Published in final edited form as:
J Nerv Ment Dis. 2012 October ; 200(10): 856–862. doi:10.1097/NMD.0b013e31826b6d65.

Religious Involvement and DSM IV 12 Month and Lifetime Major Depressive Disorder among African Americans

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Abstract

This study explores relationships between lifetime and 12 month DSM-IV major depressive disorder and religious involvement within a nationally representative sample of African American adults (n=3,570). MDD was assessed using the DSM-IV World Mental Health Composite International Diagnostic Interview (WMH-CIDI). Multivariate findings indicate that reading religious materials was positively associated with 12 month (OR=1.14, 95% CI=1.001 - 1.29) and lifetime MDD (OR=1.12, 95% CI=1.03 - 1.21), religious service attendance was inversely associated with 12 month and lifetime MDD, and religious coping was inversely associated with 12 month MDD (OR=0.75, 95% CI=.57 - 0.99). Findings are discussed in relation to the role of religion for African American mental health, prior research on the effects of religious involvement on physical and mental health, and theoretical and conceptual models of religion-health connections that specify multiple and often divergent pathways (e.g., prevention, resource mobilization) by which diverse forms of religious involvement impact mental health.

Keywords

African American; major depressive disorder; religiosity; National Survey of American Life

Introduction

Major depressive disorder (MDD) has significant and pervasive impacts on the US population (NCHS, 2009) in terms of increased health care expenditures and lost days of productivity, as well as rates of morbidity and mortality. African Americans, as compared to non-Hispanic Whites, experience higher rates of poverty (NCHS, 2009) and exposure to social stressors which are both recognized risk factors for MDD. However, they also have lower rates of MDD (CDC, 2009; Williams et al., 2007). This paradox has spurred interest in identifying specific cultural and social factors that may be protective against depression.

A tradition of ethnographic and social historical research documents the prominent position of religious resources and communities in African American life and their role in sustaining

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Disclosure: The authors do not have any commercial associations which may cause a conflict of interest.

the economic, social and mental well-being of individuals and communities (Billingsley, 1999; Griffith et al., 1984; Lincoln & Mamiya, 1990). African American churches and worship services embody unique organizational (e.g., clergy and lay support networks) and communal elements (e.g., collective orientation) that provide diverse forms of tangible assistance (e.g., financial aid, goods and services) and social and psychological resources and supports (e.g., self-esteem, sense of belonging, catharsis) to congregation members (Griffith et al., 1984; Lincoln & Mamiya, 1990; McRae et al., 1998; Taylor et al., 2004, 2005). Religion and faith communities, because they embody specific processes and experiences that may reduce exposure to risk and/or buffer the negative impact of social and personal stressors, are thought to be protective against depression within this population group. The following literature review briefly summarizes general research on religion and depression, followed by a discussion of religion and depression among African Americans.

Religion and Depression

Religious involvement (e.g., service attendance, religious guidance, religious coping) has a protective effect against the incidence and persistence of depressive symptoms and depressive disorders (George, 2011; Koenig et al. 1994; McCullough & Larson, 1999; Smith et al., 2003) and is associated with fewer depressive symptoms overall (Holt et al., 2011; Kennedy et al., 1996; Mahyar et al., 2006; Smith et al., 2003), lower likelihood of depression onset and decreased likelihood of depression prospectively (Ellison & Flannelly, 2009), and higher likelihood of remission from depression and shorter time to depression remission (Bosworth et al., 2003; Koenig, 2007; Koenig et al., 1998). The religion-depression connection, however, is multifaceted and complex (Ellison & Levin, 1998). In some instances, specific indicators of religious involvement (e.g., service attendance) are inversely related to depression (Baetz et al., 2003; Chatters et al., 2008), while other indicators (e.g., religious reading and television, extrinsic religiosity) are associated with higher rates of depression (Koenig et al., 2004; McCullough & Larson, 1999; Smith et al., 2003). However, when differentiating the role of religion as a preventive factor (inverse relationships) as opposed to religion as a coping or therapeutic factor in response to a psychiatric disorder (positive relationships), these findings are quite consistent in showing that religion has a beneficial impact on depression and depressive symptoms. Collectively, these diverse findings underscore the fact that religion is a multidimensional construct (Levin et al., 1995) and its effects on depression involve discrete causal pathways (i.e., stress prevention, support mobilization) and mechanisms (Ellison & Levin, 1998; Levin & Chatters 1998).

