

The Effect of Religious Service Attendance on Race Differences in Depression: Findings from the EHDIC-SWB Study

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ABSTRACT *In the EHDIC-SWB study, African-Americans are less likely to have depression than non-Hispanic whites. Religious service attendance is one possible explanation because studies have shown an inverse relationship between religious service attendance and depression. We examined the relationship between race, religious service attendance, and depression in 835 African-American and 573 non-Hispanic white adults aged 18 and older in the Exploring Health Disparities in Integrated Communities-Southwest Baltimore (EHDIC-SWB) study. Religious service attendance was measured according to participants' response to "how often do you attend religious services?" Depression was measured using the Patient Health Questionnaire. African-Americans attended religious services more frequently than non-Hispanic whites, and had a lower percentage of depression (10.1% vs. 15.4%; p -value <0.05). After adjusting for the demographic variables and health-related characteristics, African-Americans displayed lower odds of having depression (OR=0.68, 95% CI: 0.47–0.97) compared to non-Hispanic whites. However, when including religious service attendance in the model, we found race differences in depression (OR=0.76, 95% CI: 0.52–1.11) were no longer significant. We concluded that among individuals living in a low-income, integrated urban environment, race disparities in depression were eliminated after accounting for race differences in religious service attendance. This suggests religious service attendance may serve as a protective factor against depression for African-Americans.*

KEYWORDS *Religious service attendance, Race, Depression*

BACKGROUND

Depression

Depression is a serious public health condition with a large societal burden that includes healthcare costs and years of potential life lost if it is not addressed and properly managed. In recent decades the USA has seen an increase in depression prevalence, but its impact is not uniformly distributed. The literature on race differences in depression prevalence is inconsistent. Governmental agencies such as

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the National Institute of Mental Health (NIMH) and some studies using nationally representative samples report that depression is less prevalent among African-Americans compared to non-Hispanic whites (hereafter referred to as whites).¹⁻⁴ However, other studies show that African-Americans have a higher prevalence of depression and report greater impairment as a result.⁵⁻⁷ Further, the impact of depression on African-Americans may be more far reaching because they are more likely to be under diagnosed than whites and less likely than whites to seek mental health care because of potential stigma and historical mistreatment.^{8,9} To date most studies cite socioeconomic status,⁹ lack of social support, and inadequate coping mechanisms as reasons for a greater prevalence of depression among African-Americans.

The role of religion as a protective factor against depression and mental health among African-Americans has been hypothesized in studies that found that African-Americans were less likely to experience depression.¹⁰ Indeed, African-Americans have been found to be more religious than whites, but the impact of religiosity on race differences in depression is rarely empirically explored.¹⁰⁻¹⁴

Influence of Religious Service Attendance

Studies have shown that religiosity is associated with positive health outcomes such as less smoking, drinking, and lower blood pressure.¹⁵⁻¹⁷ Similar findings have reported an association between religious service attendance and lower odds of depression in African-American and white populations.¹⁸⁻²⁰ Though there have been studies examining disparities in depression as well as studies examining the impact religious service attendance has on health behaviors and outcomes, little attention has been given to examining the impact of religious service attendance on depression when African-Americans and whites are living in the same environment and share similar socioeconomic status (SES). Among studies that find that African-Americans are more likely to experience depression, increased stress among African-Americans due to poverty and the environmental factors associated with lower SES such as crime or lack of agency of life circumstances are cited as potential reasons.¹³ The literature on religion has found that African-Americans may use religion or spirituality as a coping mechanism, particularly for stressors that may be particular to the African-American experience or poverty.^{11,13} By examining the association between race, depression, and religiosity among a population where African-Americans and whites share similar SES conditions, the possible race differences in stressors that are associated with depression due to differences in SES are likely mitigated.

In this study we explore one aspect of religiosity, the impact of religious service attendance on race differences in depression in African-Americans and whites who share similar contexts. We take into account that social and environmental factors may reveal important insights about the possible differences in health outcomes between African-American and white adults in the sample.²¹ The objective of this paper is to assess the role religious service attendance has on differences in depression among African-Americans and whites.

METHODS

Population

EHDIC (Exploring Health Disparities in Integrated Communities) is an ongoing multi-site study of race disparities within communities where blacks and whites

live together and where there are no race differences in SES, as measured by median income. The first EHDIC study site was in Southwest Baltimore, MD (EHDIC-SWB), a low-income urban area. Future EHDIC locations are planned.

