Understanding the Effects of Religion on Depressive Symptoms Among Older Adults

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ABSTRACT

A multiplicity of scholarly publications has found salutary associations between various aspects of religion and mental health, particularly depression. However, Hispanic older adults are seldom the focus of empirical studies analyzing these relationships. I fill that gap. Theories on the effects of church attendance, private prayer, religious coping, and religiosity on depression are developed and investigated. These analyses are based on a sample of older Mexican-origin individuals (N = 1,495). Data were obtained from the Hispanic Established Population for Epidemiological Studies of the Elderly (H-EPESE), a longitudinal survey. Results reveal an inverse association between moderate church attendance and depression that persists despite controls for social support, financial strain, and physical and mental impairment. An inverse association between higher levels of religiosity and depression and a direct association between higher levels of religious coping and depression also persisted beyond all controls. Findings suggest that the effects of religion on depression vary and are not always salutary. Methodological and theoretical implications, limitations, and future research directions are discussed.

Keywords: depression; religion; social support; older adults; Hispanics; Latinos

How religion affects society is the focus of some of the most fundamental sociological works, including Émile Durkheim's 1912 publication of *The Elementary Forms of Religious Life,* which identifies religion as the most essential social structure for the proper functioning of society (Durkheim, 1965). Over one hundred years later, religion remains an important topic of interest for scholars in many disciplines. In particular, a number of scholars have addressed the connection between religion and well-being, and especially depression. This scholarship, however, has generated disagreements about the specific mechanisms underlying the connection between religion and depression.

Four aspects of religion have been identified in the literature as potentially responsible for the connection between religion and health; in addition, some scholars also argue that the link between religion and health may be spurious, or the causal direction may be in reverse (i.e., those with more health problems are more likely to turn to religion). First, some scholars argue that public religious service attendance – above and beyond the other aspects of religion – is responsible for the link between health and religion (Rushing et al., 2013; Braam et al., 2001). For example, Koenig and colleagues (1997) find that attending church, rather than watching/hearing religious media on the television/radio, increases physical and emotional well-being among older adults. Church attendance is a type of social engagement that fosters the social bonds between individuals and their communities, and hence helps reduce depression by acting as an integrative force (Aranda, 2008; Koenig et al., 1997).

In contrast, other scholars argue that private religious activities, such as prayer and meditation, have greater benefits on well-being than public aspects of religion given

that prayer and meditation can have a calming effect on the nervous system, lower blood pressure, and emotionally arouse individuals in a positive manner (Lawler-Row & Elliot, 2009; Maselko & Kubzanski, 2006; Levin et al., 1996). For instance, Ardelt and Koenig (2006) find that prayer has the potential to decrease the deleterious symptoms of geriatric depression by reducing the stress of the prospect of dying. A third group of scholars argues that religious coping helps improve mental health by way of introducing God as a support source (Pargament, 1997). For example, studies find that seeking consolation from religion can decrease depressive symptoms among older adults by filling in the void left by overburdened family and friends (Krause, 1998).

Finally, the fourth strand of research argues that the actual level of religiosity – or the extent to which religion is important in a person's life – is more important than other aspects of religion (e.g., religious coping, church attendance) because religiosity provides a sense of purpose and meaning in life (Mirola, 1999) and hence directly helps deal with difficulties stemming from daily stressors (Ellison et al., 2009). For example, Ellison and colleagues (2009) find that a salutary association between religiosity and depression among Hispanics persists despite structural disadvantages endured by individuals in this population.

When assessing these arguments, I will be focusing on a sample of older Mexican American adults. Mental health, particularly depression, is closely associated with the aging process (Mirowsky & Ross, 1992). Increase in age has been associated with loss of sense of control, loneliness, lack of social support, chronic debilitating illnesses, and increased depressive symptoms (McFarland, 2009; Mirowsky & Reynolds, 2000; Blazer et al., 1991). Expansive literature has also documented additional risks of developing

depressive symptoms among Hispanics. Greater stress from lack of health insurance coverage, immigration, and acculturation place older adult Hispanics at risk of developing depressive symptoms (Ellison et al., 2009; Black, Markides, & Miller, 1998). Hispanics are, however, largely omitted from the conversation on the connection between religion and depression even though religion and religious communities are important in the lives of Mexican Americans (Ellison et al., 2009; Aranda, 2008). Many Mexican Americans are members of families who have been Catholic for generations and currently maintain rich devotional practice (Hill et al., 2005). Moreover, due to lack of material resources, Mexican Americans often turn to faith communities and religious practices for emotional support (Angel et al., 2003). Understanding the role of religion and religious communities in the lives of older Mexican Americans can potentially increase community participation and engagement in at-risk populations in need of help and voice.

I pose two primary research questions. First: Which aspects of religion are associated with depression among an at-risk population? Second: Do these associations persist despite controlling for potential alternative explanations? Estimating lagged dependent variable (LDV) models on longitudinal data, I examine the association between distinct aspects of religion (e.g., church attendance, private prayer, religious coping, religiosity) and depression among older Mexican American adults.

BACKGROUND

Aspects of Religion

Religion is a multidimensional social construct that is commonly associated with mental health and well-being but it remains unclear which aspect of religion plays a more significant role (Lim & Putnam, 2010; McFarland, 2009; Krause, 1993). Distinguishing

between the effects of different aspects religion is essential for analyses seeking to understand how religion is related to mental health (Brown, 1987). In similar studies estimating the effects of various aspects of religion, church attendance is most consistently associated with subjective well-being (Ferriss, 2002). Other studies, however, find that private prayer is the dominant factor in the association between psychological well-being and religion because of its reflexive and meditative qualities (Lawler-Row & Elliot, 2009; Maltby, Lewis, & Day, 1999). Moreover, religion has spiritual dimensions (e.g., religiosity, religious coping) that are also related to well-being (Lim & Putnam, 2010; Krause, 2003a). Religious coping and religiosity differ from private prayer and church attendance in that the former may be internal structures used to navigate daily life and the latter may be habitual activities. Understanding the effects of religion requires a multidimensional approach.

