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RESEARCH ARTICLE

Religious practices, beliefs, and mental health: variations across ethnicity

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Objectives. We examined whether Black Americans and Hispanic Americans experienced greater mental health benefits from religious involvement than White Americans, and whether these benefits would be mediated through three psychosocial factors – social support, meaning, and forgiveness.
Methods. Utilizing data from a probability sample of Chicago-based adults (n=3103), ethnicity-stratified multivariate regression models estimated the association of religiosity with depressive symptoms, anxiety symptoms, and major depressive disorder (MDD). Models controlled for potential confounders and psychosocial mediators.
Results. Contrary to our hypotheses, religiously involved Black Americans and Hispanic Americans did not experience greater mental health benefits than their White counterparts. For White Americans alone, service attendance was inversely related to depressive symptoms, anxiety symptoms, and MDD. Religious saliency was consistently associated with worse mental health for Hispanic Americans only. However, both meaning and forgiveness conferred mental health benefits for all three groups.
Conclusions. The benefits of specific aspects of religious involvement vary across ethnicity. Caution is necessary in any effort to bring religion into the health domain. Our findings, if replicated, suggest that initiatives that facilitate a sense of purpose or forgiveness are likely to prove promising in improving mental health, regardless of race or ethnicity.

Keywords: religion and mental health; race; ethnicity

Introduction

The past 20 years have witnessed a wealth of studies on religion and health (Moreira-Almeida *et al.* 2006). However, certain questions remain. This article aims to examine (1) the extent to which the association between religion and health varies by race/ethnicity and (2) whether any observed relationships may vary across multiple indicators of religious engagement.

Only a relatively small number of studies have examined the extent to which the relationship between religion and mental health differs by ethnic groups. Most have focused on Black Americans or White Americans (George and Mcnamara 1984, Schieman *et al.* 2006). With one exception (Ellison and Sherkat 1995), these studies found that Black populations benefit more from religious involvement than do White

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populations. Limitations of these studies include limited religion measures that overlook the psychological or spiritual aspects of religiosity (George and Mcnamara 1984); an overreliance on depressive symptoms (Ellison and Sherkat 1995) or life satisfaction (George and Mcnamara 1984) to the exclusion of other mental health indicators; and cross-sectional designs (Ellison and Sherkat 1995).

Studies investigating religion among Hispanic Americans (Levin *et al.* 1996, Abraido-Lanza *et al.* 2004) generally found mental health benefits. However, most consist of small, cross-sectional samples, narrow religion and mental health measures, and Mexican subpopulations (i.e., women, elderly). To date, only two studies have compared all three groups. In one study (Franzini *et al.* 2005), public religious participation was associated with improved mental health for Black Americans and Hispanic Americans, while private religiosity was associated with poorer mental health for Black Americans. In the other (Neff and Hoppe 1993), low levels of depressive symptoms were observed only among highly fatalistic, highly religious Black Americans, and unacculturated Mexican Americans.

Although these studies suggest that there are ethnic variations in the religion–health association, the consistency of these findings across comprehensive measures of religion, multiple indicators of mental health, and for other populations remains unknown.

Why might religion differentially affect the mental health of distinct ethnic groups? The social integration – that is, the social bonds and attachments among a group of individuals – provided by religious involvement has long been considered important for health (Durkheim 1897). Religious participation encourages social integration among people with similar values (Idler 1987), leading to emotional, instrumental, and anticipated support. Religious groups also employ various means of social regulation, or control, that often result in well-behaved adherents (Hill *et al.* 2006). Given the ethnic character of US society, the integration and regulation mechanisms may be stronger in largely segregated Black and Hispanic churches (Lincoln and Mamiya 1990). Consequently, religious expression in these groups could confer greater benefit than similar expression in White populations.

Two other benefits that may arise, especially in Black and Hispanic congregations, are catharsis and social identity affirmation. Catharsis refers to a release of emotional tension and anxiety. Social identity refers to the group membership that define individuals. For many minority congregations, the church serves as a safe haven and emotional outlet (Taylor *et al.* 2004). Likewise, religious communities may promote ethnic culture and identity through the discussion of culturally specific issues, traditions, and histories.

Taken together, these four aspects – integration, regulation, catharsis, and identity – may also buttress two health-promoting psychological dimensions: forgiveness and meaning. Because forgiveness entails overcoming past grievances and foregoing retributive action, the cathartic element of religious services may inspire greater forgiveness (Pargament 1997). Similarly, the integration, regulation, and identity functions of religious groups may provide a greater sense of meaning or coherence for participants (Pargament 1997). Social support, forgiveness, and meaning have been further shown to be beneficial for health (Toussaint *et al.* 2001).

In short, because the nature of religious expression and its consequences are likely to differ across religious groups, so too should the association between religion and mental health. Using data from a sample of Chicago-based Black, Hispanic, and

White adults, this article explores these issues using multiple measures of religious expression and multiple indicators of mental health.