African Americans, Religion, and Depression

Research among African Americans also indicates that religious involvement of various forms (e.g., religious behaviors, networks and coping strategies) is associated with mental well-being (Bediako et al., 2010; Chatters et al., 2008, 2011; Ellison et al., 2001; Krause & Chatters, 2005; Taylor et al., 2004). Further, given characteristically high levels of religious behaviors and coping strategies (Bediako et al., 2010; Chatters et al., 2008, 2011; Krause & Chatters, 2005; Taylor & Chatters, 2011; Taylor et al., 2004) within this group, the effect of religion on depression and other mental health outcomes may be especially robust (Chatters et al., 2008, 2009; Krause 2008; Spates, 2011; Tabak & Mickelson, 2009; Taylor et al., 2007). Although religious involvement is generally beneficial for psychosocial and mental health outcomes among African Americans (Chatters et al., 2008, 2009; Ellison et al., 2008; Krause, 2008; Spates, 2011; Tabak & Mickelson, 2009; Taylor et al., 2007), only a few studies specifically examine the association between religious involvement and depression (i.e., depressive symptoms, MDD). In a series of studies, Brown (Brown & Gary, 1985; Brown et al., 1990) and colleagues found that depressive symptoms were inversely related to

religious involvement (e.g., attendance and affiliation) (Brown & Gary, 1994). Among persons reporting economic hardship, religious involvement was associated with higher depressive symptoms (Brown et al., 1992), suggesting that increased religious involvement may reflect an individual's coping efforts. Finally, among Black men only, religious involvement buffered the impact of a personal injury on depressive symptoms (Brown et al., 1990). Chatters et al., (2008) found that when controlling for subjective and non-organizational religious factors, religious service attendance was significantly and inversely associated with the odds of having a lifetime mood disorder among older African Americans.

A prospective study of depression (NIMH-DIS criteria) found that persons who reported receiving guidance from religion at Time 1 were less likely to report depression at Time 2 (Ellison & Flannelly, 2009). However, neither service attendance nor church support was significantly associated with depression. Holt et al. 's study (2011) of depression among colorectal and lung cancer patients found that for African American patients, better mental health functioning (SF-36 MCS) was associated with religious behaviors (e.g., attendance, religious reading), while depressive symptoms (CES-D short form) were unrelated to both religious beliefs (e.g., aware of God's presence in my life) and behaviors.

Although research on religious correlates of depression among African Americans is suggestive, the results are tempered by several considerations. First, findings on religious correlates of depression are based on a collection of diverse studies employing samples of mostly non-Hispanic whites of varying size and quality (e.g., small and geographically localized) and that often involve specialized groups of respondents (e.g., medical patients with significant, life-threatening illnesses). Consequently, these situations compromise sample representativeness and generalizability to the overall population(s). Second, the outcomes of interest in these studies involve a variety of measures such as depressive symptoms, psychological distress and overall mental functioning and mood. These conceptual and measurement differences, while important for understanding religion and depression more generally, present challenges for reconciling disparate research results (George, 2011). Given the significant impacts of clinical depression in terms of morbidity and personal and social costs, research is needed focusing specifically on the relationships between diverse measures of religious involvement and clinical depression (i.e., major depressive disorder) within representative samples of the African American population. The present study examines associations between religious factors and major depressive disorder (MDD) in a nationally representative sample of community-dwelling African Americans, with controls for physical health and sociodemographic factors (e.g., gender, SES, region) which are covariates of both depression and religious involvement.

