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Race Differences in the Association of Spiritual Experiences and Life Satisfaction in Older Age

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Abstract

Objectives—The primary objective of this study was to examine an African American ‘faith advantage’ in life satisfaction. Specifically, we sought to test the hypothesis that the positive relationship between spiritual experiences and life satisfaction is stronger among older African Americans than among older Whites.

Method—The data came from 6,864 community-dwelling persons aged 65+ (66% African American) who participated in the Chicago Health and Aging Project. Life satisfaction was measured using a five-item composite and we used a five-item version of the Daily Spiritual Experiences scale.

Results—In a regression model adjusting for age, sex, marital status, education, income, and worship attendance, we found that African American race was associated with lower life satisfaction. We also found a positive association between spiritual experiences and life satisfaction. In an additional model, a significant race $\times$ spiritual experiences interaction term indicates that spiritual experiences are more positively associated with life satisfaction among African Americans.

Conclusion—The data suggest that at higher levels of spiritual experiences, racial differences in life satisfaction are virtually non-existent. However, at lower levels of spiritual experiences, older African Americans show modestly lower levels of life satisfaction than do older Whites. This pattern suggests that spiritual experiences are a positive resource - distinct from worship attendance- that enable older African Americans to overcome decrements in life satisfaction and in

fact, that lower spiritual experiences may be especially harmful for older African American's life satisfaction.

Keywords

spirituality; well-being; race/ethnicity

Introduction

Most of the African American-White comparative research has focused on indicators of negative affect and negative well-being. There has been much less focus on positive aspects of well-being, especially in older adults. In this study, we sought to examine an African American 'faith advantage' in life satisfaction.

The literature on race/ethnic health disparities is replete with evidence documenting the disproportionate disadvantages experienced by African Americans relative to Whites (Barnes et al., 2004a, 2004b; Cohen, 2003; U.S. DHHS, 2000, 2001). It has been widely reported that compared with non-Hispanic Whites, regardless of age, African Americans experience worse: physical health status (Binstock & George, 2001; Levine et al., 2001; Mendes de Leon et al., 2005; U.S. DHHS, 2000), mental health status (Jackson-Triche et al., 2000; Skarupski et al., 2005; Woody & Green, 2001), and diminished quality of life, including life-space mobility (Allman et al., 2004; Ibrahim et al., 2002; Jackson-Triche et al., 2000; Skarupski et al., 2007). However, we know much less about possible advantages or protective factors experienced by African Americans relative to Whites.

Life Satisfaction is an important, under-researched positive perception of well-being. Life satisfaction is the cognitive evaluation of one's life as a whole (Diener, 1994), or more specifically, the fit between the desired goals in life and the actual outcome of one's life (Krause, 2004). Life satisfaction is important because it represents the subjective appraisal of one's life—an indicator of overall life quality (George, 2002) above and beyond objective indicators of health. For example, although most older adults have at least one chronic health condition and over 20% live with a chronic disability (Manton & Gu, 2001), older adults generally rate their quality of life as positive (Berg et al., 2009a; Koch, 2000).

Religiosity/Spirituality (R/S) is one of many factors known to be associated with life satisfaction (Beutel et al., 2009; Elliott & Hayward, 2009). Furthermore, R/S, and especially the Black Church, play an important role in the life of African Americans, particularly older African Americans (Taylor, Chatters, & Levin, 2004). There is extensive evidence that African Americans have higher levels of religiosity than Whites, reporting more frequent prayer, worship service attendance, Bible study, a stronger commitment to religious beliefs, more orthodox theological views, and a higher level of feeling "close to God" (Baylor Institute for Studies of Religion, 2006; Fitchett et al., 2007; Idler et al., 2003; Idler, 2006; Krause, 2002, 2003, 2005; Pew Forum on Religion & Public Life, 2008). We also recently reported that older African Americans report higher levels of spiritual experiences than their White counterparts (Skarupski et al., 2010).

Although R/S may serve as potential buffers to the negative effects of social disadvantage against poor physical and mental health outcomes (Schieman, Bierman, & Ellison, 2010), the degree to which R/S may contribute to more positive perceptions of well-being has not been widely studied (see George et al., 2013 for a recent editorial). We are aware of only two nationwide studies that have examined race differences in general well-being, life satisfaction, and religion and neither was conducted in an older population. St. George and McNamara (1984) examined African American-White differences in psychological well-being using data from the 1972–1982 National Opinion Research Center, General Social Survey. They found that religion was a stronger predictor of well-being for African Americans than for Whites. Thomas and Holmes (1992) examined African American-White differences in life satisfaction using data from the Quality of American Life survey in the 1970s. They found that African American women reported the lowest satisfaction among gender and race groups and they also found that religion was more important for African Americans and that socioeconomic status was more important for Whites in producing satisfaction. These findings are consistent with Krause's description of differential effects of religious involvement (2002). However, the evidence for differential racial effects for religious involvement is mixed (Fitchett et al., 2013; Musick et al, 1998) and the role of spirituality in the race-life satisfaction association in older age in particular is less well understood.