Church Attendance and Depression

Scholars whose work focuses on Mexican Americans argue that church attendance improves quality of life and decreases the risk of depression because it alleviates acculturation stress and provides social support (Aranda, 2008). Other scholars argue that church attendance encourages social engagement and facilitates the transfer of support (e.g., material support) among churchgoers (Rushing et al., 2013). Public religious participation (i.e., church attendance) is a unique type of social engagement where group activities, group identity, traditions and rituals are all blended together (Maselko & Kubzanski, 2006). These types of social engagements create "communities of faith" where like-minded people get together for a unifying cause that goes beyond the formation of social networks and social inclusion (Braam et al., 2001). Moreover,

communities of faith are communities of assistance. For example, food banks and other poverty alleviation programs are often administered and executed with the assistance of religious institutions.

Findings on the effects of various aspects of religion on well-being among older adults indicate that more frequent church attendance increases well-being and is associated with improved mental health (Lim & Putnam, 2010; McFarland, 2009; Hill et al., 2005). Among depressed older adults, church attendance decreased suicidality more so than religiosity (Rushing et al., 2013). Moreover, increased frequency church attendance is found to be associated with increased quality of life above other aspects of religion (Ferriss, 2002). In a panel analysis, Lim and Putnam (2010) find that religious service attendance has positive effects on life satisfaction because individuals build intimate social networks when they frequently attend church. These associations promote the transfer of support (Rushing et al., 2013). Increased church attendance introduces individuals to social support networks that would otherwise not be available to them.

Private Prayer and Depression

Through Christian prayer, individuals develop a meaningful attachment to God, Jesus, and the Virgin Mary. These relationships decrease depression by providing solace, comfort, and reassurance (Schnittker, 2011; Ellison et al., 2009). Moreover, emotional arousal during prayer is believed to be associated with healing and health, and well-being (Levin, 1994). For older adults, prayer and meditation can become increasingly important with age because it helps to cope with the prospect of dying, particularly in later life (Ardelt & Koenig, 2006). Prayer can be an important source of well-being and moral guidance among older adults and Hispanics.

Results regarding the effects of private prayer on depression among older adults, however, remain largely inconclusive (Maselko & Kubzanski, 2006; Levin & Markides, 1988). In their study, Koenig and colleagues (1997) find that frequency of private prayer and depression are unrelated among older adults in the general population. However, among Caucasian Protestant older adults, prayer and other private aspects of religion were found to be significant predictors of depressive symptoms even though church attendance was not (Lawler-Row & Elliot, 2009). The literature on the connection between religion and mental health has largely focused on populations other than Hispanics (Ellison et al., 2009). Findings demonstrate that private prayer can be associated with depression, but only few studies estimate the competing effects of two other aspects of religion considered here – religious coping and religiosity (Maselko & Kubzanski, 2006).

Religious Coping and Depression

At-risk populations (e.g., older adults, immigrants) may benefit from the supportive nature of using religion to cope with daily stressors because religion can alter an individual's perceptions of chronic stresses and strains in daily life and thereby decreasing depressive symptoms (Mirola, 1999). Religious coping is involved in individuals' perceptions of the role religion and religious communities have in helping to deal with the stressors of daily life. The effects of this type of coping, however, can be positive or negative. Negative religious coping (e.g., avoiding difficulties through religious activities, blaming God for difficulties) is associated with increased depression (Smith, McCullough, & Poll, 2003) whereas positive religious coping (e.g., viewing God and religious communities as support venues) is associated with less depression. Religion

often portrays God as being near those in need. Divine help often replaces other traditional venues of support that may not be available (Krause, 1998; Pargament & Hahn 1986). Some scholars argue that individuals who experience mental illnesses benefit from religious settings to cope with stress because they allow for dealing with spiritual and religious issues (Stanley et al., 2011). Moreover, this may be true particularly for older adults since for them religiosity tends to be higher (Ardelt & Koenig, 2006).

In their study, Stanley and colleagues (2011) find that using religion to cope with chronic depression is more often beneficial and preferred by older adults than traditional therapy. In a similar study, religious coping does not exert a significant additional effect on self-rated health after institutional religious involvement (i.e., church attendance) is measured (Krause, 1998). In one study, the stress-buffering effect of religious coping that is observed in the general population and among other at-risk populations does not occur among Mexican Americans (Ellison et al., 2009). Individuals may sometimes engage in destructive forms of religious coping where they view personal struggles as divine punishment (McConnell et al., 2006). The nature of the structure that individuals use for coping (i.e., negative religious coping, positive religious coping) may determine its effects on mental health.

Religiosity and Depression

The beneficial effects of religiosity on well-being are well established (Smith et al., 2003). Religiosity involves attachment to God, which serves as a "safe haven," and may provide solace or guidance in daily life and times of difficulty (Ellison et al., 2009). Some scholars argue that religiosity improves mental health in older adults by increasing personal strength (Pokorski & Warzecha, 2011). Additionally, some argue that religiosity

increases personal satisfaction, hope, and also provides a means of "preserving the self" (Levin, Markides, & Ray, 1996). Ellison and colleagues (2009) argue that interior religiousness (i.e., religiosity) is important for many Mexican-origin older adults because it can reduce the deleterious effects of acculturation.

In a meta-analysis on the effects of religion on depression, Smith and colleagues (2003) find that increased religiosity is often associated with fewer depressive symptoms. Findings focused on older adults in the general population indicate that private religiosity significantly predicts depression whereas church attendance does not (Hayward et al., 2012). Other findings in the Ellison and colleagues (2009) study suggests highly religious Mexican Americans enjoy increased well-being compared to their less religious counterparts because religion reduces the stress from immigration and acculturation. These results, however, have yet to be verified for a mental health outcome.