Specifically, we test the following hypotheses:

1. Rates of religious involvement will be greater for Black Americans and Hispanic Americans, compared to White Americans;
2. Black Americans and Hispanic Americans will experience greater mental health benefits – evident through fewer depressive and anxiety symptoms and a reduced risk of depression – from religious involvement compared to their White counterparts;
3. Social support, meaning, and forgiveness will mediate the relationship between religious involvement and mental health for all three ethnic groups.

Methods

Study population

The Chicago Community Adult Health Study (CCAHS) is a probability sample of 3105 adults aged 18 and over from Chicago, IL (Sampson *et al.* 1997), based on the methodology used for the Project on Human Development in Chicago (PHDCN)(Sampson *et al.* 1997). The project collapsed all 847 census tracts in the city of Chicago into 343 neighborhood clusters (NCs) of approximately 8000 people each, based on seven groupings of racial/ethnic composition and three levels of socioeconomic status. The NCs were designed to be ecologically meaningful. They were composed of geographically contiguous census tracts and geographic boundaries. Eighty focal NCs, previously defined by the PHDCN, were sampled from the 21 strata (seven racial/ethnic groups by three socioeconomic levels) with the goal of representing the 21 cells as equally as possible to eliminate the confounding between racial/ethnic mix and socioeconomic status.

From 2001 to 2003, one individual was interviewed per household, with a response rate of 71.8%. Those in the focal areas were sampled at twice the rate of those in others. The sample contains an average of 9.1 subjects per NC. All data and analyses were weighted to take account of the different rates of selection, the clustering within neighborhoods, as well as household size and differential coverage. Two cases were removed because of missingness on the dependent variable. The institutional review board of the University of Michigan approved the study.

Measures

Ethnicity. Ethnicity was defined through self-reports of the survey respondents. The sample was originally divided into non-Hispanic Black Americans (n=1240), non-Hispanic White Americans (n=981), Hispanic Americans (n=802), and other (n=80). The 'other' category (n=80) was collapsed with the White Americans, after sensitivity analyses demonstrated no significant difference in effect estimates.

Mental health. Major depressive disorder (MDD) was assessed via the diagnostic criteria specified in American Psychiatric Association's Diagnostic & Statistical Manual of Mental Disorders-III (DSM-III) (Kessler *et al.* 1998). A dichotomous

variable identified respondents who met the criteria for MDD within the last year. Depressive symptoms was an 11-item mean index (α=0.85) (Radloff 1975). Respondents were asked to assess how often they experienced the symptoms in the past week on a 4-point Likert scale, ranging from never to most of the time (total range 11–44). A five-item anxiety symptoms mean index (α=0.75) (Derogatis *et al.* 1974) measured anxiety symptoms in the last week, using the same Likert scale (range 5–20).

Religion measures. Because religiosity is a multidimensional construct (Idler *et al.* 2003), various religion measures were employed. Service attendance was measured on a 7-point Likert scale (never attending church to more than once a week). Private religious activity, measured on a 6-point Likert scale, ascertained how often respondents prayed privately in places other than Church (none to several times a day). Religious denomination consisted of Catholic, Protestant, other, and no religion. Importance of spirituality was assessed on a 4-point Likert scale (not spiritual at all to very spiritual). Finally, religious saliency captured the extent to which religion carried over into all other dealing in one's life using a 5-point Likert scale (responses ranged from not at all to a great deal).

Psychosocial mediators. Congregational support assessed the level of support provided by other congregants; congregational criticism assessed their level of criticism (both ranging from none (1) to a great deal (5)). A three-item index assessed sense of purpose in one's life ($\alpha = 0.62$; total range 3–12). Interpersonal forgiveness assessed, in two items, levels of unconditional forgiveness of others ($r = 0.34$; total range 2–8). A single-item measure for self-forgiveness assessed whether respondents felt they could make up for past mistakes. Responses for the meaning and forgiveness variables ranged from disagree strongly (1) to agree strongly (4).

Adjustment variables. Sociodemographic variables included age (measured in years), gender, marital status (married versus unmarried), income (<$10k, $10–29k, $30k–49k, $50+, missing) and education (<high school graduate, high school graduate, some college, college graduate, or more). Health variables included functional impairment (a count of the following: trouble climbing stairs, performing heavy housework, and walking ¼ mile), perceived ill-health (ranging from excellent to poor health), life-threatening conditions (ever experienced lung disease, heart attack, diabetes, cancer, or stroke), and debilitating conditions (ever diagnosed with hypertension, arthritis, osteoporosis in one's life and immobilizing feet conditions or incontinence in last year).