In light of this literature, we tested the following sequence of hypotheses: 1) older African Americans have, on average, lower life satisfaction than Whites; 2) greater spiritual experiences are associated with increased life satisfaction; and 3) the positive relationship between spiritual experiences and life satisfaction is stronger among older African Americans than among older Whites.

Methods

Participants

The data for this study come from the Chicago Health and Aging Project (CHAP) which is a longitudinal, bi-racial (62% African American in the original cohort), population-based study of risk factors for incident Alzheimer Disease and other age-related chronic conditions among community-dwelling residents age 65 and older. A complete census of three contiguous neighborhoods on the South Side of Chicago resulted in a total of 6,158 residents who participated in the baseline survey conducted from 1993 to 1997 (response rate of 78.9%). Details of study procedure have been provided elsewhere (Bienias, Beckett, Bennett, Wilson, & Evans, 2003); essentially, assessments are conducted at approximately 3-year intervals. For this analysis, participant data are from two interview cycles: the life satisfaction questions were asked in cycle 2 (1997–1999) for the original cohort and the daily spiritual experiences questions were asked in cycle 3 (2000–2002) for the original cohort. However, two modifications have been made to the composition of the original CHAP cohort: 1) successive age cohorts have been enrolled as community residents reach 65 years of age to ensure that the cohort does not become increasingly older and smaller; and 2) a supplemental cohort of residents age 65+ from an adjacent neighborhood has been enrolled to add more older Whites in order to reduce the racial imbalance in the cohort.

Hence, we also included the life satisfaction and daily spiritual experiences items from the baseline participant data for these supplemental cohort participants (n=706) who joined the study between 2000 and 2005, resulting in a final analytic sample size of 6,864. All data were collected in the participants' homes by trained interviewers. The Institutional Review Board of Rush University Medical Center approved the study and all participants provided written, informed consent.

Measures

Life Satisfaction—A five-item life satisfaction measure was assembled based on items created by Ironson et al. (1995) and Neugarten, Havighurst, & Tobin (1961). Participants were asked to indicate how much they agreed with the following statements: (1) I am just as happy as when I was younger; (2) As I look back on my life, I am fairly well satisfied; (3) I have regular contact with someone I enjoy spending time with; (4) These are the best years of my life; and (5) I have work or an activity I enjoy doing on a regular basis (1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree). The five items were reverse-coded so that higher scores reflect greater life satisfaction and then averaged into a composite life satisfaction score; calculation of the composite score required at least four of the five items to be non-missing. The Cronbach's alpha of the 5-item life satisfaction measure was 0.76 and only 2.1% of the values for the life satisfaction composite were missing.

Religion/Spirituality—The Daily Spiritual Experiences Scale (DSES) was designed to measure this experiential dimension of R/S (Underwood, 2006; Underwood & Teresi 2002). A five-item version of the DSES was used in the in-home CHAP interviews. Participants were asked how often they: feel God's presence; find comfort in my religion or spirituality; feel deep inner peace or harmony; feel God's love for me directly; and desire to be closer to God or in union with him (1 = many times a day, 2 = everyday, 3 = most days, 4 = some days, 5 = once in a while, or 6 = never or almost never). The five items were reverse-coded so that higher scores reflect greater daily spiritual experiences and then averaged into a composite DSES score; calculation of the composite score required at least four of the five items to be non-missing. The psychometric properties have been well-established (Idler et al., 2003; Underwood & Teresi, 2002) and validated in a sample of African Americans (Loustalot, Wyatt, Boss, & McDyess, 2006). The Cronbach's alpha of the 5-item DSES scale was 0.91 and only 2.6% of the values for the DSES composite were missing.

We measured worship attendance by a single item: "How often do you go to religious services?" (every day/almost every day, several times a week, several times a month, several times a year, and once a year or less). The item was recoded into three groups: very frequent worship attendance (every day/almost every day and several times a week), frequent (several times a month), and infrequent worship attendance (several times a year and once a year or less).

Sociodemographic/covariates: Included in the analyses were: race (Non-Hispanic White, Non-Hispanic African American), age, sex, marital status (married, widowed, divorced, separated, never married), years of education (less than high school, high school graduate, or

more than high school), and yearly personal income (low [$<US\$15,000$], mid-range [$US\$15,000–29,999$], and high [$>US\$30,000$]; 14% of income data are missing).

Analysis

For our bivariate analyses comparing differences by race, we used: (1) t-tests for age, education, and life satisfaction, (2) chi squared tests for sex, marital status, income groups, and worship attendance, and (3) the Wilcoxon rank sum test for spiritual experiences. We examined our hypotheses using a series of ordinary least squares regression models. Our first model tested African American-White differences in life satisfaction by regressing life satisfaction on race, age, sex, marital status, education, income, worship attendance, and an age $\times$ sex interaction term. We tested for interaction effects between all the sociodemographic factors and only retained significant terms in subsequent models. In our second model, we added spiritual experiences. In our final model, we examined the interaction between spiritual experiences and race to test whether spiritual experiences showed a stronger positive association with life satisfaction among older African Americans than among older Whites. We used the continuous versions of the covariates age and education in the models, centering age at 75 years and education at 12 years. Marital status was modeled as a dummy variable (reference category = married), yearly personal income was modeled as an ordinal variable, and sex and race were binary variables. Worship attendance was modeled as a dummy variable (reference category = infrequent worship attendance). The exclusion criterion for the regression modeling was participants with any missing data; hence, regression models were based on 6,593 observations. Analyses were performed using SAS[®] Version 9.3 (SAS Institute Inc., 2012).