There are several expectations that guide both the inclusion of specific variables and our analysis plan. Research on religion and mental/physical health notes that, of the dimensions of religious participation, organizational religiosity and religious coping are more likely to have significant associations with mental health (George et al., 2002). Consequently, we expect that service attendance and the religious coping variables will have a higher likelihood of being significantly associated with MDD than the other religious involvement variables. We anticipate that self-rated religiosity will not be significantly associated with MDD. Lastly, we expect that there will be a higher likelihood of significant relationships between religious involvement and 12 month MDD, as opposed to lifetime MDD. This is likely due to the temporal difference involved in relating current religious participation and lifetime prevalence (ever having had an episode) of MDD. Nonetheless, it is possible that individuals who have had major depression at some point in the past may increase their levels of religious participation in response to this event. In this case, a prior depressive episode(s) results in an increase in religious behaviors that persists over time. Previous

research findings on religion and suicide (which is highly comorbid with depression) are consistent with this reasoning. For instance, Bagley and Ramsey (1989) found that persons who had previously attempted suicide subsequently increased their levels of religious participation in addition to switching from the church in which they were raised to one with a more fundamentalist orientation.

Our analysis is informed by several conceptual models of the impact of religion on physical and mental health. These models specify the multiple and often divergent pathways of religion's effect on health outcomes (Ellison & Levin, 1998). The Prevention model indicates that religious attitudes, adherence to religious behaviors, and lifestyle choices reduce the risk of problems in numerous life domains such as marital issues (e.g., guidelines for marital behavior), legal problems (reduced likelihood of criminal behavior), and substance abuse (including alcohol, crack cocaine) that diminish physical and mental health (Ellison & Levin, 1998; Koenig et al., 2001; Wallace & Forman, 1998). Findings of inverse relationships between religious participation variables and depression are consistent with the Prevention model. In our analysis we expect that most of the religious involvement variables will be inversely associated with 12 month and lifetime depression. However, it is also possible that measures of nonorganizational religiosity or religious coping will be positively associated with depression. Positive relationships between the religion variables and depression would be consistent with the Resource Mobilization model (also known as the Stressor Response model) of religion and health (Ellison & Levin, 1998). This model states that major life problems, such as depression, prompt individuals to mobilize religious resources, including increasing the frequency of religious behaviors (Ellison & Levin, 1998). In other words, individuals turn to their faith and increase their religious behaviors (e.g., reading religious materials), in their attempts to cope with life crises (Cummings & Pargament, 2010; Ellison & Levin, 1998).

Methods

Sample

The National Survey of American Life: Coping with Stress in the 21st Century (NSAL) was collected by the Program for Research on Black Americans at the University of Michigan's Institute for Social Research. The field work for the study was completed by the Institute for Social Research's Survey Research Center, in cooperation with the Program for Research on Black Americans. The NSAL sample has a national multi-stage probability design which consists of 64 primary sampling units (PSUs). Fifty-six of these primary areas overlap substantially with existing Survey Research Center's National Sample primary areas. The remaining eight primary areas were chosen from the South in order for the sample to represent African Americans in the proportion in which they are distributed nationally.

The data collection was conducted from February 2001 to June 2003. Fourteen percent of the interviews were completed over the phone and 86% were administered face-to-face in respondents' homes. Respondents were compensated for their time. A total of 6,082 face-to-face interviews were conducted with persons aged 18 or older, including 3,570 African Americans, 891 non-Hispanic Whites, and 1,621 Blacks of Caribbean descent. The analysis for this paper was restricted to African Americans. The overall response rate was 72.3%. Response rates for individual subgroups were 70.7% for African Americans, 77.7% for Black Caribbeans, and 69.7% for non-Hispanic Whites. Final response rates for the NSAL two-phase sample designs were computed using the American Association of Public Opinion Research (AAPOR) guidelines (for Response Rate 3 samples) (AAPOR 2006) (see Jackson et al. 2004 for a more detailed discussion of the NSAL sample). The NSAL data collection was approved by the University of Michigan Institutional Review Board.