Statistics. Descriptive statistics were calculated for each ethnic group. Significant differences between ethnic group and the White group were identified using ANOVA and Scheffe tests for continuous variables, and logistic regressions for categorical outcomes. Multivariate regression models estimated the association between religion and mental health. An initial model contained religion measures and potential confounders; the subsequent model included mediating psychosocial variables. Linear regression was employed for continuous outcomes (depressive and anxiety symptoms), and logistic regression was used for the dichotomous outcome (MDD). Denomination was omitted from the analyses because its inclusion did not affect the results, and the variables were not central to the overarching research questions.

We first tested for interactions between religion and ethnicity using cross-product terms in the full-sample models. Those tests revealed several significant interactions and underscored the need to examine how the religion–mental health association varies by ethnicity. We therefore stratified the sample by ethnicity, estimating models within each ethnic group (Tables 2–4). Significant cross-product terms from the full sample are also marked in these tables (coefficients with footnotes [W, B,] or [H]).

All models were estimated after applying sampling weights and adjusting for multistage clustered sampling designs. Because congregational support and criticism were asked only of congregational members, missing values for nonmembers were imputed with the mean scores calculated from congregational members and the analyses adjusted for membership status.

Results

Table 1 presents weighted descriptive statistics by ethnicity. Differences emerged for most religion and psychosocial variables, but the pattern was complex. Black Americans scored significantly higher on prayer, congregational criticism, and spirituality, and lower on congregational support, compared to White Americans or Hispanic Americans. Hispanic Americans and Black Americans had greater levels of attendance, prayer, and saliency than White Americans, but lower levels of congregational support and self-forgiveness. Black Americans exhibited more depressive and anxiety symptoms than White Americans and Hispanic Americans but equivalent rates of MDD.

Tables 2–4 present stratified regression models, along with significant interaction terms for ethnicity from the full sample. For each table, the first column within each ethnic grouping presents results without adjusting for support, meaning, and forgiveness, while the second column adjusts for the psychosocial mediators.

Service attendance and self-forgiveness were inversely associated with anxiety (Table 2) for White Americans only, while congregational criticism was positively associated with anxiety for Black Americans, and saliency was positively associated with anxiety for Hispanic Americans. Meaning and interpersonal forgiveness were inversely related to anxiety for Black Americans and White Americans.

A similar pattern appeared for depressive symptoms (Table 3), with attendance significant only for White Americans, saliency for Hispanic Americans, and meaning and interpersonal forgiveness for all three groups. Prayer was positively associated with increased depressive symptoms for White Americans alone, while congregational criticism was associated with increased depressive symptoms for Black Americans and Hispanic Americans.

Table 4 presents odds ratios and confidence intervals for MDD. As with depressive and anxiety symptoms, White Americans attending services were less likely to meet the criteria for MDD. For all groups, meaning was associated with a substantial reduced likelihood of MDD.

Discussion

Our study explored the differential association of religion across ethnic groups by using multiple measures of religion and its potential consequences. Drawing on four concepts – catharsis, integration, regulation, and identity – we hypothesized that

Table 1. Descriptive statistics by ethnicity ($n = 3103$).

	White Americans ($n = 1061$)	Black Americans ($n = 1240$)	Hispanic Americans ($n = 802$)
Religion measures			
Service attendance, mean (95% CI)	3.50 (3.33, 3.66)	4.01 (3.85, 4.17)*	4.17 (4.00, 4.34)*
Prayer, mean (95% CI)	3.51 (3.36, 3.45)	4.71 (4.60, 4.83)*	4.33 (4.20, 4.47)*
Spirituality, mean (95% CI)	2.88 (2.81, 2.95)	3.01 (3.02, 3.16)*	2.83 (2.76, 2.90)
Saliency, mean (95% CI)	3.00 (2.88, 3.11)	3.66 (3.57, 3.75)*	3.21 (3.10, 3.32)*
Denomination (%)			
Catholic	48	1*	74*
Protestant	21	69*	12*
Other	18	11*	6*
No religion	13	13*	9*
Mental health outcomes			
Depressive symptoms, mean (95% CI)	1.76 (1.71, 1.79)	1.92 (1.88, 1.96)*	1.78 (1.73, 1.83)
Anxiety symptoms, mean (95% CI)	1.48 (1.44, 1.52)	1.64 (1.59, 1.69)*	1.54 (1.48, 1.60)
Major depression (%)	11	11	12
Psychosocial mediators			
Congregational support, mean (95% CI)	2.69 (2.58, 2.81)	2.12 (2.03, 2.21)*	2.47 (2.35, 2.58)*
Congregational criticism, mean (95% CI)	1.56 (1.47, 1.66)	1.88 (1.79, 1.97)*	1.67 (1.57, 1.78)*
Forgiveness of other, mean (95% CI)	3.20 (3.15, 3.25)	3.23 (3.17, 3.29)	3.21 (3.15, 3.27)
Forgiveness of self, mean (95% CI)	3.19 (3.12, 3.27)	2.63 (2.55, 2.71)*	2.75 (2.65, 2.84)*
Meaning, mean (95% CI)	3.41 (3.36, 3.45)	3.45 (3.41, 3.50)*	3.36 (3.30, 3.41)
Sociodemographics			
Male (%)	50	43*	49
Age, mean (95% CI)	43.83	44.17*	38.13*
Married (%)	44	30*	54*
Education (%)			
Less than 12 years	10	23*	45*
12 years	20	28*	25
13–15 years	23	31*	21
16+ years	47	18*	10*
Income (%)			
Less than $10k	6	17*	9*
$10k–$29k	18	31*	33*
$30k–$49k	17	18	21
$50k +	37	19*	18*
Missing	21	16*	18