Social Support and Depression

In some instances, scholars argue that the association between religion and depression may be partially attributed to external mediators, such as social support (Hayward et al., 2012). Perceived social support is often used as an estimator of the extent and strength of social support networks. Some researchers find that social support must be measured using both quality and quantity of support (Rushing et al., 2013). Others find that perceived social support is more robust in predicting depression than one's network size (Grav et al., 2011). Perceived social support involves the perceptions of the availability of support typically obtained from direct contact with one's partner, family, close friends, religious group(s), or voluntary groups and associations (Peirce et al., 2000). It is also indicative of the perceptions that lead a person to believe that she or

he is loved, esteemed and cared for, and a member of a network of mutual obligations (Grav et al., 2011; Cobb, 1976). Perceived social support can thus potentially explain the association between church attendance and depression.

Studies find that church attendance is only significant in the prediction of mental health if measures of traditional social support (e.g., family support, perceived social support) are not included in the same equation (Lawler-Row & Elliot, 2009; Maselko & Kubzanski, 2006). In a study on longevity among Mexican Americans, the effects of social support do not significantly mediate the association between church attendance and mortality and do not have significant main effects independent of church attendance (Hill et al., 2005). Differences between the latter findings and the Hill and colleagues (2005) findings may be due to the importance older Mexican Americans place on religion and religious communities. Another reason for inconsistencies in the findings regarding the explanatory effects of social support on the association between church attendance and depression may be due to the lack of research addressing this issue. Few studies include the effects of social support when analyzing the association between church attendance and depression among older adults (Rushing et al., 2013). By including several measures of social support, I empirically test theories contending that the effects of frequency of church attendance are explained by traditional measures of social support.

As for marital support, some researchers argue that support received from a spouse or cohabiting partner predicts quality of life among older adults (Smith et al., 2003). Moreover, highly religious individuals tend to be in more stable marriages and higher quality relationships. Stable marriages and stable social support networks serve as connections between older adults and their communities. Individuals without access to

social support may be prone to develop increased depressive symptoms (Lara, Leader, & Klein, 1997). Older adults place great importance on long-term relationships with individuals and groups. Some scholars argue that marriage is important for older adults because it increases instrumental support (Gallardo-Peralta et al., 2014; Peirce et al., 2000). Older adults often need help completing daily tasks. Without a companion's help, these tasks can become increasingly burdensome and stressful with older age.

Empirical evidence, however, suggests that marriage can be detrimental to the well-being of adults and their elderly parents (Sarkisian & Gerstel, 2008). Moreover, other research finds that marriage is associated with lower relationship quality between older adults and their children (Stokes, 2014). Marriages directly impact the intensity of intergenerational ties. Married individuals give and receive less emotional and material support. Marriage is detrimental to the social bonds between individuals and family members, which directly impacts older adults' access to instrumental support (Sarkisian & Gerstel, 2008). Among older Mexican Americans, most findings suggest that marital status does not influence depressive symptoms (Black et al., 1998). Due to the inconsistencies in the literature regarding the effects of marriage on depression, the present study includes the explanatory effects of marital status on the association between religion and depressive symptoms.

Several studies find that quantity and quality of social support are associated with geriatric depression (Rushing et al., 2013; Lawler-Row & Elliot, 2009; Blazer, 2005). Intergenerational ties are also important for the well-being of adult children and their parents (Sarkisian & Gerstel, 2008). Some scholars argue that due to the decline in marital stability that has occurred over the past decades, kin across generations are called

upon more often to provide support (Bengtson, 2001). Several scholars argue that family-based social support is especially salient in mitigating the effects of stress on mental health among older adults (Weinstein et al., 2004). Many older adults are faced with widowhood, reduction in the range of relationships with friends, and difficulty developing new meaningful relationships. As a result, the quality and quantity of relationships with adult children may become very important for older adults (Ajrouch, Antonucci, & Janevic, 2001).

Intergenerational support has also been found to be important in the lives of older adults. Adult children play a core role in facilitating a sense of self-efficacy and a sense of being cared for, buffering emotional stress, and promoting positive health related behaviors (Roh et al., 2015). Researchers have found that support from adult children decreases stress and depression among older adults by decreasing the amount of time they spend thinking about daily stressors (Peirce et al., 2000). Others have found that increased interaction with children may lead to increased depression among older adults (Djundeva et al., 2014; Pillemer & Suitor, 2002). Some even find that increased support from family members does not mediate the relationship between church attendance and depression (Hill et al., 2005). The present research extends the Hill and colleagues (2005) study by measuring perceived social support along with additional measures of familial support. Perceived social support and direct support received from family have been shown to be important in the prediction of depressive symptoms among older adults. This study extends the literature's knowledge on the religion-mental health connection by including several measures of social support as alternative explanations for the observed salutary relationship between religion and depression.

Alternative Explanations

There are several potential alternative explanations for the consistently observed salutary association between religion and mental health. The relationship between certain aspects of religion and depression may be spurious. Financial strain may affect both depression and religious engagement. For example, financial strain is associated with chronic stress and depression among individuals in different at-risk populations (Aranda & Lincoln, 2011; Irwin et al., 2008). Other scholars have found that the effects of certain coping mechanism (e.g., religious coping) have the ability to increase well-being among individuals suffering from chronic stress (Gottlieb, 1997). The controlling effects of financial strain may thus impact both religious engagement and depression among older Hispanic adults.

Other explanatory variables that may be involved in explaining the association between religion and depression are mental and physical impairment (Aranda & Lincoln, 2011; Angel et al., 2003). A significantly large number of elderly Hispanics are functionally impaired and also have difficulties completing daily tasks (Tran & Williams, 1998). Moreover, some findings suggest that depression is a prodrome of dementia and the two illnesses tend to coexist in most cases (Brommelhoff et al., 2009). It is also possible that low church attendance results from poor health (Schmied & Jost, 1994). The effects of mental and physical impairment are potentially important for explaining the association between religion and depression.