EHDIC-SWB is a cross-sectional face-to-face survey of the adult population (aged 18 and older) of two contiguous census tracts collected between June and September 2003. In addition to being economically homogenous, the study site was also racially balanced and well integrated, with almost equal proportions of black and white residents. In the two census tracts, the racial distribution was 51% black and 44% white, and the median income for the study area was \$24,002, with no race difference. The census tracts were block listed to identify every occupied dwelling in the study area. During block listing, we identified 2,618 structures. Of those, 1,636 structures were determined to be occupied residential housing units (excluding commercial and vacant residential structures). After up to five attempts, contact was made with an eligible adult in 1,244 occupied residential housing units. Of that number, 65.8% were enrolled in the study, resulting in 1,489 study participants (41.9% of the 3,555 adults living in these two census tracts recorded in the 2000 Census). Because our survey had similar coverage across each census block group included the study area, the bias to geographic locale and its relationship with socioeconomic status should be minimal.²¹

Comparisons to the 2000 Census for the study area indicated that the EHDIC-SWB sample included a higher proportion of blacks and women, but was otherwise similar with respect to other demographic and socioeconomic indicators.²¹ For instance, our sample was 59.3% black and 44.4% male, whereas the 2000 Census data showed the population was 51% black and 49.7% male. Age distributions in our sample and 2000 Census data were similar with the median age (35–44 years) for both samples. The lack of race difference in median income in the census, \$23,500 (black) vs. \$24,100 (white), was replicated in EHDIC \$23,400 (black) vs. \$24,900 (white).

The survey was administered in person by a trained interviewer and consisted of a structured questionnaire, which included demographic and socioeconomic information, self-reported height and weight, self-reported health behaviors and chronic conditions, and three blood pressure (BP) measurements. The EHDIC study has been described in greater detail elsewhere.²¹ The Committee on Human Research at the Johns Hopkins Bloomberg School of Public Health approved the study. These analyses included 1,408 black and white respondents from the EHDIC-SWB sample.

Outcomes

Depression was evaluated using the Patient Health Questionnaire-9 (PHQ-9).²² The PHQ-9 is a nine-item scale adapted from the three-page self-administered questionnaire. The PHQ-9 uses a Likert-type scale with four possible responses (1=not at all, 2=several days, 3=more than half the days, 4=nearly every day). Answering “more than half the days” or “nearly every day” on four or more of the questions (including at least one of two questions: “little interest or pleasure in doing things” or “feeling down, depressed, or hopeless”) was classified as having depressive syndrome. Answering “more than half the days” or “nearly every day” on five or more of the questions (including at least one of two questions: “little interest or pleasure in doing things” or “feeling down, depressed, or hopeless”) was categorized as having major depression.

The PHQ-9's construct validity and reliability was examined in a 2001 study conducted by Kroenke, Spitzer, and Williams, in which they concluded that evidence

from two studies totaling 6,000 patients supported the validity and reliability of the PHQ-9. Furthermore, they argued, the “brevity coupled with its construct and criterion validity makes the PHQ-9 an attractive, dual-purpose instrument for making diagnoses and assessing severity of depressive disorders.”²³ Participants in our study who were identified as having either depressive syndrome or major depression were combined to create one dichotomous depression variable that was used in the logistic regression models.

Main Independent Variables

Race was based on the participant’s self-identification as African-American or white ($n=1,408$), which was 95% of the study population.

Religious service attendance was based on responses to the item, “how often do you go to religious services?” Responses include “never,” “once or twice a year,” “every month or so,” “once or twice a month,” “every week or more often,” and “more than once a week.” Religious service attendance was measured continuously.

Covariates

Other covariates included demographic variables and health-related characteristics. Demographic variables included: age, income, female sex, married or living as married, and highest education level completed. Both age and income were evaluated as continuous variables. Female sex was coded as a dichotomous variable. A binary variable was created to classify individuals who reported being married or living as married. Three binary variables measured a participant’s level of educational attainment (< 12 years of school, high school graduate/GED, and more than high school).

Health-related characteristics included: any chronic disease, obesity, self-rated health, drinking, and smoking status. Any chronic disease was ascertained by participants’ responding yes to having at least of the following: hypertension, heart disease or heart attack, cancer, stroke, diabetes, or breathing problems. Obesity was defined as self-reported body mass index of 30 or higher. A binary variable was created to identify those individuals who rated their health as fair or poor. Drinking and smoking status were both categorized into three groups: former, current, or never.

Statistical Analysis

The mean and proportional differences between racial categories for the demographic and health-related characteristics were evaluated using Student’s *t* for continuous variables and chi-square tests for categorical variables. The odds of depression were specified using step-wise multiple logistic regression models to determine the influence of each group of variables on the association between race and depression. In each model we add a set of covariates to the previous model grouped as follows: model 1—age-adjusted only, model 2—demographic variables and health-related characteristics, and model 3—religious service attendance. All tests were two-sided, and p -values < 0.05 were considered significant. Statistical analysis was performed using Stata 11 (Stata Corp, College Station, TX, USA).