Results

The sociodemographic, daily spiritual experiences, and life satisfaction characteristics of the study participants ($N=6,864$) are shown in Table 1. The average age of the study participants was 73, and 62% were female. Half of the participants were married and about one-third were widowed. The participants averaged 12 years of education and 43% had more than a high school education. Income distribution was unequal; 60% of African Americans were in the low-income category compared to 29% of Whites ($\chi^2 (2, N = 6602) = 786.03, p = < 0.0001$). Similar proportions of Whites and African-Americans reported very frequent worship attendance; however, there were more frequent attenders among the Whites and more infrequent attenders among the African-Americans ($\chi^2 (2, N = 6862) = 36.96, p = < 0.0001$). African Americans reported slightly higher average daily spiritual experiences than Whites (median score of 5.0 vs. 4.8, respectively; $T = 7238594, p < 0.0001; H = 126.19, 1$ d.f., $p < 0.0001$); although both scores reflect high spiritual experiences in the population (median score of 5.0 out of 6.0). African Americans also reported slightly lower average life satisfaction (mean of 2.8 vs. 2.9; $t (6862) = 10.45, p < 0.0001$ respectively) than Whites.

Table 2 shows the results from the regression models. In model 1, which adjusted for age, sex, marital status, education, income, and worship attendance, we found that African American race was associated with lower life satisfaction. The main term for age represents the age effect among females, showing that older women tended to have lower levels of life

satisfaction. We also observed a significant interaction between age and sex, indicating that the negative effect of age on life satisfaction was greater among males than among females. Widowed participants had lower life satisfaction relative to their married counterparts. Both higher education and income were associated with higher life satisfaction. Participants reporting frequent and very frequent worship attendance reported higher life satisfaction than those who reported infrequent worship attendance. In model 2, we see that higher DSES scores are associated with higher levels of life satisfaction. Controlling for DSES scores, racial differences in life satisfaction increased slightly from -0.066 to -0.093 (p values < 0.001). In addition, the significant coefficient for male sex suggests that men (at age 75) have higher levels of life satisfaction than women after controlling for DSES scores. The significant age $\times$ male sex interaction term suggests that these male-female differences in life satisfaction, after accounting for DSES scores, tended to increase with age. The other associations remained relatively unchanged. In model 3, we found a significant interaction between African American race and DSES scores. The positive coefficient for the interaction term indicates that, consistent with our hypothesis, the association between spiritual experiences and life satisfaction is more positive among older African Americans ($0.034 + 0.056 = 0.090$) than among older Whites (0.056).

We used the results of this model to illustrate the predicted level of life satisfaction for African American vs. White participants at a centered age of 75, with 12 years of education, and a mid-range income level (i.e., \$15,000–\$29,999; see Figure 1). The figure shows that greater average daily spiritual experiences are associated with increased average life satisfaction scores, regardless of race. In addition, the figure shows that the slope of the predicted relationship between spiritual experiences and life satisfaction is more positive among older African Americans than Whites. As a result of this interaction, racial differences in life satisfaction are negligible at the highest levels of spirituality, but tended to become increasingly more unfavorable for African Americans among individuals with lower levels of spirituality. Finally, we tested if there was an interaction between education or income and spiritual experiences and found that neither interaction term was significant (p 's > 0.05).

Discussion

Our data support the hypotheses that on average, older African Americans have slightly lower life satisfaction than older Whites and that greater spiritual experiences are associated with increased life satisfaction in older age. We also found supportive evidence for our third hypothesis, with our data showing a stronger positive association between spiritual experiences and life satisfaction among African Americans than Whites. The resulting pattern indicates that at higher levels of spiritual experiences -especially among those who report having spiritual experiences many times a day- racial differences in life satisfaction are virtually non-existent. However, at relatively low levels of spiritual experiences, older African Americans show modestly lower levels of life satisfaction than do older Whites. Overall, this pattern suggests that spirituality is a positive resource – above and beyond worship attendance – that enables older African Americans to overcome relative deficits in life satisfaction they might experience in the relative absence of spiritual experiences.

This association between spiritual experiences and life satisfaction may be a result of how a person evaluates their life through the perspective of their religious and spiritual (R/S) beliefs or via the narratives of their religious community. That is, R/S worldviews associated with more frequent spiritual experiences encourage a person to view the successes, achievements, hardships, and failures of their life in a broader, and in some cases eternal, perspective. Consequently, persons who report greater frequency of spiritual experiences, such as feeling God's presence or God's love, may be more likely to report higher life satisfaction because they experience fewer nagging regrets and more contentment in life.

