosis; 208 (60%) participants did not believe this to be the case. Item response frequencies regarding feeling welcomed by a religious group did not differ significantly based on sex or race.

Thirty-six (10%) participants reported that specific experiences since being diagnosed with HIV/AIDS had caused them to change their place of worship; 212 (61%) reported no such change. Ninety-nine participants (29%) reported that they

Table 3. Odds Ratios for Variables from Each Item-Specific Regression

Variables*	"Personal" Religious/Spiritual Items			"Social" Religious/Spiritual Items		
	More Spiritual [†]	More Religious [‡]	Life Lengthened [‡]	Less Welcomed [‡]	More Welcomed [‡]	Changed Place [‡]
Caucasian	0.55 (.01)	0.75 (.23)	0.17 (<.001)	3.04 (<.001)	0.78 (.49)	1.37 (.43)
Beyond high school	1.51 (.10)	1.08 (.75)	2.66 (.12)	1.37 (.33)	1.04 (.92)	1.08 (.85)
Working full- or part-time	0.72 (.17)	0.66 (.08)	0.91 (.80)	0.60 (.10)	0.57 (.12)	0.57 (.16)
Stable housing	0.38 (.07)	0.78 (.61)	0.88 (.89)	0.67 (.51)	0.25 (.02)	0.81 (.77)
Log CD4 cells [§]	0.98 (.86)	0.91 (.41)	1.17 (.33)	0.95 (.72)	0.97 (.85)	0.79 (.14)
>400 copies/mL	0.95 (.84)	1.15 (.58)	0.46 (.05)	1.13 (.70)	0.84 (.65)	0.84 (.69)
Years since diagnosis [‡]	1.08 (.001)	1.04 (.07)	1.10 (.01)	1.02 (.61)	1.05 (.13)	0.97 (.45)
C-statistic [§]	0.64	0.60 [†]	0.76	0.67	0.63	0.65

*Comparison subgroups for each row, above, are the first subgroup under each variable shown in Table 2.

[†]Value in parentheses is P-value for variable from item-specific regression; bold values are those that meet a P-value threshold of $\leq .05$.

[‡]Odds ratios for log CD4 cells and years since diagnosis are for each variable's unit of change (log CD4 cell and year, respectively).

[§]The C-statistic is a measure of the model's discrimination, equivalent mathematically to the area under the receiver operating characteristic curve.

[†]For all the augmented models completed to test for whether retention/nonretention in other item-specific models influenced a particular item-specific model, only one of the 30 interaction terms (retention-variable $\times$ race) was significant at $P \leq .05$ —that for the "More Religious" model when augmented by the retention $\times$ race term based on the "Less Welcomed" item. Whether or not a Caucasian participant was included in the "Less Welcomed" regression had no effect on his/her "More Religious" response, whereas if an African American participant was included in the "Less Welcomed" regression, s/he was more likely to be more religious than if an African-American participant was not included in the "Less Welcomed" regression.

were not involved with a religious group. No significant sex or race differences were associated with having changed places of worship.

Adjusted analyses indicated that years-since-diagnosis was associated with 3 of the 6 changes in religiousness/spirituality items. Specifically, there was a significantly associated increase in spirituality, religiousness, and thinking that beliefs had lengthened life for each year since diagnosis (OR=1.08, $P=.001$; OR=1.04, $P=.07$; and OR=1.10, $P=.01$, respectively).

DISCUSSION

The primary purpose of this study was to describe the changes in religiousness and spirituality that people with HIV/AIDS may attribute to HIV/AIDS—that is, whether people with HIV/AIDS reported themselves to be less, more, or equally spiritual/religious than they were before their HIV/AIDS diagnosis and whether having HIV/AIDS affects their social experiences with their religious communities. In addition, given prior research supporting the heightened importance of religion/spirituality in both the African American (vs Caucasian) community^{18,19} and in women (vs men),^{12,20} we were interested in whether reported changes in religiousness/spirituality differed by sex and race.

Two-fifths of participants reported that their religiousness/spirituality had remained unchanged. Another two-fifths of the sample reported greater levels of spirituality than before they were diagnosed—especially African Americans (52% of African Americans vs 37% of Caucasians). One-fifth reported being "less religious or spiritual" than before their diagnosis. All these changes could have implications on quality of life.^{1,2} For example, it is possible the less religious/spiritual subgroup may be experiencing spiritual struggle (i.e., feeling that God has abandoned them or punished them with their illness). Future work should clarify this possibility and whether it impacts on clinical care and quality of life outcomes. If so, such future work should assess whether an intervention by a religious or mental health professional or support group is beneficial.²¹ Until then, given the large numbers of participants with HIV/AIDS reporting changes in their religiousness/spir-

ituality since their diagnosis, and given the evidence linking religiousness/spirituality (both positively and negatively) to health outcomes, these data support the importance of addressing patients' religious/spiritual experiences during the clinical encounter.

Of particular interest was the finding that half of the participants believed that their religiousness/spirituality had lengthened their life or helped them live longer and that these findings differed by race: 68% of African Americans endorsed this item as compared with 41% of Caucasians. Believing that one's faith prolongs one's life can be a helpful coping mechanism, but could be detrimental if the patient believes that their future is entirely in God's hands and that they therefore do not need to take their medications. Particularly for those patients who report that their faith plays a major role in their ability to cope with HIV/AIDS, the provider should inquire further about how s/he might be most helpful in working with, rather than against, the patient's faith belief system, to support healthy adaptation to living with HIV/AIDS.