Measures

Dependent Variables—The DSM-IV World Mental Health Composite International Diagnostic Interview (WMH-CIDI) was used to assess the dependent variables, twelve month and lifetime major depressive disorder (twelve month MDD refers to depression that took place within the past 12 months; lifetime depression is an episode of depression that took place at any time in the respondents' life). The WMH-CIDI is a fully structured, lay interviewer administered instrument designed to detect psychiatric disorders using Diagnostic and Statistical Manual Version IV (DSM-IV) criteria. The mental disorders sections used in the NSAL are slightly modified versions of those developed for the World Mental Health project initiated in 2000 and the instrument used in the National Comorbidity Survey-Replication (NCS-R) (Kessler & Ustun, 2004). The DSM-IV criterion for major depressive disorder requires the presence of one or more major depressive episodes (MDE)– the presence of depressive symptoms, as well as clinically significant distress or impairment - without a history of manic, mixed or hypomanic episodes. The depressive episode must not be due to the direct physiological effects of drug abuse, a medication, or toxic exposure, nor better accounted for by Schizophrenia or another psychotic disorder.

The DSM criteria for MDE and MDD require the presence of five or more of nine depression symptoms. Respondents answered “yes” or “no” to the question “…during the period of depression lasting two weeks or longer when your depression and other problems were most severe and frequent, which of the following problems did you have most of the day nearly every day” (depressed mood, loss of interest or pleasure, difficulty concentrating, changes in appetite or weight, and sleep, psychomotor agitation or retardation, fatigue or loss of energy, feelings of worthlessness or excessive guilt, or suicidal thoughts or behavior). To meet criteria respondents needed to endorse five or more symptoms, including either depressed mood and/or loss of interest or pleasure.

Questions concerning clinically significant distress or impairment were: “How severe was your emotional distress during those times—mild, moderate, severe or very severe?” (persons reporting mild are excluded); “How often, during those times, was your emotional distress so severe that nothing could cheer you up – often, sometimes, rarely or never?” (rarely or never are excluded); or “How often during those times, was your emotional distress so severe that you could not carry out your daily activities – often, sometimes, rarely, or never?” (never are excluded); or the respondent must have answered “yes” to “Did you feel so sad that nothing could cheer you up nearly every day?” Alternatively, the respondent could have indicated that the symptoms interfered with work, social life or personal relationships “some, a lot, or extremely”, or answered Sheehan Disability Scale questions indicating moderate to severe interference in at least one life domain (i.e., home management, work, relationships with others, and social life).

In order to assess the major depressive episode/disorder requirement that the depression not be due to the direct physiological effects of a substance or general medical condition, the questionnaire asked whether the depression was always caused by physical illness or injury, and then invited an open-ended explanation, which was reviewed by a clinician for inclusion or exclusion. To fulfill the major depressive disorder criterion requiring that “there has never been a manic episode, mixed episode, or a hypomanic episode;” anyone who met criteria for a manic or hypomanic episode was excluded (based on the administration of a series of questions assessing these disorders). Two DSM-IV major depressive disorder criteria were not assessed: the criterion ruling out depression due to a “mixed episode” of mania and depression, and the criterion ruling out depression due to bereavement. Validation studies of the WMH-CIDI have found high levels of concordance with blind clinical appraisals (see Williams et al., 2007).

Independent Variables

Religious Involvement: Measures of organizational, nonorganizational, and subjective religious participation, and religious coping are investigated in this analysis. The measure of organizational religious participation is frequency of service attendance. This variable is measured by combining two items—one that indicates frequency of attendance and one that identifies respondents who have not attended services since the age of 18. The resulting categories for service attendance are: attend nearly every day, at least once a week, a few times a month, a few times a year, less than once a year, and (except for weddings and funerals) never attended services since the age of 18. Preliminary analysis indicated that service attendance had a non-linear relationship with MDD. So in the logistic regression analysis, service attendance is a categorical variable with less than once per year being the comparison category.

Four measures of nonorganizational religious participation are used in this analysis: reading religious books or other religious materials, watching religious television programs, listening to religious radio programs on the radio, and praying. Respondents were asked the frequency with which they engaged in these activities (i.e., nearly everyday, at least once a week, a few times a month, at least once a month, a few times a year or never). The range of each item was 6 for nearly everyday to 1 for never.