Similar effects of R/S worldviews have been reported for other outcomes which reflect an individual's subjective appraisal of their condition such as self-rated health and quality of life. For example, in her study of participants in a rehabilitation clinic, Idler (1995) found that religious involvement was associated with a greater non-physical sense of self. That is, religious involvement helped these patients focus on "aspects of the self to which a painful, or nonfunctioning, or unattractive physical body [was] irrelevant" (p.700). Similarly, among a sample of 1,600 patients with cancer and HIV/AIDS, Brady and colleagues (1999) reported that those who had higher scores on a measure of faith were significantly more likely to report that they enjoyed life very much, a finding that was true even for patients with high levels of pain and fatigue.

While these interpretations aid our understanding of the positive main effect of daily spiritual experiences on life satisfaction, the racial differences that we observed require additional interpretation. One possibility is that this differential racial impact reflects the fact that, compared to Whites, African Americans have fewer resources that contribute to their life satisfaction. This interpretation is consistent with the work of Schieman and colleagues (2010) who found that among individuals with less access to other social resources - specifically African Americans, women, and those with lower educational attainment - religious involvement makes a stronger contribution to their sense of mattering.

Our study has several strengths. First, our data come from a population-based sample of community-dwelling older adults that was drawn from a census of a community population. Second, our biracial sample has good representation of the African American population (66%) with adequate power to detect differences. There are limitations to our study. First, our data are cross-sectional and hence purely associational; therefore, we cannot ascertain causal relationships between the covariates and life satisfaction. Second, CHAP is a study of Chicago's urban-dwelling, bi-racial, older adult population; that said, our sample may not be representative of older adults living in smaller cities, rural areas, other geographic areas of the country, or of older adults from other ethnic groups. Third, it should be noted that the level of daily spiritual experiences in our population is high; the overwhelming majority (70%) of participants indicated having spiritual experiences at least daily (Skarupski, 2010). However, the high spiritual experiences scores should not be misinterpreted as lack of precision in the instrument as the six response categories include: many times a day, every day, most days, some days, once in a while, and never or almost never. Whether or not such high levels of spiritual experiences in older age will change with subsequent population cohorts is unknown. Finally, two items from the DSES likely have conceptual overlap with

the life satisfaction construct – namely, ‘finding comfort in my religion or spirituality’ and ‘feeling deep inner peace or harmony’ (Koenig, 2001, 2008).

Future research efforts should include longitudinal studies designed to examine the directional association between religiosity/spirituality (R/S) and life satisfaction in older age. For example, we cannot discount the possibility that higher levels of life satisfaction may make people feel closer to God, perhaps out of gratitude for their well-being. Alternatively, people with low levels of life satisfaction may be experiencing religious or spiritual struggle. These negative religious copers may feel abandoned or disappointed by God, feel alienated from religious institutions, feel like they are being punished with poor health, or are disappointed when their prayers are not answered (Exline, 2013; George et al., 2013; Pargament et al., 2005). In fact, there is growing evidence that points to the harmful effects of R/S struggle, including increased levels of depressive symptoms (Murphy et al., 2012; Pargament et al., 2004), poorer recovery from illness (Fitchett et al., 1999; Pargament et al., 2004), and increased risk of mortality (Pargament et al., 2001). As such, mental health providers may wish to screen for possible R/S struggle (Fitchett & Risk, 2009) and, where indicated, consider referral to clergy or pastoral counselors.

We also need a better understanding of the associations between religiosity and spirituality. For example, among these CHAP participants, one third reported infrequent worship attendance, but most reported at least daily spiritual experiences. This is consistent with the modest correlation ($r = 0.41$) that we found between these two measures of R/S and with our previous report that most CHAP participants who reported infrequent worship attendance also reported at least daily spiritual experiences (Skarupski et al., 2010). It would be helpful to know what shaped these high levels of spiritual experiences among those whose worship attendance is infrequent. What role did earlier patterns of frequent attendance or other influences play in the development and reinforcement of these spiritual experiences? Research about spiritual experiences over the life course could help to clarify this question. In addition, as Hayward and Krause (2013a, 2013b) have recently reported, there are significant R/S-associated changes in late life – personal vs. God-mediated control and social support - that undoubtedly affect life satisfaction. We need to better understand why and how these changes in R/S occur over time, the concomitant effect on life satisfaction, and differential associations by race.

We must also explore the wider range of factors that have been associated with R/S and/or life satisfaction in older age; for example, depression (Sun et al., 2012), anxiety, and select medical diagnoses/health (Berg et al., 2006, 2009a, 2009b), social support (McCamish-Svensson et al., 1999), sexuality (Woloski-Wruble et al., 2010), nutrition (Lengyel, Tate, & Obirek Blatz, 2009), personality, perceived control, resilience, and self esteem (Bourque et al., 2005; Hilleras et al., 2001), and lifetime trauma (Krause, 2004). Furthermore, the associations of disability (Mollaoglu, Tuncay & Fertelli, 2010), home and neighborhood characteristics (Oswald et al., 2011), and mobility and transportation (Allman et al., 2004) with R/S and life satisfaction in old age are complex and merit further examination.