Finally, as Gottlieb (1997) suggests, individuals suffering from chronic stress may turn towards certain types of coping aiding in their improvement. Depressed individuals may thus be inclined to use religion to cope with stressors. Determining the direction of

the relationship between aspects of religion and depression is thus also important for understanding how religion affects depression. In the present study, longitudinal models are used to determine causality.

Contributions of this Study

In sum, church attendance, private prayer, religiosity, and religious coping can all contribute to mental health, but scholars have not reached an agreement regarding their relative importance and contributions. For example, some find that church attendance above and beyond all aspects of religion improves well-being (Rushing et al., 2013) while others find that religiosity is more important (Mirola, 1999), and yet others suggest that private prayer is more important than other aspects of religion (Maselko & Kubzanski, 2006). Research findings regarding the effects of religion on depression are thus inconclusive. The present study contributes to the literature by estimating the effects of the aforementioned aspects of religion on depression and by testing possible alternative explanations for the link between various aspects of religion and depression. The present analyses address inconsistencies in findings regarding the religion-depression connection by introducing several potential explanations and using several aspects of religion to understand its effects on depression.

Older adults, scholars in health and aging, medical practitioners, and members of the clergy may find it noteworthy to understand the ways in which religion that has the ability to alleviate the debilitating symptoms of chronic geriatric depression. Moreover, communities, particularly religious communities, can incorporate the results of the present analysis in program evaluations to potentially improve efficiency and help at-risk

individuals cope. With the use of lagged dependent variable models on longitudinal data, I test the following hypotheses:

Hypothesis 1: Church attendance, private prayer, religious coping, and religiosity are associated with decreased depressive symptoms.

Hypothesis 2: The effects of church attendance, private prayer, religious coping, and religiosity on depressive symptoms persist even when social support, financial strain, and physical and mental health are taken into account.

METHOD

Data

I use data from the Waves 3 and 4 of the Hispanic Established Population for Epidemiological Studies of the Elderly (H-EPESE), a longitudinal survey. Waves 1 and 2 have been excluded due to the absence of survey questions essential to this project. There was a two-year interval from 1999-2001 between Waves 3 and 4. Baseline interviews for the first wave began in 1993. An area probability sample design was developed and three hundred census tracts were selected as primary sampling units (PSU's). These tracts provided clusters for door to door screening. Data were originally collected from 3,050 participants. During Wave 2, follow-up data were collected from 2,438 participants. During Wave 3 and Wave 4, follow-up data were collected on 1,980 and 1,685 participants respectively. This dataset is representative of community-dwelling-Mexican-American older adults, aged 65 year and older at Wave 1 living in Arizona, California, Colorado, New Mexico, and Texas. The analytic subsample used in these analyses consists of 1,495 participants who did not have missing data on the dependent variable.

Respondents suffering from severe mental impairment to the point of needing proxies are not asked information on the dependent variable.

Measures

Depressive symptomology – The dependent variable is depressive symptomology at Wave 4 and it is the outcome of all models. Depressive symptomology at Wave 3, or Time 1, is used as a control. These variables are measured using the Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1997). Items are scored on a 4-point scale. Total scores can range from 0 to 60 with high scores indicating greater frequency of depressive symptoms. Observed scores at Time 2 ranged from 0 to 47; they ranged from 0 to 51 at Time 1. A log transformation is applied and both variables are then standardized for ease of interpretation.

Public Religious participation – Respondents were asked, "About how often do you go to mass or services?" on a 5-point scale (1 = "never or almost never"; 2 = "several times a year"; 3 = "once or twice a month"; 4 = "almost every week"; 5 = "once a week or more"). Categories 2, 3, and 4 were collapsed to improve the distribution of cases between categories. The resulting variable is coded on a 3-point scale (1 = "never or almost never"; 2 = "once a week or less"; 3 = "more than once a week"). Categories are used as dichotomies with the reference group being "never or almost never."

Private prayer – Respondents were asked, "How often do you pray privately, other than in church?" using response categories on a 5-point scale (1 = "several times a day"; 2 = "about once a day"; 3 = "several times a week; 4 = "only on very special occasion; 5 = "almost never or never"). Categories 3, 4, and 5 were collapsed. The resulting variable is coded on a 3-point scale (1 = "less than once a day"; 2 = "about once

a day"; 3 = "several times a day"). Categories are used as dichotomies with the reference group being "less than once a day."

Religious coping – Respondents were asked, "To what extent is your religion involved in understanding or dealing with stressful situations in any way?" using a 4-point scale (1 = "not at all involved"; 2 = "not very involved"; 3 = "somewhat involved"; 4 = "very involved"). Categories 1 and 2 were collapsed. The resulting variable is coded on a 3-point scale (1 = "not at all or not very involved"; 2 = "somewhat involved; 3 = "very involved"). Categories are used as dichotomies with the reference group being "not very or not at all involved."

Religiosity – Respondents were asked, "Using your own definition of a religious person, how religious are you?" with response categories on a 4-point scale (1 = "not at all religious"; 2 = "not very religious"; 3 = "somewhat religious"; 4 = "very religious"). Categories 1 and 2 were collapsed. The resulting variable is coded on a 3-point scale (1 = "not at all or not very religious"; 2 = "somewhat religious; 3 = "very religious"). Categories are used as dichotomies with the reference group being "not very or not at all religious." With regard to correlation between religion-related variables, Table 2 shows that the Pearson's r values between these variables are all below 0.5. Moreover, Variance Inflation Factor (VIF's) during diagnostics did not indicate collinearity problems in any of the models.