The measure of subjective religiosity is self-rated religiosity. Self-rated religiosity was measured by the question: “How religious would you say you are?” (response categories were: very, fairly, not too, or not at all). Two measures are examined that reflect religious coping. The first provides an assessment of the significance of prayer in difficult circumstances and asks: “How important is prayer when you deal with stressful situations?” very important (4), fairly important (3), not too important (2), or not important at all (1). The second question reflects an overall orientation toward God as a resource and asks respondents' level of agreement with the following statement: “I look to God for strength, support, and guidance.” Respondents indicate whether they: strongly agree (4), somewhat agree (3), somewhat disagree (2), or strongly disagree (1) with this statement.

Control Variables: The demographic variables used in this analysis include age, gender, marital status, education, family income and number of physical health problems. Missing data for family income and education were imputed using an iterative regression-based multiple imputation approach incorporating information about age, sex, region, race, employment status, marital status, home ownership, and nativity of household residents.

A potential confounder, the number of physical health problems was also included in the analysis. This variable is included because individuals who are physically healthy are more capable of attending religious services and participating in a range of religious activities (e.g., church clubs) which may be beneficial to their mental health. Similarly, poor health is a consistent and strong predictor of depression and depressive symptoms. Consequently, the benefits of religion may in part be a selection effect of healthy individuals being more able to participate in religious activities. This issue has been well documented in the religion and health literature (Levin & Vanderpool, 1987). The number of physical health problems was measured by respondents' reports of the number of doctor-diagnosed physical conditions they had. The distribution of the study variables is presented in Table 1.

Analysis Strategy

All percentages reported are weighted based on the distribution of African Americans in the population. Bivariate cross-tabulations are presented to illustrate the independent effect of service attendance on 12 month and lifetime MDD. Bivariate cross-tabulations are tested

using the Rao-Scott χ^2 which is a complex design-corrected measure of association. For the multivariate analyses logistic regression was used. All analyses were conducted using Stata 10.1 which uses the Taylor expansion approximation technique for calculating the complex design-based estimates of variance. All statistical analyses accounted for the complex multistage clustered design of the NSAL sample, unequal probabilities of selection, nonresponse, and poststratification to calculate weighted, nationally representative population estimates and standard errors.

Results

Descriptive characteristics of the African American sample and the distribution of the study variables are presented in Table 1. The average age of the respondents is 42.3 years (S.D. = 14.49) and 44% are male. The average household income is $36,833 (S.D. = $32,730), and the average number of years completed in school is 12.43 (S.D. = 2.23). Around 40% of the respondents are married or living with a partner, 31% are never married, and 27% are widowed, divorced, or separated. More than half (56.24%) of the respondents reside in the South. Respondents average 1.27 physical health problems.

Table 2 presents the prevalence of 12 month and lifetime major depressive disorder by frequency of service attendance. In both instances, service attendance has a non-linear relationship with the dependent variables. African Americans who attend religious services less than once per year and nearly everyday had the highest prevalence of both 12 month and lifetime MDD. Respondents who attended religious services at least once a week and a few times a month had lower prevalence of both 12 month and lifetime MDD.

Table 3 presents the logistic regressions for the religious involvement variables and 12 month and lifetime MDD. Service attendance, reading religious materials and the religious coping variable, “Look to God for strength” were all significantly associated with 12 month MDD. Respondents who attended religious services less than once per year were significantly more likely to have a 12 month MDD than respondents who attended services ‘at least once per week,’ ‘a few times a month,’ ‘a few times a year,’ and ‘never’. There was no significant difference in rates of 12 month MDD between respondents who attend religious services ‘nearly everyday’ and those who attended less than once per year. Frequency of reading religious materials was positively associated with 12 month MDD, whereas ‘Look to God for strength’ was inversely associated with having a 12 month MDD.

The logistic regression of the religious involvement variables and lifetime MDD is also presented in Table 3. Religious service attendance and reading religious materials were significantly associated with lifetime MDD. African Americans who attended services ‘less than once per year’ were more likely to have a lifetime MDD than respondents who attended services ‘at least once per week’ and ‘never’. Reading religious materials was positively associated with lifetime MDD.