In summary, there has been little investigation of race differences in life satisfaction in older adults in population-based studies. Ours is one of the first to examine the association of

spiritual experiences with life satisfaction in a biracial sample of community-dwelling older adults. Our results support the existent literature that older African Americans report slightly lower life satisfaction than their White counterparts and that increased spiritual experiences are associated with increased life satisfaction in older age. More importantly, we found evidence that spirituality is a positive resource – above and beyond worship attendance - that enables older African Americans to overcome decrements in life satisfaction and in fact, that lower spiritual experiences may be especially harmful for older African American's life satisfaction.

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References

- Allman RM, Sawyer Baker P, Maisiak RM, Sims RV, Roseman JM. Racial similarities and differences in predictors of mobility change over eighteen months. *Journal of General Internal Medicine*. 2004; 19:1118–1126. [PubMed: 15566441]
- Barnes LL, Mendes de Leon CF, Bienias JL, Evans DA. A longitudinal study of black-White differences in social resources. *The Journals of Gerontology. Series B Psychological Sciences and Social Sciences*. 2004a; 59(3):146–153.
- Barnes LL, Mendes De Leon CF, Wilson RS, Bienias JL, Bennett DA, Evans DA. Racial differences in perceived discrimination in a community population of older blacks and Whites. *Journal of Aging and Health*. 2004b; 16(3):315–337. [PubMed: 15155065]
- Baylor Institute for Studies of Religion. *American piety in the 21st Century: New insights to the depths and complexity of religion in the US*. Dallas, TX: Baylor Institute for Studies of Religion; 2006.
- Berg AI, Hassing LB, McClearn GE, Johansson B. What matters for life satisfaction in the oldest-old? *Aging and Mental Health*. 2006; 10(3):257–264. [PubMed: 16777653]
- Berg AI, Hassing LB, Nilsson SE, Johansson B. "As long as I'm in good health". The relationship between medical diagnoses and life satisfaction in the oldest-old. *Aging Clinical and Experimental Research*. 2009a; 21(4–5):307–313. [PubMed: 19959919]
- Berg AI, Hoffman L, Hassing LB, McClearn GE, Johansson B. What matters, and what matters most, for change in life satisfaction in the oldest-old? A study over 6 years among individuals 80+ *Aging and Mental Health*. 2009b; 13(2):191–201. [PubMed: 19347686]
- Beutel ME, Glaesmer H, Decker O, Fischbeck S, Brahler E. Life satisfaction, distress, and resiliency across the life span of women. *Menopause*. 2009; 16(6):1132–1138. [PubMed: 19543128]
- Bienias JL, Beckett LA, Bennett DA, Wilson RS, Evans DA. Design of the Chicago Health and Aging Project (CHAP). *Journal of Alzheimer's Disease*. 2003; 5(5):349–355.
- Binstock, RH.; George, LK. *Handbook of aging and social sciences*. Fifth Ed.. San Diego: Academic Press; 2001.
- Bourque P, Pushkar D, Bonneville L, Bland F. Contextual effects on life satisfaction of older men and women. *Canadian Journal on Aging*. 2005; 24(1):31–44. [PubMed: 15838824]
- Brady MJ, Peterman AH, Fitchett G, Mo M, Cella D. A case for including spirituality in quality of life measurement in oncology. *Psycho-Oncology*. 1999; 8(5):417–428. [PubMed: 10559801]
- Cohen JJ. Disparities in health care: An overview. *Academic Emergency Medicine*. 2003; 10(11): 1155–1160. [PubMed: 14597489]
- Diener E. Assessing subjective well-being: Progress and opportunities. *Soc Indic Res Social Indicators Research*. 1994; 31(2):103–157.