Table 1 (*Continued*)

	White Americans ($n = 1061$)	Black Americans ($n = 1240$)	Hispanic Americans ($n = 802$)
Physical measures			
Perceived ill-health, mean (95% CI)	2.22 (2.14, 2.30)	2.62 (2.54, 2.69)*	2.62 (2.52, 2.71)*
Life-threatening conditions (%)	15	23*	14
Debilitating conditions (%)	39	55*	38
Functional impairment, mean (95% CI)	1.19 (1.15, 1.23)	1.35 (1.29, 1.41)*	1.18 (1.14, 1.21)

*Statistically significant difference from White Americans at $p < 0.05$.

Black Americans and Hispanic Americans would have higher rates of religiosity, would experience greater mental health benefits from religious involvement than White Americans, and these benefits would be mediated through social support, meaning, and forgiveness.

Although Black Americans and Hispanic Americans had greater levels of religiosity on most domains, they experienced no greater mental health benefits than White Americans. For instance, service attendance was associated with beneficial mental health outcomes only for White Americans, while religious saliency was associated with *worse* mental health outcomes for Hispanic Americans. Additionally, psychosocial factors did not mediate the religion–mental health relationship. Meaning and forgiveness *were* associated with beneficial mental health outcomes for all three ethnic groups, but the effects were independent of religiosity. We discuss these findings in more detail below.

Service attendance

Contrary to our hypotheses, attending religious services was associated with fewer anxiety and depressive symptoms and a reduced likelihood of MDD only for White Americans. One possible explanation for the differential outcome is the 'semi-involuntary institution' (SI) theory (Ellison and Sherkat 1995), which posits that, because of the church's 'symbolic centrality and historic multifunctionality,' Southern Black communities view church attendance as normative behavior such that participation in the local congregation preserves social acceptance and prevents social sanctions (i.e., loss of reputation, alienation, access to social resources).

Given that religious attendance has been found to be psychologically beneficial when motivated by intrinsic religiosity (Pargament 1997), the SI theory could explain the absence of associations for Black Americans. Since, according to the theory, community norms dictate that most Black Americans attend church at least semiregularly, many would attend for instrumental (fear of social sanctions and loss of reputation) rather than spiritual reasons and subsequently benefit less from attendance.

Table 2. Multivariate linear regression of anxiety symptoms score: stratified by ethnicity[a].

	Coefficients from linear regressions											
	White Americans ($n = 1061$)				Black Americans ($n = 1240$)				Hispanic Americans ($n = 802$)			
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
Religion measures		95% CI		95% CI		95% CI		95% CI		95% CI		95% CI
Attendance	−0.02*	(−0.04, −0.00)	−0.05**[H]	(−0.08, −0.02)	−0.01	(−0.03, 0.01)	−0.01	(−0.03, 0.02)	−0.01	(−0.04, 0.01)	0.01[W]	(−0.03, 0.05)
Prayer	0.02	(−0.01, 0.04)	0.02	(−0.01, 0.04)	0.02	(−0.01, 0.05)	0.03	(−0.00, 0.06)	−0.00	(−0.04, 0.03)	−0.01	(−0.04, 0.02)
Saliency	0.01[H]	(−0.03, 0.04)	0.01[H]	(−0.02, 0.05)	0.01[H]	(−0.02, 0.05)	0.01[H]	(−0.02, 0.05)	0.06**[W,B]	(0.02, 0.09)	0.06** [W,B]	(0.02, 0.10)
Spirituality	−0.01	(−0.04, 0.03)	0.02	(−0.02, 0.06)	−0.06*	(−0.12 −0.00)	−0.03	(−0.09, 0.03)	−0.06	(−0.12, 0.01)	−0.01	(−0.07, 0.04)
Psychosocial mediators												
Congregational support			−0.02	(−0.06, 0.01)			0.02	(−0.02, 0.06)			0.02	(−0.02, 0.06)
Congregational criticism			0.00	(−0.05, 0.06)			0.04*	(0.00, 0.08)			0.03	(−0.02, 0.08)
Meaning			–0.24**	(–0.31, –0.17)			–0.28**	(–0.37, –0.19)			–0.35**	(–0.44, –0.26)
Forgive self			−0.03	(−0.07, 0.00)			−0.01	(−0.04, 0.02)			−0.01	(−0.05, 0.03)
Forgive others			–0.06**	(–0.11, –0.02)			–0.09**	(0.16, –0.03)			–0.04	(–0.09, 0.02)
Constant	1.33**	(1.10, 1.55)	2.45**	(2.10, 2.81)	1.40**	(1.09, 1.72)	2.37**	(1.96, 2.78)	1.23**	(0.92, 1.54)	2.38**	(1.88, 2.89)
R^2	0.17		0.29		0.13		0.23		0.17		0.29	