Perceived social support – Perceived social support is obtained from two items. The first item asked, "In times of trouble, can you count on at least some of your family or friends?" The second item asked, "Can you talk about your deepest problems with at least some of your family and friends?" The response categories for these items were

coded 1 for “most of the time”, 2 for “some of the time”, and 3 for “hardly ever.” These models use a dichotomy where respondents that answered “most of the time” on both questions were coded as 0 and the rest as 1.

Marital status – Marital status is measured as a dichotomy (0 = “not married” and 1 = “married”).

Intergenerational support – Percentage of number of children seen per month is used to measure frequency of face-to-face contact with adult children. The variable was created from the quotient of number of children seen per month divided by number of children. The resulting variable ranges from 0 to 100. Dummy variable adjustment method is used to account for the missing values in children seen per month (Williams, 2015). It is only acceptable to use this method when the unobserved values simply do not exist (i.e. the children seen per month question is only applicable to respondents who have children). The dummy variable was coded 1 for those respondents that have children and 0 for those that do not.

Financial strain – Financial strain is measured using two questions; the first item asked, “How much difficulty do you have in meeting monthly payments on your bills?” and includes 4 response categories (1 = “a great deal”; 2 = “some”; 3 = “a little”; 4 = “none”). The second item asked, “At the end of the month, do you usually end up with money left over?” and includes 3 response categories (1 = “not enough to make ends meet”; 2 = “just enough to make ends meet”; 3 = “some money left over”). Due to non-normality of a scaled variable using both of these items, a dummy variable is used and it was coded 1 for respondents that reported the first category on both items and 0 for the rest (Pearlin et al., 1981).

Physical disability – Physical disability is measured using total score on the Tinetti performance-oriented mobility assessment (POMA). The POMA is an efficient way to measure gait and balance. It is typically used to evaluate changes over time and mobility status (Faber, Bosscher, & van Wieringen, 2006). Total scores on the POMA range from 0 to 12 with higher values indicating better physical functioning and scores of 4 or less representing inability to physically care for oneself (Tinetti, 1986). Due to the severely skewed distribution of this variable, scores of 5 or more are coded 0 "little to no impairment" and scores of 4 or less are coded 1 "physical impairment."

Cognitive impairment – Cognitive impairment is measured using the mini–mental state examination (MMSE). The MMSE is a 30-point questionnaire that is widely used in clinical and research settings to measure cognitive decline and impairment (Pangman, Sloan, & Guse, 2000). Higher values indicate greater cognitive impairment. A dichotomy was created with scores of 20 or more coded 0 "questionable or mild dementia" and scores of 19 or less coded 1 "moderate to severe dementia." Those with moderate to severe dementia are older individuals that are less religious across all variables, have less social support, and experience financial strain more often. Religion may not be important in the prediction of depression for respondents suffering from moderate to severe dementia.

Sociodemographic controls – Age at Time 1 is top-coded at 95. The resulting variable ranged from 70 to 95. Age squared is not included in the regressions because, in analyses not shown here, it did not significantly predict depression or improve the variance explained by the regression. Gender is coded 0 "male" and 1 "female."

Analytic Strategy & Missing Data

For all the models in this analysis, I use the lagged dependent variable (LDV) technique, whereby I predict a Time 2 outcome using Time 1 predictors while controlling for stability of the dependent variable by including the same measure at Time 1. A total of 6 models are estimated. Models 1-4 measure the effects of each the religion-related variables respectively. Model 5 includes all of the religion-related variables simultaneously and Model 6 tests whether social support, health, and financial strain influence the association between religion and depression. Ordinary least squares (OLS) regression is used for all models.

Stata/SE 13 was used to conduct data screening and analyses. A modest number of cases had missing data on the independent variables; 25% of cases had no item-specific missing data for the independent variables. Missing values were addressed using multiple imputation by chained equations (MICE). Imputed values of the dependent variables were deleted after multiple imputation (multiple imputation then deletion procedure, or MID). The final estimates for these multivariate analyses are the result of averaging the coefficients from the twenty imputed data sets (Royston, 2009). Standard errors are obtained using Rubin's (1987) formula. Diagnostics indicated that there were no problems with linearity, collinearity, multivariate normality, or homoscedasticity.

FINDINGS

Descriptive statistics for all variables prior to transformation and standardization are shown in Table 1. The respondents were predominantly female (60 percent) and approximately 77 years old. As expected, older adults in this population experience high levels of impairment. A third of respondents experience moderate to severe dementia (33

percent) and a high percentage are disabled to the point of needing assistance completing daily tasks (29 percent). More than a tenth of respondents experience financial strain (12 percent). More than 92 percent of older adults in this sample have children and respondents see approximately two thirds of their children per month (64 percent). Less than half of respondents are married (48 percent) and approximately 22 percent perceive having unstable social support.

As for the religion-related variables, 17 percent of respondents never or almost never attend church, 70 percent of participants attend church once a week, and approximately 12 percent attend more than once a week. Approximately 16 percent of respondents report praying less than once a day, 40 percent that pray once a day, and 44 percent that pray more than once a day. Respondents reported religion to be not very or not at all involved, somewhat involved, and very involved in coping with stressors evenly. Only 17 percent of respondents reported being not very or not at all religious. As previous findings indicate, more respondents in this sample are somewhat religious (50 percent), or very religious (34 percent). Finally, contrary to expectations, average depressive symptoms decreased between these two waves (8.41 to 7.11).

Table 3 displays the results of a series of lagged dependent variable models, estimating the effects of religion-related variables and covariates on depressive symptoms at Time 2. As Model 1 shows, attending church once a week or less compared to never or almost never is significantly associated with experiencing fewer depressive symptoms (b = -0.29, $p<.001$). Attending church more than once a week is also significantly associated with experiencing less depressive symptoms (b= -0.17, $p<.05$). No significant association between private prayer and depression is observed in Model 2. In Model 3, the

association between religious coping and depression is not significant. Model 4 shows that being very religious compared to being not very or not at all religious is significantly associated with less depressive symptoms (b= -0.20, $p<.01$).