- Elliott M, Hayward RD. Religion and life satisfaction worldwide: The role of government regulation. *Sociology of Religion* *Sociology of Religion*. 2009; 70(3):285–310.
- Exline, JJ. Religious and spiritual struggles. In: Pargamen, KI.; Exline, JJ.; Jones, J., editors. *APA Handbook of Psychology, Religion, and Spirituality*. Vol. Vol 1. Washington DC: American Psychological Association Press; 2013. p. 459-475.
- Fitchett G, Benjamins MR, Skarupski KA, Mendes de Leon CF. Worship attendance and the disability process in community-dwelling older adults. *Journals of Gerontology: Social Sciences*. 2013
- Fitchett G, Murphy PE, Kravitz HM, Everson-Rose SA, Krause NM, Powell LH. Racial/Ethnic differences in religious involvement in a multi-ethnic cohort of midlife women. *Journal for the Scientific Study of Religion*. 2007; 46(1):119–132.
- Fitchett G, Risk J. Screening for spiritual struggle. *Journal of Pastoral Care and Counseling* [Online]. 2009; 63(1):2.
- Fitchett G, Rybarczyk BD, DeMarco GA, Nicholas JJ. The role of religion in medical rehabilitation outcomes: A longitudinal study. *Rehabilitation Psychology*. 1999; 44(4):333–353.
- George, LK. Copeland, JRM.; Abou-Saleh, MT.; Blazer, DG. *Principles and practice of geriatric psychiatry*. 2nd ed. West Sussex, England: Chichester; New York: Wiley; 2002. Life satisfaction; p. 75-77.
- George LK, Kinghorn WA, Koenig HG, Gammon P, Blazer DG. Why gerontologists should care about empirical research on religion and health: Transdisciplinary perspectives. *The Gerontologist*. 2013
- Hayward RD, Krause N. Trajectories of late-life change in God-mediated control. *Journals of Gerontology Series B, Psychological and Social Sciences*. 2013a; 68(1):49–58.
- Hayward RD, Krause N. Changes in church-based social support relationships during older adulthood. *Journals of Gerontology Series B, Psychological and Social Sciences*. 2013b; 68(1):85–96.
- Hilleras P, Jorm A, Herlitz A, Winblad B. Life satisfaction among the very old: A survey on a cognitively intact sample aged 90 years and above. *International Journal Aging and Human Development*. 2001; 52:71–90.
- Ibrahim SA, Burant CJ, Siminoff LA, Stoller EP, Kwoh CK. Self-assessed global quality of life: A comparison between African-American and White older patients with arthritis. *Journal of Clinical Epidemiology*. 2002; 55(5):512–517. [PubMed: 12007555]
- Idler EL. Religion, health, and nonphysical senses of self. *Social Forces*. 1995; 74(2):683–704.
- Idler, EL. Religion and aging. In: Binstock, RH.; George, LK.; Cutler, SJ.; Hendricks, J.; Schulz, JH., editors. *Handbook of aging and the social sciences*. 6th Edition. Burlington, MA: Academic Press; 2006. p. 277-300.
- Idler EL, Musick MA, Ellison CG, George LK, Krause N, Ory MG, Williams DR. Measuring multiple dimensions of religion and spirituality for health research: Conceptual background and findings from the 1998 General Social Survey. *Research on Aging*. 2003; 25(4):327–365.
- Ironson G, Solomon G, Cruess D, Barroso J, Stivers M. Psychosocial factors related to long-term survival with HIV/AIDS. *Clinical Psychology and Psychotherapy*. 1995; 2(4):249–266.
- Jackson-Triche ME, Greer Sullivan J, Wells KB, Rogers W, Camp P, Mazel R. Depression and health-related quality of life in ethnic minorities seeking care in general medical settings. *Journal of Affective Disorders*. 2000; 58(2):89–97. [PubMed: 10781698]
- Koch T. The illusion of paradox: Commentary on Albrecht, G.L. and Devlieger, P.J. (1998). The disability paradox: High quality of life against all odds. *Social science & medicine* 48, 977–988. *Social Science & Medicine*. 2000; 50(6):757. [PubMed: 10695975]
- Koenig, HG.; McCullough, ME.; Larson, DB. *Handbook of religion and health*. Oxford; New York: Oxford University Press; 2001.
- Koenig HG. Concerns about measuring “spirituality” in research. *Journal of Nervous & Mental Disease*. 2008; 196(5):349–355. [PubMed: 18477877]
- Krause N. Church-based social support and health in old age: Exploring variations by race. *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*. 2002; 57(6):332–347.
- Krause N. Religious meaning and subjective well-being in late life. *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*. 2003; 58(3):S160–S170.