[a]All models adjust for respondent's gender, age, marital status, income, education, physical health and congregational membership.
[W]Different from White Americans at $p < 0.05$. Significance based on overall model with all ethnic groups and interaction terms for ethnicity.
[B]Different from Black Americans at $p < 0.05$. Significance based on overall model with all ethnic groups and interaction terms for ethnicity.
[H]Different from Hispanic Americans at $p < 0.05$. Significance based on overall model with all ethnic groups and interaction terms for ethnicity.
*Test of statistically significant difference within a given regression model at $p < 0.05$, **Test of statistically significant difference within a regression model at $p < 0.01$.

Table 3. Multivariate linear regression of depressive symptoms score: stratified by ethnicity[a].

	Coefficients from linear regressions											
	White Americans ($n = 1061$)				Black Americans ($n = 1240$)				Hispanic Americans ($n = 802$)			
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
Religion measures		95% CI		95% CI		95% CI		95% CI		95% CI		95% CI
Attendance	–0.04**[B]	(–0.06, –0.01)	–0.06**[B, H]	(–0.09, –0.04)	0.003[W]	(–0.02, 0.02)	0.01[W]	(–0.01, 0.03)	–0.02	(–0.04, 0.01)	0.01[W]	(–0.03, 0.04)
Prayer	0.04**	(0.01, 0.07)	0.04**	(0.01, 0.06)	–0.002	(–0.03, 0.03)	0.01	(–0.01, 0.04)	0.01	(–0.03, 0.04)	0.00	(–0.02, 0.03)
Saliency	–0.02[H]	(–0.05, 0.02)	–0.004[H]	(–0.04, 0.03)	0.003[H]	(–0.03, 0.03)	–0.00[H]	(–0.03, 0.03)	0.05**[W, B]	(0.02, 0.09)	0.05**[W, B]	(0.02, 0.08)
Spirituality	–0.01	(–0.06, 0.04)	0.02	(–0.02, 0.07)	–0.02	(–0.07, 0.03)	0.02	(–0.02, 0.07)	–0.07*	(–0.14, - 0.00)	–0.02	(–0.08, 0.04)
Psychosocial mediators												
Congregational support			–0.03	(–0.06, 0.01)			0.03	(–0.01, 0.06)			–0.00	(–0.04, 0.04)
Congregational criticism			0.04	(–0.02, 0.09)			0.05**	(0.02, 0.09)			0.06*	(0.01, 0.10)
Meaning			–0.37**	(–0.43, –0.31)			–0.33**	(–0.39, –0.26)			–0.33**	(–0.41, –0.25)
Forgive self			–0.03	(–0.06, 0.01)			–0.02 +	(–0.05, 0.00)			–0.04	(–0.08, 0.00)
Forgive others			–0.07**	(–0.11, –0.03)			–0.04*	(–0.09, –0.00)			–0.07*	(–0.12, –0.01)
Constant	1.64**	(1.41, 1.87)	3.13**	(2.80, 3.46)	1.59**	(1.38, 1.81)	2.60**	(2.30, 2.90)	1.63**	(1.34, 1.91)	2.87**	(2.38, 3.36)
R^2	0.21		0.41		0.21		0.35		0.18		0.34	

[a]All models adjust for respondent's gender, age, marital status, income, education, physical health and congregational membership.
[W]Different from White Americans at $p < 0.05$. Significance based on overall model with all ethnic groups and interaction terms for ethnicity.
[B]Different from Black Americans at $p < 0.05$. Significance based on overall model with all ethnic groups and interaction terms for ethnicity.
[H]Different from Hispanic Americans at $p < 0.05$. Significance based on overall model with all ethnic groups and interaction terms for ethnicity.
*Test of statistically significant difference within a given regression model at $p < 0.05$., **Test of statistically significant difference within a regression model at $p < 0.01$.

Table 4. Logistic regression of major depressive disorder (MDD): stratified by ethnicity[a].