RESULTS

Table 1 displays the demographic and health-related characteristics of the EHDIC-SWB participants by race. African-Americans, on average, were younger and had

TABLE 1 Distribution of demographic and health-related characteristics of the EHDIC-SWB participants by race

Variable	Non-Hispanic whites (<i>n</i> =573)	African-Americans (<i>n</i> =835)
Age (years), mean ± SD	42.6 ± 16.2	37.5 ± 13.3*
Female (%)	56.9	54.4
Married/living as married (%)	24.1	14.1*
Education (%)		
Less than HS graduate	47.5	35.4*
HS diploma/GED	34.2	45.1*
Education beyond HS	18.3	19.5
Income (dollars), mean ± SD	24,816.76 ± 23,414.73	23,471.20 ± 32,485.74*
Any chronic disease (%)	54.6	42.6*
Obesity (%)	29.9	32.1
Poor/fair health (%)	37.4	28.2*
Drinking status (%)		
Never drink	16.6	20.5
Former drinker	40.4	31.1*
Current drinker	43.0	48.4*
Smoking status (%)		
Never smoke	15.5	22.6*
Former smoker	10.5	6.6*
Current smoker	74.0	70.8
Religious service attendance (%)		
Never	47.9	24.0*
Once or twice a year	19.3	19.3
Every month or so	6.5	8.6
Once or twice a month	8.3	17.7*
Every week or more often	13.4	20.3*
More than once a week	4.6	10.1*
Depression	15.4	10.1*

Any chronic disease is based on participant report of being diagnosed with at least one of the following: hypertension, heart disease or heart attack, cancer, stroke, diabetes or sugar diabetes, or breathing problems such as asthma or emphysema

* $p < 0.05$

lower incomes than whites, but were more likely to be a high school graduate or GED recipient, and less likely to be married. Health-related characteristics show that fewer African-Americans reported poor or fair health compared to whites, while more African-Americans reported being current drinkers or never smoking. African-Americans demonstrated higher rates of religious service attendance. This is particularly evident in those who reported attending once or twice a month or more frequently compared to whites. African-Americans also exhibited a lower percentage of people who never attended religious services and a lower percentage of depression than whites.

Figure 1 displays the distribution of depression by religious service attendance and race. Among those who never attended religious services, fewer African-Americans reported depression (13.1% v. 21.8%; $p < 0.05$) compared to whites. There were no race differences in depression in any other religious service attendance group.

Table 2 shows the association between race and depression. When adjusting for age in model 1, African-Americans exhibited lower odds of depression relative to

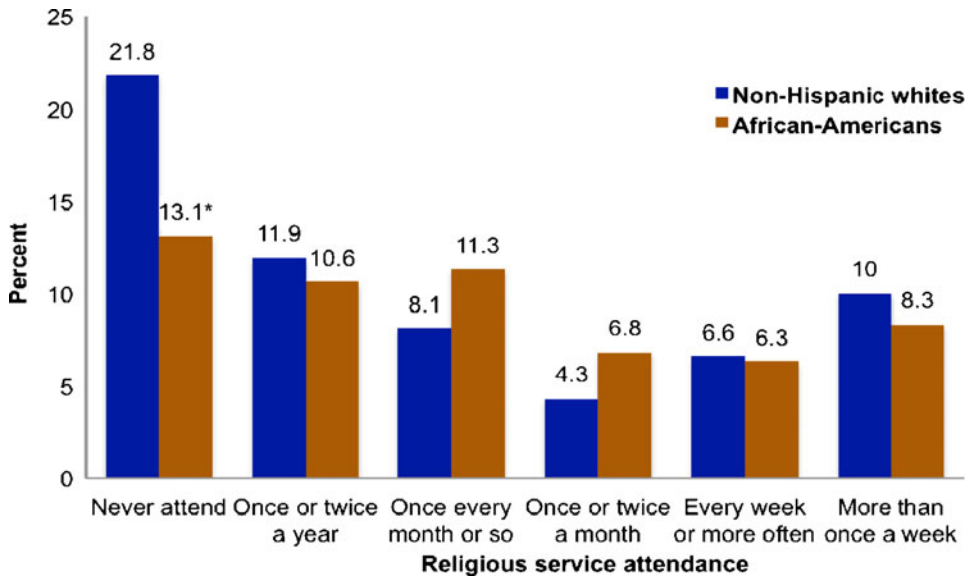


FIGURE 1 Distribution of depression by religious service attendance and race.

whites (OR=0.62, 95% CI=0.45–0.85). After adjusting for demographic variables and health-related characteristics in model 2, African-Americans continued to display lower odds of depression compared to whites (OR=0.68, 95% CI=0.47–0.97).