- Krause N. Common facets of religion, unique facets of religion, and life satisfaction among older African Americans. *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*. 2004; 59(2):S109–S117.
- Krause N. God-mediated control and psychological well-being in late life. *Research on Aging*. 2005; 27(2):136–164.
- Lengyel CO, Tate RB, Obirek Blatz AK. The relationships between food group consumption, self-rated health, and life satisfaction of community-dwelling Canadian older men: The Manitoba follow-up study. *Journal of Nutrition for the Elderly*. 2009; 28(2):158–173. [PubMed: 21184363]
- Levine RS, Foster JE, Fullilove RE, Fullilove MT, Briggs NC, Hull PC, Hennekens CH. Black-White inequalities in mortality and life expectancy: 1933–1999: Implications for healthy people 2010. *Public Health Reports (Washington, D.C.: 1974)*. 2001; 116(5):474–483.
- Loustalot FV, Wyatt SB, Boss B, McDyess T. Psychometric examination of the daily spiritual experiences scale. *Journal of Cultural Diversity*. 2006; 13(3):162–167. [PubMed: 16989254]
- McCamish-Svensson C, Samuelsson G, Hagberg B, Svensson T, Dehlin O. Social relationships and health as predictors of life satisfaction in advanced old age: Results from a Swedish longitudinal study. *International Journal Aging and Human Development*. 1999; 48:301–324.
- Manton KG, Gu X. Changes in the prevalence of chronic disability in the United States black and non-black population above age 65 from 1982 to 1999. *Proc Natl Acad Sci U S A*. 2001; 98:6354–6359. [PubMed: 11344275]
- Mendes de Leon CF, Barnes LL, Bienias JL, Skarupski KA, Evans DA. Racial disparities in disability: Recent evidence from self-reported and performance-based disability measures in a population-based study of older adults. *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*. 2005; 60(5):S263–S271.
- Mollaoglu M, Tuncay FO, Fertelli TK. Mobility disability and life satisfaction in elderly people. *Archives of Gerontology & Geriatrics*. 2010; 51(3):115–119.
- Murphy, P.; Fitchett, G.; Brunner, J.; Emery, E. Religious/spiritual struggle: Prevalence and correlates among older adults with depression in the BRIGHTEN Program; Paper presented at the 2012 Gerontological Society of America; 2012.
- Musick MA, Koenig HG, Hays JC, Cohen HJ. Religious activity and depression among community-dwelling elderly persons with cancer: The moderating effect of race. *Journal of Gerontology*. 1998; 53B(4):S218–S227.
- Neugarten BL, Havighurst RJ, Tobin SS. The measurement of life satisfaction. *Journal of Gerontology*. 1961; 16:134–143. [PubMed: 13728508]
- Oswald F, Jopp D, Rott C, Wahl HW. Is aging in place a resource for or risk to life satisfaction? *The Gerontologist*. 2011; 51(2):238–250. [PubMed: 21097552]
- Pargament KI, Koenig HG, Tarakeshwar N, Hahn J. Religious struggle as a predictor of mortality among medically ill elderly patients: A two-year longitudinal study. *Archives of Internal Medicine*. 2001; 161:1881–1885. [PubMed: 11493130]
- Pargament KI, Koenig HG, Tarakeshwar N, Hahn J. Religious coping methods as predictors of psychological, physical, and spiritual outcomes among medically ill elderly patients: A two-year longitudinal study. *Journal of Health Psychology*. 2004; 9(6):713–730. [PubMed: 15367751]
- Pargament, KI.; Murray-Swank, N.; Magyar, G.; Ano, G. Spiritual struggle: A phenomenon of interest to psychology and religion. In: Miller, WR.; Delaney, H., editors. *Judeo-Christian perspectives on psychology: human nature, motivation, and change*. Washington DC: APA Press; 2005. p. 245–268.
- Pew Forum on Religion & Public Life, & Pew Research Center. U.S. religious landscape survey, 2008: Religious beliefs and practices: Diverse and politically relevant. 2008.
- SAS Institute. SAS/STAT® user's guide. (Version 9.3). Cary, NC: SAS Institute; 2012.
- Schieman S, Bierman A, Ellison C. Religious involvement, beliefs about God, and the sense of mattering among older adults. *Journal for the Scientific Study of Religion*. 2010; 49(3):517–535. [PubMed: 20886699]
- Skarupski KA, de Leon CF, Bienias JL, Scherr PA, Zack MM, Moriarty DG, Evans DA. Black-White differences in health-related quality of life among older adults. *Quality of Life Research*. 2007; 16(2):287–296. [PubMed: 17033898]

- Skarupski KA, Fitchett G, Evans DA, Mendes de Leon CF. Daily spiritual experiences in a biracial, community-based population of older adults. *Aging and Mental Health*. 2010; 14(7):779–789. [PubMed: 20635237]
- Skarupski KA, Mendes de Leon CF, Bienias JL, Barnes LL, Everson-Rose SA, Wilson RS, Evans DA. Black-White differences in depressive symptoms among older adults over time. *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*. 2005; 60(3):P136–P142.
- Sun F, Park NS, Roff LL, Klemmack DL, Parker M, Koenig HG, Sawyer P, Allman RM. Predicting the trajectories of depressive symptoms among southern community-dwelling older adults: The role of religiosity. *Aging & Mental Health*. 2012; 16(2):189–198. [PubMed: 22032625]
- St. George A, McNamara PH. Religion, race and psychological well-being. *Journal for the Scientific Study of Religion*. 1984; 23(4):351–363.
- Taylor, RJ.; Chatters, LM.; Levin, J. Religion in the lives of African-Americans: Sociological, psychological, and health perspectives. Thousand Oaks, CA: Sage Publications; 2004.
- Thomas ME, Holmes BJ. Determinants of satisfaction for blacks and Whites. *Sociological Quarterly*. 1992; 33(3):459.
- U.S. Department of Health and Human Services. Tracking healthy people 2010. Washington, DC: U.S. Dept. of Health and Human Services; 2000.
- U.S. Department of Health and Human Services. Mental health: Culture, race, and ethnicity: A supplement to mental health: A report of the surgeon general. Rockville, MD: U.S. Dept. of Health and Human Services, U.S. Public Health Service; 2001.
- Underwood LG. Ordinary spiritual experience: Qualitative research, interpretive guidelines, and population distribution for the daily spiritual experience scale. *Archive for the Psychology of Religion*. 2006; 28(1):181–218.
- Underwood LG, Teresi JA. The daily spiritual experience scale: Development, theoretical description, reliability, exploratory factor analysis, and preliminary construct validity using health-related data. *Annals of Behavioral Medicine: A Publication of the Society of Behavioral Medicine*. 2002; 24(1): 22–33. [PubMed: 12008791]
- Woloski-Wruble AC, Oliel Y, Leefsma M, Hochner-Celnikier D. Sexual activities, sexual and life satisfaction, and successful aging in women. *Journal of Sexual Medicine*. 2010; 7(7):2401–2410. [PubMed: 20384946]
- Woody DJ, Green R. The influence of race/ethnicity and gender on psychological and social well-being. *Journal of Ethnic and Cultural Diversity in Social Work*. 2001; 9(3–4):151.