Each year since HIV/AIDS diagnosis appeared to be associated with an increase in spirituality, a possible increase in religiousness (P -value was trending toward significance), and an increase in the belief that one's religiousness/spirituality was helping to lengthen one's life—perhaps indicating a positive feedback mechanism whereby the longer someone with HIV/AIDS lives, the more likely s/he is to become more religious/spiritual, which in turn leads to a greater likelihood that one's long life will be attributed to (change in) religiousness/spirituality. Our recommendation that providers support healthy approaches to adapting to life with HIV/AIDS vis-a-vis religiousness/spirituality may be particularly appropriate, then, for those religious and/or spiritual patients who have lived longer with HIV/AIDS.

About a quarter of participants reported not being involved with any religious group at all. Religious congregations are often reported as integral sources of social support by patients with a chronic illness.^{9,22} If religious congregations are not used as a source of social support for up to a quarter of our patients, one might want to assess whether alternate social support systems exist.

One-fourth of participants had belonged to a religious community but felt alienated from it, perhaps because of the stigma associated with being HIV-positive and/or with homosexuality, sexual promiscuity, and injection drug use. Some who had had negative HIV/AIDS-related religious experiences reported actually having changed their place of religious worship. These findings highlight the wide variety of experiences of people with HIV/AIDS with regards to their religious communities. In general, awareness on the part of the provider that some people with HIV/AIDS experience difficulties with their religious communities (i.e., feel ostracized or disconnected) again informs providers of the potential absence of an important social support network for some people with HIV/AIDS.

Findings from our study identify issues specific to HIV/AIDS patient populations that should be included in spiritual assessments in the clinical setting. For example, given the unique issues of risk factors, ostracism, and stigma associated with being HIV-positive,¹⁶ our data suggest that many people with HIV/AIDS may feel ostracized from their faith communities. Understanding the primary importance of social support for patients with a chronic illness,²³ and that spiritual struggles are associated with poorer outcomes for patients,⁹ clinicians should inquire about their patient's experiences with their faith communities as a way to determine the larger picture of a patient's social support, coping strategies, and potential struggles that might need to be addressed because they could have an effect on clinical care. For example, if a patient with HIV/AIDS indicates a specific religious struggle during a clinical encounter (i.e., 24% of our sample indicated feeling alienated from their religious group), a provider could refer the patient to clergy or to a mental health provider to help the patient discuss their conflict(s).

Given JCAHO requirements to assess the spiritual needs of hospitalized patients,¹⁵ this study suggests some valuable questions with which providers might initiate questions about religiousness and spirituality in their patients with HIV/AIDS: "What role, if any, do your religious/spiritual beliefs play in helping you cope with having HIV/AIDS?"; "Has your level of religiousness or spirituality changed since your diagnosis of HIV/AIDS?"; "How comfortable/welcome do you currently feel in your religious/spiritual community?"; "How do your religious/spiritual beliefs support (or hinder) you in your healing process?"; "Are you interested in any additional religious/spiritual support for your illness (i.e., other faith communities, meditation classes, etc.)?" Given that African Americans and Caucasians endorsed 3 of the 6 religious/spiritual items differently, our findings suggest paying particular importance to the role race may play in changes in religiousness and spirituality attributed to HIV/AIDS. As we found no sex differences in responses to any of the 6 items, no similar suggestions can be made about the role of sex.

This study had several limitations. The questions were asked retrospectively, so our findings relied on a participant's ability to recall how spiritual or religious s/he was before her/his diagnosis, and then report on how that has changed since being diagnosed with HIV/AIDS. We do not know the direction and magnitude of the potential recall bias on our findings.

There were a few differences between participants retained in some regressions compared with those retained in other regressions. For the most part, this was a minor issue, but it did exist to a small extent and, thus, some degree of caution is prudent when comparing across the regressions.

These minimal differences in the retention sets of one versus another regression, however, appeared to lead to almost no (3%) interaction between retention and race.

As the 6 items were not developed to assess a particular construct or constructs, we did not attempt to assess the reliability and validity of the items collectively. Assessing construct validity of these single items would be difficult to do since no other instruments assessing religious/spiritual change attributed to HIV/AIDS exist. Such validity assessment, then, would require longitudinal study of actual religiousness/spirituality of a large number of people so as to have captured information on that proportion thereof who would discover that they are HIV positive and in whom changes in religiousness/spirituality could then be plotted for before and after seroconversion—and subsequently compared with retrospective reporting using our items assessing change. This would be impractical. Thus, our items are best used for descriptive purposes only and contain the limitations inherent to these types of questions.

Although this was a multisite study, our sample represents only a specific subpopulation of people with HIV/AIDS, namely, those under care. These results may not be generalizable to other HIV/AIDS populations (i.e., those patients with HIV/AIDS in developing countries or with limited access to medications). Additional sources of error and systematic bias may have been present (i.e., the fact that only 13% of our total sample was female—given the large VA sample—could have reduced our power to find statistically significant differences between sexes).

Nevertheless, this study is one of the first to ask about change in religiousness and spirituality attributed to HIV/AIDS. Our findings suggest that the state of religiousness and spirituality in people with HIV/AIDS is dynamic, highlighting that understanding the religious and spiritual beliefs of people with HIV/AIDS is not just of peripheral interest; it is a necessary part of culturally competent holistic care. Future research should focus on understanding why African Americans and Caucasians with HIV/AIDS appear to have different change experiences with regard to spirituality and how this may inform culturally specific health promotion programs. Such research could foster interventions to improve the quality of life in and clinical care of people with HIV/AIDS.

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