	Odds Ratios for MDD											
	White Americans ($n = 1061$)				Black Americans ($n = 1240$)				Hispanic Americans ($n = 802$)			
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
Religion measures	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Attendance	0.83*	(0.72, 0.96)	0.76*	(0.61, 0.94)	0.99	(0.88, 1.11)	0.9	(0.77, 1.05)	0.87	(0.75, 1.01)	0.9	(0.71, 1.13)
Prayer	1.18	(0.98, 1.42)	1.19	(0.99, 1.42)	0.96	(0.79, 1.16)	1.00	(0.82, 1.22)	0.98	(0.80, 1.21)	0.94	(0.76, 1.18)
Saliency	1.11	(0.85, 1.45)	1.14	(0.89, 1.47)	1.16	(0.94, 1.42)	1.13	(0.92, 1.38)	1.19	(0.97, 1.45)	1.2	(0.95, 1.52)
Spirituality	0.88	(0.63, 1.23)	1.00	(0.72, 1.39)	1.00	(0.69, 1.44)	1.08	(0.77, 1.53)	0.9	(0.61, 1.33)	1.16	(0.79, 1.70)
Psychosocial mediators												
Congregational support			0.93	(0.70, 1.24)			0.97	(0.78, 1.21)			0.97	(0.75, 1.26)
Congregational criticism			1.03	(0.72, 1.46)			0.99	(0.79, 1.23)			0.91	(0.65, 1.26)
Meaning			0.28**	(0.18, 0.44)			0.39**	(0.27, 0.56)			0.34**	(0.22, 0.52)
Forgive self			1.11	(0.83, 1.47)			0.81*	(0.68, 0.98)			0.89	(0.70, 1.13)
Forgive others			1.02	(0.71, 1.46)			1.07	(0.83, 1.39)			0.75	(0.54, 1.05)

[a]All models adjust for respondent's gender, age, marital status, income, education, physical health, and congregational membership.
[W]Different from White Americans at $p < 0.05$. Significance based on overall model with all ethnic groups and interaction terms for ethnicity.
[B]Different from Black Americans at $p < 0.05$. Significance based on overall model with all ethnic groups and interaction terms for ethnicity.
[H]Different from Hispanic Americans at $p < 0.05$. Significance based on overall model with all ethnic groups and interaction terms for ethnicity.
*Test of statistically significant difference within a given regression model at $p < 0.05$.
**Test of statistically significant difference within a regression model at $p < 0.01$.

A similar case could be made for Hispanic Americans. Hispanic religiosity is culturally imbedded, especially among those of Mexican origin (70% of the sample) (Hill *et al.* 2005). The relatively high levels of religious attendance could reflect a ubiquitous cultural ethos rather than individualized spiritual quests.

In supplemental analyses, we further explored the hypothesis through measuring attendance as a dichotomous variable (never attending vs. all other categories) rather than a linear measure. The SI hypothesis is based on the premise of widespread religious affiliation, motivated by community norms and fear of sanctions. Given this, we would expect that those who shun religion entirely would exhibit worse mental health outcomes than their affiliated counterparts. We found some support for this hypothesis; nonattending Hispanic Americans had over four times greater likelihood of being diagnosed with depression, compared those with at least marginal affiliation; African Americans were at twice the likelihood (though with only borderline significance). No similar patterns emerged for depressive symptoms or anxiety symptoms.

Nevertheless, the SI theory should be viewed cautiously. The original theory focused on Southern, rural Black neighborhoods. While Chicago is similar in its persistent segregation, isolated Black communities, and large proportion of Southern migrants, it nevertheless is a northern urban center. At the same time, similar arguments have been applied more recently to religious engagements of Black Americans in at least some northern areas (Anderson 2000).

Another possibility for no association between attendance and health among Hispanic Americans relates to the mental health indicators used. Of the existing studies that found beneficial effects of attendance for Hispanic Americans, nearly all employed life satisfaction or well-being as their outcome (Levin *et al.* 1996), while one study focusing on depressive symptoms found that attendance was unrelated to this outcome (Abraido-Lanza *et al.* 2004). Because measures of psychological well-being, psychological distress, and mental illness are conceptually distinct domains, with differing sociodemographic profiles and illness courses (Kessler *et al.* 2007), service attendance could plausibly improve life satisfaction for Hispanic Americans while negligibly influencing mental illness or psychological distress.

Religious saliency

We expected that the integrative, regulatory, cathartic, and identity-forming aspects of religion would be more beneficial among those deeply committed to their faith, especially among minorities. However, Hispanic Americans with high religious saliency experienced poorer mental health. While somewhat unexpected, these findings are congruent with a recent study of Mexican-American adults in California, which found a stress-exacerbating effect of religious saliency (Ellison *et al.* 2009). Ancillary analyses explored the possibility that religious saliency was a proxy for Catholic denomination, who tend to report higher levels of religious saliency than Hispanic Protestants. However, religious denomination had no impact on the magnitude or direction of the saliency effect. Another possibility is that the results were a relic of cross-sectional analyses. Some evidence suggests that religion becomes especially important to Hispanic Americans in times of distress (Somerstein 2002). Thus, the observed association between saliency and poor mental health may be due to the differential selection of emotionally vulnerable Hispanic Americans

into the 'high saliency' category. Future analyses using longitudinal data could clarify the temporal ordering of this association.