Model 5 includes all of the religion related variables simultaneously. In this regression, attending church once a week or less compared to never or almost never is associated with less depressive symptoms (b= -0.29, $p<.01$). Attending church more than once a week compared to never or almost never was no longer significantly associated with depression. Contrary to Model 3, Model 5 shows depressive symptoms are higher for those whom religion is somewhat involved in coping with daily stressors compared to those for whom religion is not very or not involved at all in coping (b= 0.17, $p<.05$). In this same regression, respondents that reported being very religious compared to being not very or not all religious experienced significantly less depressive symptoms (b= -0.25, $p<.01$). Through separate regressions not shown in this article, I determined that religious coping becomes significant only after religiosity is also included in the regression.

Model 6 is the full model and it includes the social support, financial strain, and physical and mental impairment measures. As shown by the equally significant coefficients compared to the previous model, the effects of the religion-related variables are not explained by the social support, financial strain, and physical and mental impairment measures. However, some findings indicate that these measures themselves are related to depression. Perceiving having an unstable social support network is significantly associated with more depressive symptoms (b= 0.14, $p<.05$) as compared to perceiving having stable support. Marital status was not significantly associated with

depressive symptoms. Those who see a higher percentage of their children within a month tend to report higher levels of depressive symptoms (b= 0.002, $p<.05$). There was no significant association between financial strain and depressive symptoms. Being physically disabled to the point of requiring assistance for performing daily tasks is associated with higher levels of depressive symptoms (b= 0.17, $p<.01$). Suffering from moderate to severe dementia is not associated with depressive symptoms. Finally, in terms of controls, this final model finds that age is significantly and positively associated with depressive symptoms (b= 0.01, $p<.01$), and women experience more depressive symptoms than men (b= 0.15, $p<.01$). Depressive symptoms at Time 1 are significantly associated with depressive symptoms at Time 2 (b= 0.35, $p<.001$).

Based on the evidence presented in Table 3, I find partial support for *Hypothesis 1*; two aspects of religion are associated with a decrease in depressive symptoms. Attending church once a week or less compared to never or almost never and being very religious compared to being not very or not at all religious are both associated with decreased depressive symptoms. Private prayer is not significantly associated with depression in any of the models and religious coping is positively associated with depressive symptoms. Moreover, the evidence presented in Table 3 finds evidence to support *Hypothesis 2*. The effects of the religion-related variables persist despite the effects of the explanatory variables.

DISCUSSION

Hispanics are the largest minority ethnic group in the United States, yet few studies analyze the effects of different aspects of religion on mental health among Hispanics. This study expands the knowledge in the literature by using data on older

Mexican American adults, examining the effects of four distinct aspects of religion on subsequent levels of depression, and testing whether social support, financial strain, and physical and cognitive health explain the association between different aspects of religion and depression. The following section of this paper discusses the implications and directions for future research on the connection between religion and depression. The limitations of the present study are also discussed.

Religion and Depression

The present findings support theories that religion is a multidimensional concept that requires several measures to accurately capture its effects on well-being (Ellison et al., 2009; Maselko & Kubzanski, 2006). Several aspects of religion are associated with depression among older adults. I find that church attendance and religiosity are both negatively and significantly associated with depression. Through cross-lagged models (not show here), I determined that depressive symptoms are not significantly associated with changes in religion-related variables. Using longitudinal data and lagged dependent variable models, I was thus able to determine that moderate frequencies of church attendance and high frequencies of religiosity are associated with a negative change in depressive symptoms.

This study also finds that increased reliance on religion to cope with daily stressors is associated with a subsequent increase in depressive symptoms. This can only be observed, however, once religiosity is also included in the equation. An explanation could be that religiosity absorbs the portion of the positive effects of religious coping and leaves the variance explained by the negative effects of religious coping unexplained. Religious coping can have negative effects on mental health when it is maladaptive

(McConnell et al., 2006). Older Mexican Americans may sometimes engage in maladaptive forms of religious coping. For example, sometimes individuals view personal struggles as divine punishment or abandonment (Pargament, Koenig, & Perez, 2000). Moreover, as previous findings have demonstrated, having an external locus of control when it comes to coping is associated with more depressive symptoms (Petrosky & Birkimer, 1991).

With regard to private prayer, the results of this study indicate that it is not significantly associated with depressive symptoms. The reason that private prayer is not significant in predicting depression may be that people turn to prayer for different reasons. For example, as Maselko and Kubzanski (2006) note, some pray during hardships (e.g., financial strain, chronic illness), which may lead to rumination and a decrease in well-being whereas others pray regularly regardless of their current life-situation, which, similarly to meditation, can lead to improved well-being. The effects of private prayer are thus not consistently associated positively or negatively to depression.

In sum, the findings presented in this study indicate that religion-related variables are not always negatively associated with reduced depressive symptoms. Specifically, increased religious coping leads to higher levels of depression while moderate church attendance and higher religiosity decrease depression. The effects of religion on depression thus vary and are not always salutary.

Effects of Explanatory Variables

Several past research findings indicate that the significant effects of religion on depression are partially explained by social support (Hayward et al., 2012; Lawler-Row & Elliot, 2009). In contrast, the present findings do not find evidence to support the

theory that having a stable social support network explains the link between any of the religion-related variables and depression. In this study, the effects of religion on depression are not explained by social support even though perceiving having unstable social support is significantly associated with increased depression.