Due to the large number of religion variables in our regressions, we checked for multicollinearity. We computed the Variance Inflation Factor which is a widely used measure of the degree of multicollinearity between the independent variables. In our analysis none of the Variance Inflation Factors reached the threshold of 10 or the more stringent threshold of 4 which many researchers regard as a sign of severe or serious multicollinearity (see O'Brien, 2007).

Discussion

This paper examined the relationship between religious participation and both 12 month and lifetime MDD among African Americans. Although there is an emerging body of research

on religious participation and psychological disorders, this is the first paper on religious participation and DSM-IV MDD among a national sample of African Americans. The findings are consistent with previous research on both African Americans (Chatters et al., 2008, 2009; Ellison et al., 2008; Krause, 2008; Spates, 2011; Tabak & Mickelson, 2009; Taylor et al., 2007) and whites (George, 2011; Koenig et al. 1994; McCullough & Larson, 1999; Smith et al., 2003) which shows that religious participation is a protective factor for mental health and mental illness.

Religious service attendance was significantly associated with both 12 month and lifetime MDD. This finding is consistent with previous research on religion and depressive symptoms among African Americans and Whites. The impact of service attendance was especially pronounced among African Americans who attend religious services at least once per week (OR = .43 for 12 Month MDD, OR = .61 for lifetime MDD).

This finding can be interpreted as reflecting the operation of two different, but complementary processes. In the first instance, religious service attendance operates as a protective factor that reduces the impact of serious stressors or traumatic events so that they do not lead to depression (Ellison & Levin, 1998). That is, service attendance is important in preventing depression. However, the finding that infrequent attendance (less than once per year) is associated with the highest MDD prevalence might also suggest that persons with clinical depression are less likely to attend services because of the characteristics of depression itself (such as low energy, feelings of worthlessness, loss of interest). Both interpretations are possible and consistent with the observed finding.

One other important point is worth noting. African Americans who have never attended religious services since the age of 18 (except for wedding and funerals) had a lower risk of both 12 month and lifetime MDD than those who attend less than once per year. Despite the fact that neither group is involved with a church, they clearly have different risks for MDD.

The curvilinear relationship between service attendance and depression is consistent with previous research which has found a curvilinear relationship between service attendance and depressive symptoms (Sternthal et al., 2010). Additionally, recent research on well-being has also found a curvilinear relationship between religiosity and happiness. In particular, Mochon et al., (2011) found that respondents who have moderate levels of religiosity had significantly lower levels of happiness than both those who have high levels of religiosity and those who do not ascribe to any religion. Previous research using the NSAL data also found that among African Americans, those who never went to religious services since the age of 18 had a lower risk of suicidal ideation than respondents who attended religious services less than once per year (Taylor et al., 2011). Future research should follow-up on this emerging body of research which indicates that among both African Americans and Non-Hispanic whites, those who never attend religious services do not have the highest risk of depression or lower levels of happiness.

The religious coping variable, ‘Look to God for Strength’ was inversely associated with 12 month MDD. This finding is consistent with research on religious coping as a protective factor for mental health which indicates that the belief that God cares for, loves and strengthens is associated with better mental health. In contrast, research on negative religious coping (e.g., agreement with statements such as ‘God has abandoned me’), is associated with increased depression and anxiety (Pargament, 1997).

The findings in the paper are consistent with the conceptual models of the impact of religion on physical and mental health (Ellison & Levin, 1998). The findings of the inverse relationships between service attendance and ‘Look to God for strength’ on MDD are consistent with the Prevention model (Chatters, 2000; Ellison & Levin, 1998). In contrast,

reading religious materials was positively associated with both 12 month and lifetime MDD, a finding that is consistent with the Resource Mobilization model (also known as the Stressor Response model) of religion and health (Ellison & Levin, 1998). This finding suggests that African Americans may increase their reading of religious materials to cope with either an episode of depression within the past 12 months (12 mo MDD), or to cope with ever having had an episode of MDD (lifetime MDD). The findings for lifetime MDD suggest that reading religious materials may function in two ways. First, religious reading can be used as a therapeutic factor to hasten remission and healing during a depressive episode. Second, among persons reporting lifetime MDD, religious reading may be used as a proactive strategy to continue to heal from the past episode(s) and protect against future major depressive episodes. Prospective information on responses to MDD can clarify how religious reading is used in the coping process.