Psychosocial dimensions

Despite the extensive literature on the health benefits of social support (House *et al.* 1988), in our study, positive religiously oriented social support was unrelated to mental health and negative social support was associated with worse mental health for Black Americans and Hispanic Americans. Past research suggests that negative interactions may exert a larger toll on mental health than the comparable benefits of social networks (Krause *et al.* 1998). Seen from the perspective of the SI theory, normative expectations regarding religious involvement may increase exposure to negative interactions within Black or Hispanic communities, because the overall rates of attendance and the pool of participants are greater. Likewise, the centrality of church life may increase vulnerability to these interactions, given the greater potential cost of social alienation.

In contrast to social support, meaning and interpersonal forgiveness were associated with improved mental health for all three ethnic groups. Because these variables did not mediate the religion–mental health associations, we cannot definitively attribute the source of meaning or forgiveness to religion or make claims about the causal role of religion in promoting these characteristics. Nevertheless, past studies have tied religious involvement to both psychosocial factors (Silberman 2005). Therefore, while not the exclusive domain of religion, these psychosocial factors may shed light into how religion can impact mental health.

Study limitations

The study has several limitations. First, the use of cross-sectional data prevents establishing causality between religion and mental health. Second, the low alpha and correlation scores for the 'sense of purpose' and 'interpersonal forgiveness' indices, respectively, suggest potentially low levels of reliability in these measures. Third, our analyses did not control for the existence of comorbid mental illnesses, which may confound the religion–health relationship. Fourth, findings from the Chicago-based sample may not generalize to other geographic areas, especially outside of the North American cultural context. Finally, we note that the regression models only explained a small part of the overall variance (as indicated by the low R^2 values), suggesting that other factors must be further considered to explain the mental health outcomes of the three ethnic groups.

Health implications for practice and policy

Depression and anxiety are two of the most common and debilitating mental illnesses in the USA, with significant personal and societal costs (Wang *et al.* 2003). Public sector resources have often failed to meet the needs of persons with mental illness, especially ethnic minorities (Young *et al.* 2003), and Black Americans and Hispanic Americans are far less likely than White Americans to seek out treatment (Thompson *et al.* 2004).

In this context, some researchers and clinicians have advocated increased integration of religion/spirituality in psychological treatment (Blank *et al.* 2002, Levin *et al.* 2005). The centrality of religion in Black and Hispanic communities (Griffith *et al.* 1984) and the integral role of clergy (Young *et al.* 2003) may uniquely position religious institutions in these communities to influence the health of their congregants. Collaborating with churches may be an effective and cost-effective means of improving overall mental health.

At the same time, our preliminary findings suggest the need for a nuanced approach in any effort to leverage the therapeutic aspects of religion. If our findings are replicated, they suggest that rather than exclusively promoting church attendance, religious-oriented public health initiatives could profitably focus on facilitating psychological dimensions, such as a sense of purpose or forgiveness, in order to effectively impact the psychological well-being of minority populations, as well as the broader population.

Key messages

Existing studies have generally found that Black and Hispanic Americans benefit more from religious involvement than do White populations. However, the consistency of these findings across comprehensive measures of religion and mental health, and the reason for these differences, remain unknown.

This study shows that, although Black and Hispanic Americans have greater levels of religiosity on most domains, they experience no greater mental health benefits than White Americans. Furthermore, psychosocial factors do not mediate the religion–mental health relationship. However, initiatives that facilitate a sense of purpose or elicit feelings of forgiveness may improve mental health, regardless of race or ethnicity.

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References

Abraido-Lanza, A.F., Vasquez, E., and Echeverria, S.E., 2004. En las manos de dios [in god's hands]: religious and other forms of coping among latinos with arthritis. *Journal of Consulting and Clinical Psychology*, 72 (1), 91–102.

Anderson, E., 2000. *Code of the street: decency, violence, and the moral life of the inner city.* New York, NY: WW Norton & Company.

Blank, M., *et al.*, 2002. Alternative mental health services: the role of the Black church in the south. *American Journal of Public Health*, 92 (10), 1668.

Derogatis, L.R., *et al.*, 1974. The hopkins symptom checklist (HSCL): a self-report symptom inventory. *Behavioral Science*, 19 (1), 1–15.

Durkheim, E., 1897. *Suicide: a study in sociology.* London: Routledge & K. Paul.

Ellison, C.G., *et al.*, 2009. Religious involvement and depressive symptoms among Mexican-origin adults in California. *Journal of Community Psychology*, 37 (2), 171–193.

Ellison, C.G. and Sherkat, D.E., 1995. The "Semi-involuntary institution" Revisited: regional variations in church participation among Black Americans. *Social Forces*, 73 (4), 1415–1437.