In terms of family support, the present study finds that not only does it not help explain the results of depression, but the finding for the support measure itself is counterintuitive: respondents who reported seeing a higher percentage of their adult children within a month experienced more depressive symptoms. This is in line with some prior research: Moorman and Stokes (2016) find that increased contact makes depressive symptoms more frequent for adult grandchildren and grandparents. An explanation for these phenomena could be that parents of adult children who have problems (e.g., marital problems) see a decline in their well-being (Moorman & Stokes, 2016; Fingerman et al., 2012). Djundeva and colleagues (2014) also find that support given by adult children to their parents can increase depression in the parent. Moreover, too frequent interaction with children may make older adults feel like they have not accomplished the role of parenting (Pillemer & Suitor, 2002). Increased face-to-face contact with adult children may signify that offspring are not fully independent or are having a crisis consequently creating stress for the parent. Another explanation could be that adult parents may feel that they are not able to move forward beyond the role of caregiver, which can also cause stress. As Gerstel and Gallagher (1993) find, when older adults are expected to be caregivers, their relationship with their children is hindered.

The only social support measure included in the present study that is not significantly associated with depression is marital status. Scholars find that older adults

are susceptible to stressors that accompany older age without the support from a spouse (Lara, et al., 1997). However, as Black and colleagues (1998) and the present study show, among older Mexican Americans, the association between depression and marital status is not significant. The findings regarding the effects of marital status on depression for older adult Mexican Americans thus remain inconclusive. Inconsistencies may be due to cultural differences between older Mexican Americans and the general population. Divorce and cohabitation are less common among older adults in this population. Future research could further investigate how marital status and marital status transitions affect the association between religion and depressive symptoms among older Mexican Americans.

Concerning other potential explanatory variables, researchers find that the effects of financial strain are immutable (Krause, 2003b). Furthermore, others find that individuals cope with chronic strain by creating positive experiences in areas of life that are not related to the stressor (Gottlieb, 1997). Financial strain may thus not impact change in depression in the time period observed by these analyses. Similarly, moderate to severe dementia did not explain the association between religion and depression. More research analyzing the effects of religion on depression among individuals who suffer from severe dementia is needed. As for physical functionality, individuals that were too impaired to care for themselves experienced more depressive symptoms than those with no major disability. Perhaps physical impairment did not explain the association between religion and depressive symptoms since many older Hispanics suffer from chronic debilitating illnesses (Aranda & Lincoln, 2011), leading to more stability in the effects this variable.

Limitations

Despite the important findings presented here, this study has several limitations. The first is that I was not able to include more waves of the H-EPESE due to the lack of inclusion of religion-related variables in waves prior to Wave 3 and after Wave 4. For example, scales measuring frequency of bible study, frequency of volunteering through religious institutions, and other aspects of religion could potentially further disentangle the mechanisms responsible for the religion-mental health connection. Other variables focused on face-to-face interactions with clergy could also provide valuable insight into the association between religion and depression. Future surveys similar to the H-EPESE should incorporate even more religion-related variables so that the association between depression and religion can be further disentangled.

Another limitation of this research is that the H-EPESE does not include a scale of social support with more measures. Future surveys could include the 40-item Interpersonal Support Evaluation List (Peirce et al., 2000) along with the family related support variables included in this study. Additional measures of church-based support could also provide valuable insight into the religion-depression connection. For example, controlling for how often older adults receive help from religious communities could explain the association between church attendance and depression. Additionally, future surveys could incorporate additional measures of coping. For example, separate items measuring negative and positive religious coping could disentangle the association between religious coping and depression. Frequency of prayer of during hardship and frequency of church attendance resulting from a need to receive food donations may be more indicative of an increase in depressive symptoms whereas habitual private prayer

and church attendance may be more indicative of spiritual stability and a reliable social support network.

Lastly, there may be other extraneous factors that influence depressive symptoms among older adults of Mexican origin that are beyond the scope of this study. For example, the results of this study are only applicable to older adults that do not suffer from severe dementia. Moreover, some individuals may experience changes in depressive symptoms that could be captured with additional time points. More longitudinal research is needed to verify past findings and the results of the present analysis.

Implications and Future Research

This research finds evidence to support the findings in the Braam and colleagues (2001) study that regular church attendance decreases depression. I also find evidence to support theories that examining more than one aspect of religion simultaneously is important in the prediction of depression among Mexican Americans (Ellison et al., 2009). Church attendance, religious coping, and religiosity are all significantly associated with depression. I find that estimating the effects of religion on well-being requires a multidimensional approach that uses more than one measure of religion.

Another main finding of this study is that none of the effects of the religion-related variables were explained by social support. In contrast, past research has found that church attendance is only significant in predicting depression if social support is not included in the regression (Lawler-Row & Elliot, 2009; Maselko & Kubzanski, 2006). This contradiction may be due to the fact that global measures of social support used in this study may not capture the type of spiritual support provided by structural aspects of religion. Religion might provide an overall sense of safety or purpose in life that could be

different from what other questions about support ask. For example, understanding current events with sermons' guidance and through a religious lens can help older adults feel like they are part of a larger group of like-minded individuals. This feeling of spiritual support is sometimes different than the type of connections older adults have with friends and family. Thus "communities of faith" and religion integrate individuals differently than other types of social engagements. Future research could investigate the transfer of spiritual support between churchgoers to further understand how different types of social connections foster good health.

The present findings further complicate previous findings regarding the effects of religious coping on depressive symptoms. Mirola (1999) finds that the use of religion to cope with stress significantly buffers the effects of chronic depression and that this association is more important when social support network extent is taken into consideration. The present research finds that regardless of social support network health, the use of religion for coping is associated with more depressive symptoms. As past researchers have found, having an external locus of control can lead to more depressive symptoms (Petrosky & Birkimer, 1991). Overwhelmed individuals that may feel like they are not in control of their lives experience greater distress and depression. Results regarding the effects of religious coping are still inconclusive since this research found that only after measuring the effects of religiosity does religious coping become significant in predicting depression. Using structured equation models, future research could explore whether individuals in need of solace seek help from religion, or whether religious individuals seek comfort from religious institutions more so than from traditional social support venues. In these models, reverse causality was not found in the

association between the religion-related variables and depressive symptoms. Future research with additional data time points, however, should verify that depressive symptoms and mental health are not associated with a change in church attendance, private prayer, religious coping, and religiosity. Furthermore, as Maselko and Kubzanski (2006) note, more research is needed to determine if social support explains the association between religion and depression. While this research has explored this dimension, more studies on different populations are needed to validate the findings presented here.