TABLE 2 The association between race and depression in the EHDIC-SWB study

Independent variable	Model 1 (n=1,405)	Model 2 (n=1,375)	Model 3 (n=1,363)
African-American	0.62 (0.45–0.85)	0.68 (0.47–0.97)	0.76 (0.52–1.11)
Age	1.00 (1.00–1.02)	1.00 (0.98–1.00)	1.00 (0.98–1.01)
Female		1.46 (1.01–2.10)	1.53 (1.06–2.21)
Married/living as married		0.92 (0.57–1.47)	0.88 (0.54–1.43)
Education level			
Less than HS graduate		1.00	1.00
HS graduate/GED		0.79 (0.54–1.16)	0.82 (0.56–1.22)
More than HS graduate/GED		0.75 (0.43–1.33)	0.79 (0.44–1.42)
Income		1.00 (1.00–1.00)	1.00 (1.00–1.00)
Any chronic disease		1.49 (1.00–2.20)	1.51 (1.01–2.25)
Poor/fair health		3.22 (2.22–4.66)	3.08 (2.11–4.48)
Obese		0.96 (0.66–1.39)	1.00 (0.68–1.46)
Drinking status			
Never drink		1.00	1.00
Former drinker		1.16 (0.68–2.00)	1.13 (0.66–1.95)
Current drinker		1.14 (0.65–2.00)	1.07 (0.60–1.89)
Smoking status			
Never smoke		1.00	1.00
Former smoker		0.80 (0.34–1.84)	0.72 (0.30–1.72)
Current smoker		1.68 (0.93–3.03)	1.61 (0.89–2.92)
Religious service attendance			0.87 (0.78–0.98)

Any chronic disease is based on participant report of being diagnosed with at least one of the following: hypertension, heart disease or heart attack, cancer, stroke, diabetes or sugar diabetes, or breathing problems such as asthma or emphysema

However, when including religious service attendance in the model, race differences in depression were no longer significant (OR=0.76, 95% CI=0.52–1.11).

DISCUSSION

We examined the association between race, depression, and religious service attendance in a low-income urban, integrated community. In EHDIC-SWB, whites have a higher rate of depression than African-Americans, while African-Americans have greater religious service attendance. Using multiple logistic regression models, we found that religious service attendance explained the race differences in depression in EHDIC-SWB.

Studies show that African-Americans attend religious services more frequently than whites.^{24,25} Similarly, sociologists and other scholars whose research falls under African-American studies have explored the role of black churches in the social as well as spiritual lives of African-Americans.^{26,27} In EHDIC-SWB, African-Americans attend religious services more frequently than whites, which is consistent with what literature suggests about religious service attendance among African-Americans.

The act of attending a religious service in itself is not an adequate explanation for lower depression among African-Americans in the EHDIC-SWB study. In order to understand why religious service attendance is associated with lower odds of depression, it is important to explore what is being taken from religious service attendance. Frequently attending religious services is associated with greater social support, and frequent attendance suggests that the religious organization may serve as an important social body within an individual's life. In particular and historically, African-American congregations sponsor more social service programs and provide more health information and crisis intervention than white congregations.^{28–30}

In EHDIC-SWB, the additional health-promoting benefits of increased church attendance among African-Americans explained increased depression prevalence among whites. The mental health benefits of frequent church attendance could be direct such as the experience of being a part of an entity or church family. Those who belong to not only religious organizations, but the most involved religious organizations, sometimes experience better mental health outcomes, including lower odds of depression and lower rates of suicide.³¹ Furthermore, the increased social support experienced by frequent attendees may be associated with lower odds of depression as well. The design of the EHDIC study provides a unique opportunity to explore differences in depression among whites and blacks after controlling for social context. While we explore the association between depression and religious service attendance, we were not able to account for other variables that are associated with depression such as work-related stress or terminal illness. As previously mentioned, latent variables associated with regular church attendance are likely to be associated with better health and lower odds of depression; however, a limitation of this study is that only frequency of attendance was measured. In spite of this, several studies have demonstrated the positive association between health and religiosity using only religious service attendance as a measure of religiosity.^{32–34} Because the study was conducted in a low-income urban context, the generalizability of the results is limited to such communities. It is also not known if our results would differ in a higher-income or non-urban environment. Further, examining the relationship between depression and religious service attendance in other racial ethnic groups living under similar social and environmental conditions would be an avenue for additional research. The data presented in this paper is cross-sectional,

and therefore a causal inference cannot be made. It is believed, however, that this study will contribute to better understanding how religious service attendance and ideally the inclusion of other religiosity and spirituality dimensions impact differences in depression between whites and African-Americans. The implications of these findings are important to future research on other unaddressed effects of religion, as well as to intervention activities that may facilitate culturally relevant mental health screening and treatment and positive well-being, particularly in the lives of those who espouse a religious orientation.

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