Franzini, L., Ribble, J.C., and Wingfield, K.A., 2005. Religion, sociodemographic and personal characteristics, and self-reported health in Whites, Blacks, and Hispanic Americans living in low-socioeconomic status neighborhoods. *Ethnicity & Disease*, 15 (3), 469–484.

George, A.S. and Mcnamara, P.H., 1984. Religion, race and psychological well-being. *Journal for the Scientific Study of Religion*, 23 (4), 351–363.

Griffith, E., Young, J.L., and Smith, D.L., 1984. An analysis of the therapeutic elements in a Black church service. *Hospital & Community Psychiatry*, 35 (5), 464–469.

Hill, T.D., *et al*., 2005. Religious attendance and mortality: an 8-year follow-up of older Mexican Americans. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 60 (2), 102–109.

Hill, T.D., *et al*., 2006. Religious attendance and the health behaviors of Texas adults. *Preventive Medicine*, 42 (4), 309–312.

House, J., Landis, K., and Umberson, D., 1988. Social relationships and health. *Science*, 241 (4865), 540.

Idler, E., 1987. Religious involvement and the health of the elderly: some hypotheses and an initial test. *Social Forces*, 66 (1), 226–238.

Idler, E.L., *et al*., 2003. Measuring multiple dimensions of religion and spirituality or health research – conceptual background and findings from the 1998 general social survey. *Research on Aging*, 25 (4), 327–365.

Kessler, R.C., *et al*., 1998. The world health organization composite international diagnostic interview short-form (CIDI-SF). *International Journal of Methods in Psychiatric Research*, 7 (4), 171–185.

Kessler, R.C., *et al*., 2007. Co-morbid major depression and generalized anxiety disorders in the national comorbidity survey follow-up. *Psychological Medicine*, 38 (03), 365–374.

Krause, N., Ellison, C.G., and Wulff, K.M., 1998. Church-based emotional support, negative interaction, and psychological well-being: findings from a national sample of presbyterians. *Journal for the Scientific Study of Religion*, 37 (4), 725–741.

Levin, J., Chatters, L.M., and Taylor, R.J., 2005. Religion, health and medicine in African Americans: implications for physicians. *Journal of the National Medical Association*, 97 (2), 237–249.

Levin, J.S., Markides, K.S., and Ray, L.A., 1996. Religious attendance and psychological well-being in Mexican Americans: a panel analysis of three-generations data. *Gerontologist*, 36 (4), 454–463.

Lincoln, C.E. and Mamiya, L., 1990. *The Black church in America*. Durham, North Carolina: Duke University Press.

Moreira-Almeida, A., Lotufo Neto, F., and Koenig, H., 2006. Religiousness and mental health: a review. *Revista brasileira de psiquiatria*, 28, 242–250.

Neff, J.A. and Hoppe, S.K., 1993. Race/ethnicity, acculturation, and psychological distress: fatalism and religiosity as cultural resources. *Journal of Community Psychology*, 21 (1), 3–20.

Pargament, K.I., 1997. *The psychology of religion and coping: theory, research, practice*. New York, NY: Guilford Publications.

Radloff, L.S., 1975. Sex differences in depression. *Sex Roles*, 1 (3), 249–265.

Sampson, R.J., Raudenbush, S.W., and Earls, F., 1997. Neighborhoods and violent crime: a multilevel study of collective efficacy. *Science*, 277 (5328), 918–924.

Schieman, S., *et al*., 2006. The sense of divine control and psychological distress: variations across race and socioeconomic status. *Journal for the Scientific Study of Religion*, 45 (4), 529–549.

Silberman, I., 2005. Religion as a meaning system: implications for the new millennium. *Journal of Social Issues*, 61 (4), 641–663.

Somerstein, L., 2002. Concrete tornadoes. *Journal of Religion and Health*, 41 (2), 109–112.

Taylor, R.J., Chatters, L.M., and Levin, J.S., 2004. *Religion in the lives of African Americans: social, psychological, and health perspectives*. Thousand Oaks, California: Sage.

Thompson, V.L.S., Bazile, A., and Akbar, M., 2004. African Americans' perceptions of psychotherapy and psychotherapists. *Professional Psychology Research and Practice*, 35 (1), 19–26.

Toussaint, L.L., *et al*., 2001. Forgiveness and health: age differences in a U.S. Probability sample. *Journal of Adult Development*, 8 (4), 249–257.

Wang, P.S., Simon, G., and Kessler, R.C., 2003. The economic burden of depression and the cost-effectiveness of treatment. *International Journal of Methods in Psychiatric Research*, 12 (1).

Young, J.L., Griffith, E.E.H., and Williams, D.R., 2003. The integral role of pastoral counseling by African-American clergy in community mental health. *Psychiatric Services*, 54 (5), 688–692.