Future research can also test the hypotheses of this study in populations of older Mexican Americans and other Hispanics residing in other parts of the United States. In areas where Hispanics have fewer venues for cultural participation, church attendance and other religious involvement could have a more pronounced positive impact on overall well-being and lower depressive symptoms. To test that, surveys with the relevant variables collected in a range of geographic regions are needed.

In sum, notwithstanding the limitations of this research, the results presented here offer brand new directions for future research and bridge gaps in the literature regarding the importance of considering various aspects of religion and the explanatory effects of social support, financial strain, and physical and cognitive health. Furthermore, the findings of this study demonstrate that it is important for older Hispanic adults to maintain connections to religious communities. As past findings suggest and as this research has shown, various aspects of religion have the ability to significantly impact mental health among older Mexican Americans. Religious coping, however, has the ability to become destructive for mental health. Religious communities can apply the

present findings and guide older adults and other at-risk populations towards positive religious coping. Helping older adults maintain access to religious communities and a healthy connection with religion can save their lives and greatly reduce stress on their social networks and expanded communities.

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Table 1. Descriptive Statistics

			Observed	
Variable	M or n	SD or %	Minimum	Maximum
Dependent variable				
Depressive symptoms (Time 2)	7.11	7.55	0	47
Independent variables				
1. Religion				
Religious Attendance				
Never or almost never	321	17.40%	—	—
≤ Once a week	1,300	70.46%	—	—
> Once a week	224	12.14%	—	—
Private Prayer				
< Once a day	274	15.54%	—	—
Once a day	709	40.22%	—	—
> Once a day	780	44.24%	—	—
Religious Coping				
Not very or not at all involved	547	34.12%	—	—
Somewhat involved	551	34.37%	—	—
Very involved	505	31.50%	—	—
Religiosity				
Not very or not all religious	292	16.61%	—	—
Somewhat religious	871	49.54%	—	—
Very religious	595	33.85%	—	—
2. Social support				
Unstable social support	407	22.49%	—	—
Married	965	48.84%	—	—
% children seen/month	64.15	36.6	0	100
Children (Yes)	1,813	92.36%	—	—
3. Demographics				
Age	77.38	6.02	70	95
Female	1,180	59.60%	—	—
4. Controls				
Financial strain	213	12.12%	—	—
Physical disability	530	28.65%	—	—
Moderate-severe dementia	623	33.21%	—	—
Depressive Symptoms (Time 1)	8.41	8.98	0	51

Note: Statistics are displayed for raw variables prior to transformation and imputation.

Table 2. Correlation (Pearson's r) Between Religion-Related Variables

	Religious Attendance	Private Prayer	Religious Coping	Religiosity
Religious Attendance	1.00	—	—	—
Private Prayer	0.24	1.00	—	—
Religious Coping	0.30	0.40	1.00	—
Religiosity	0.30	0.31	0.49	1.00

Note: Correlations displayed for variables before imputation.

Table 3. Multivariate Regression of CES-D Depression on Religion and Independent Variables (N = 1495)

Variables	MODEL 1 b(se)	MODEL 2 b(se)	MODEL 3 b(se)	MODEL 4 b(se)	MODEL 5 b(se)	MODEL 6 b(se)
1. Religion						
Religious Attendance [a]						
≤ Once a week	-0.29*** (0.07)	—	—	—	-0.29*** (0.07)	-0.26** (0.08)
> Once a week	-0.17* (0.09)	—	—	—	-0.19 (0.10)	-0.16 (0.10)
Private Prayer [b]						
Once a day	—	-0.06 (0.07)	—	—	0.001 (0.08)	0.03 (0.08)
> Once a day	—	-0.06 (0.07)	—	—	0.01 (0.08)	0.04 (0.08)
Religious Coping [c]						
Religion somewhat involved	—	—	0.04 (0.06)	—	0.11 (0.06)	0.10 (0.06)
Religion very involved	—	—	0.05 (0.06)	—	0.17* (0.07)	0.17* (0.07)
Religiosity [c]						
Somewhat religious	—	—	—	-0.10 (0.07)	-0.09 (0.08)	-0.09 (0.08)
Very religious	—	—	—	-0.20** (0.07)	-0.25** (0.09)	-0.27** (0.09)
2. Demographics						
Age	0.02*** (0.004)	0.02*** (0.004)	0.02*** (0.005)	0.02*** (0.004)	0.02*** (0.004)	0.01** (0.005)
Female	0.16** (0.05)	0.16** (0.05)	0.14** (0.05)	0.18*** (0.05)	0.17** (0.05)	0.15** (0.06)
3. Social support						
Unstable social support	—	—	—	—	—	0.14* (0.06)
Married	—	—	—	—	—	-0.07 (0.05)
% children seen/month	—	—	—	—	—	0.002* (0.001)
Children (Yes)	—	—	—	—	—	-0.02 (0.10)
4. Controls						
Financial strain	—	—	—	—	—	0.06 (0.08)
Physical disability	—	—	—	—	—	0.17** (0.06)
Moderate–severe dementia	—	—	—	—	—	0.09 (0.06)
Depressive Symptoms (Time 1)†	0.38*** (0.02)	0.39*** (0.02)	0.39*** (0.02)	0.38*** (0.03)	0.38*** (0.02)	0.35*** (0.03)
Constant	-1.27*** (0.35)	-1.64*** (0.34)	-1.7*** (0.33)	-1.62*** (0.35)	-1.31*** (0.35)	-1.13** (0.39)

*p < .05, ** p < .01, *** p < .001
† transformed variable: log
[a] reference group: "Never or almost never"
[b] reference group: "< once a day"
[c] reference groups: "Not very or not at all"