Figure 1.

Predicted values of average life satisfaction for level of average daily spiritual experiences, for Whites and African Americans

Note: Predicted values for a 75-year old person (both males & females) with 12 years of education and mid-range income (i.e., \$15,000–\$29,999), by race.

Table 1

Participants' sociodemographic, worship attendance, daily spiritual experiences, and life satisfaction characteristics, in aggregate and by race (N = 6,864)

<i>Variables</i>	Total (N=6,864)	African Americans (n=4,502)	Whites (n=2,362)	<i>p-value</i>
Age, mean (SD)	72.9 (6.6)	71.6 (5.6)	75.4 (7.6)	< 0.0001
Female, # (%)	4,270 (62.2)	2,831 (62.9)	1,439 (60.9)	0.1116
Marital status, # (%)				< 0.0001
<i>Married</i>	3,607 (52.6)	2,363 (52.5)	1,244 (52.7)	
<i>Widowed</i>	2,212 (32.2)	1,427 (31.7)	785 (33.2)	
<i>Divorced</i>	602 (8.8)	469 (10.4)	133 (5.6)	
<i>Separated</i>	141 (2.1)	134 (3.0)	7 (0.3)	
<i>Never married</i>	301 (4.4)	108 (2.4)	193 (8.2)	
Education, mean (SD)	12.6 (3.4)	11.8 (3.2)	14.1 (3.1)	< 0.0001
<i>Education categories, # (%)</i>				
<HS	1,845 (26.9)	1,616 (36.0)	229 (9.7)	
HS Grad	2,078 (30.3)	1,350 (30.1)	728 (30.9)	
>HS	2,930 (42.8)	1,527 (34.0)	1,403 (59.5)	
Income, # (%)				< 0.0001
<i>Low</i>	3,259 (49.4)	2,595 (60.0)	664 (29.1)	
<i>Mid</i>	1,486 (22.5)	969 (22.4)	517 (22.7)	
<i>High</i>	1,857 (28.1)	759 (17.6)	1,098 (48.2)	
Worship Attendance, # (%)				< 0.0001
<i>Very frequent</i>	1,761 (25.7)	1,206 (26.8)	555 (23.6)	
<i>Frequent</i>	2,787 (40.6)	1,711 (38.0)	1,076 (45.6)	
<i>Infrequent</i>	2,314 (33.7)	1,585 (35.2)	729 (30.9)	
Daily Spiritual Experiences, median (25 th , 75 th IQR) (Range: 1–6, where 6=many times a day)	5.0 (4.2, 5.2)	5.0 (4.4, 5.2)	4.8 (3.8, 5.2)	< 0.0001
Life Satisfaction, mean (SD) (Range: 1–4, where 4=higher life satisfaction)	2.9 (0.5)	2.8 (0.5)	2.9 (0.5)	< 0.0001

Table 2

Modeling Average Life Satisfaction, using ordinary least squares regression, *unstandardized estimate* (standard error)

Variable	Model 1	Model 2	Model 3
Intercept	2.777 (0.017) ***	2.485 (0.030) ***	2.556 (0.038) ***
African American race (Black)	−0.066 (0.014) ***	−0.093 (0.014) ***	−0.248 (0.053) ***
Age	−0.005 (0.001) ***	−0.006 (0.001) ***	−0.006 (0.001) ***
Male sex	0.021 (0.014)	0.044 (0.014) **	0.045 (0.014) **
Age X Male sex	−0.006 (0.002) **	−0.006 (0.002) **	−0.006 (0.002) **
Married (reference)			
Never married	−0.017 (0.030)	−0.010 (0.029)	−0.011 (0.029)
Widowed	−0.066 (0.015) ***	−0.066 (0.015) ***	−0.066 (0.015) ***
Divorced or separated	−0.001 (0.020)	−0.002 (0.020)	−0.003 (0.020)
Education	0.009 (0.002) ***	0.010 (0.002) ***	0.010 (0.002) ***
Income	0.037 (0.003) ***	0.038 (0.003) ***	0.038 (0.003) ***
Infrequent worship attendance (reference)			
Frequent	0.130 (0.014) ***	0.083 (0.014) ***	0.083 (0.014) ***
Very Frequent	0.257 (0.015) ***	0.184 (0.016) ***	0.183 (0.016) ***
Daily Spiritual Experiences (DSE)	---	0.073 (0.006) ***	0.056 (0.008) ***
Black X DSE	---	---	0.034 (0.011) **
observations	6,593	6,593	6,593
Adjusted R-Square	0.1443	0.1618	0.1628

*
p < 0.05;

**
p < 0.01;

p < 0.001