Several studies on religion and depressive symptoms are consistent with the Resource Mobilization model. For instance, Ellison (1995) found that an index of non-organizational religious behaviors (i.e., prayer, reading religious materials and meditation) was positively associated with depressive symptoms among southern blacks and whites. Koenig et al. 's (1997) analysis of southern elderly adults also found that listening to religious radio and television programs was positively associated with depressive symptoms. Sternthal et al., (2010) analysis of a Chicago sample found that the frequency of prayer was positively associated with depressive symptoms and symptoms of anxiety, but not 12 month MDD. Additionally, a recent study using the NSAL data also found that frequency of reading religious materials was positively associated with suicidal ideation among African Americans (Taylor et al., 2011). Examples of the Resource Mobilization/Stressor Response model are clearly seen in research on religious coping among individuals who have serious physical health problems. This research finds that health related stress is significantly associated with increases in religious coping (Cummings & Pargament, 2010). One of the more notable studies in this area by Ai et al., (1998) found that individuals who used religious coping strategies to deal with postoperative problems following coronary bypass surgery had less depression and general distress. Finally, while we have argued that the positive relationship between reading religious materials and 12 month MDD is consistent with the Resource Mobilization model, another interpretation is possible. Very frequent reading of religious materials may increase an individual's guilt or sense of inadequacy because they are not able to achieve the ideal standard of behavior or morality which could, in turn, lead to depression.

Limitations of the study should be noted. First, study findings are not generalizable to segments of the population such as institutionalized and homeless individuals who were not represented in the sample. Second, given the cross-sectional nature of the data, causal inferences regarding the relationships between religious participation and MDD (i.e., protective effects, resource mobilization) are suggestive and await confirmation with prospective data. Nonetheless, the significant advantages of the sample and diverse religious variables examined provided a unique opportunity to examine different mechanisms and pathways of influence (i.e., resource mobilization, protective) of religious involvement on 12 month and lifetime major depressive disorder among a representative sample of African Americans. Importantly, study findings confirm the independent associations between religious involvement variables and MDD, and indicate that the underlying conceptual models of relationships between religion and MDD differ depending on the specific religious variables examined.

Acknowledgments

The authors thank Lili Deng for her assistance with the data analysis.

The preparation of this manuscript was supported by Grant P30-AG15281(to Dr. Taylor) from the National Institute on Aging and by Grant R01-MH084963 (to Dr. Chatters) from the National Institute on Mental Health. The data collection on which this study is based was supported by the National Institute of Mental Health (NIMH; U01-MH57716) with supplemental support from the Office of Behavioral and Social Science Research at the National Institutes of Health (NIH) and the University of Michigan.

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Table 1

Demographic Characteristics of the Sample and Distribution of Study Variables

	%	N	Mean	S.D.	Range
Organizational Religiosity					
Church Attendance					
Never	8.56	267			
Less that Once Per Year	9.63	312			
Few Times Per Year	19.53	670			
Few Times Per Month	24.34	891			
At Least Once a Week	32.60	1226			
Nearly Everyday	5.32	204			
Non-Organizational Religiosity					
Reading Religious Materials			4.17	1.44	1-6
Watch Religious Television			3.77	1.54	1-6
Listen to Religious Radio			3.69	1.74	1-6
Prayer			5.59	0.95	1-6
Subjective Religiosity					
Self-Rated Religiosity			3.12	0.68	1-4
Religious Coping					
Importance of Prayer in Stressful Situations			3.85	0.42	1-4
Look to God for Strength			3.85	0.43	1-4
Age			42.32	14.49	18-93
Education			12.43	2.23	0-17
Income			36,833	33,068	0-520,000
Gender					
Male	44.02	1271			
Female	55.97	2299			
Marital Status					
Married/Partner	41.65	1222			
Widowed, Separated, Divorced	26.77	1164			
Never married	31.57	1176			
Region					

	%	N	Mean	S.D.	Range
South	56.24	2330			
Other Regions	43.75	1240			
# of Chronic Health Conditions			1.27	1.40	0-13

Percents and N are presented for categorical variables and Means and Standard Deviations are presented for continuous variables. Percents are weighted; frequencies are unweighted.

Table 2

Bivariate Analysis of Religious Service Attendance on 12 Month (n= 188) and Lifetime (n=365) DSM-IV MDD Among African Americans

	12 Month		Lifetime	
	Yes	**No**	**Yes**	**No**
Organizational Religiosity				
Church Attendance				
Never	6.68	93.32	9.72	90.28
Less that Once Per Year	9.59	90.40	13.98	86.02
Few Times Per Year	4.58	95.41	10.62	89.38
Few Times Per Month	4.32	95.67	9.71	90.29
At Least Once a Week	4.61	95.39	9.51	90.49
Nearly Everyday	6.75	93.25	11.12	88.88
N	3433		3433	
Rao-Scott Chi-Square	12.90 *		5.19	

Percentages and Rao-Scott Chi-Squares are presented.

* p>.05

Table 3

Logistic Regressions of Religious Involvement and 12 Month and Lifetime Major Depressive Disorder among African Americans (N = 3,412).

	12 Month MDD				Lifetime MDD			
	OR (95% CI)	**B**	**SE**	**p**	**OR (95% CI)**	**B**	**SE**	**p**
Organizational Religiosity								
Service Attendance								
Never	0.46 (.24 - 0.90)	-0.76	0.33	.022	0.57 (.35 - 0.92)	-0.55	0.24	.021
Less than Once Per Year[a]	1.0	--	--	--	1.0	--	--	--
Few Times Per Year	0.44 (.27 - 0.71)	-0.82	0.24	.001	0.73 (.48 - 1.11)	-0.32	0.21	.138
Few Times Per Month	0.39 (.22 - 0.69)	-0.93	0.29	.001	0.65 (.39 – 1.07)	-0.43	0.26	.092
At Least Once a Week	0.43 (.23 - 0.83)	-0.83	0.33	.012	0.61 (.37 - 0.98)	-0.50	0.24	.042
Nearly Everyday	0.50 (.18 - 1.26)	-0.68	0.54	.209	0.61 (.28 - 1.35)	-0.49	0.40	.227
Non-Organizational Religiosity								
Reading Religious Materials	1.14 (1.001 - 1.29)	0.13	0.06	.049	1.12 (1.03 - 1.21)	0.11	0.04	.005
Watch Religious Television Programs	0.99 (.87 - 1.14)	-0.002	0.07	.976	0.97 (.88 - 1.05)	-0.03	0.04	.459
Listen to Religious Radio Programs	0.98 (.91 - 1.05)	-0.02	0.04	.560	0.96 (.91 - 1.02)	-0.04	0.03	.203
Prayer	0.93 (.78 - 1.11)	-0.07	0.09	.406	0.94 (.81 - 1.10)	-0.06	0.08	.455
Subjective Religiosity								
Self-rated Religiosity	1.01 (.75 - 1.33)	0.002	0.15	.986	1.00 (.81 - 1.23)	0.001	0.11	.989
Religious Coping								
Importance of Prayer in Stressful Situations	1.09 (.81 - 1.47)	0.09	0.15	.544	1.01 (.71 - 1.43)	0.01	0.18	.949
Look to God for Strength	0.75 (.57 - 0.99)	-0.28	0.14	.043	0.92 (.75 - 1.14)	-0.08	0.11	.467

OR=Odds Ratio, CI=Confidence Interval, B=logistic regression coefficient, SE=standard error of the logistic regression coefficient. Analysis controls for age, gender, education, income, marital status, region and number of chronic conditions.

[a]Reference Category.

J Nerv Ment Dis. Author manuscript; available in PMC 2013 October 01.