

**THE ROLE OF RELIGIOUS COPING IN ALZHEIMER'S DISEASE CAREGIVING**

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# **THE ROLE OF RELIGIOUS COPING IN ALZHEIMER'S DISEASE CAREGIVING**

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University of Pittsburgh, 2009

Alzheimer's Disease (AD) and other dementias are one of the most critical public health problems in elderly populations. Whereas the financial, emotional and physical costs of the disease for the caregiver are enormous, support for the caregiver becomes more and more important. One aspect of caregiver support, however, religious coping and well-being in caregivers of AD has been relatively unexplored. Using baseline data from the Resources for Enhancing Alzheimer's Caregiver Health (REACH) II study, this study examined the relationship between religious coping, burden, depression and race among 211 African-American, 220 White and 211 Hispanic caregivers. Structural Equation Modeling was used to test our path model and Multi-sample SEM was used for a test of moderating effect of race. Caregiver burden mediated the effect of religious coping on depression with higher religious coping resulting in lowering caregiver burden and thereby reducing depression. The only path that was not predicted and had to be added to the model was between religious attendance and depression. While the overall MSEM test was not significant, separate analyses showed some variations in relationships among groups. The religious coping mediation model was better supported by African Americans than Hispanic and White caregivers. The findings suggest that religiosity plays an important role in decreasing caregiver burden and thereby decreasing depression. The findings also suggest that it may be culturally sensitive and appropriate to encourage African American caregivers to utilize religious coping resources. Greater

understanding of religious coping and its role in the caregiving process helps researchers discover better ways to assist racially diverse caregivers in dealing with burdens of AD caregiving.

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## **1.0 INTRODUCTION**

### **1.1 OVERVIEW**

This study examined the role of religion as a source of support and a means of coping among those individuals providing care to victims of Alzheimer's disease (AD). AD is the most common form of dementia disorder among older persons. Dementia is the loss of intellectual functioning in an otherwise awake and alert person (Hodgson & Cutler, 1994). Dementia involves multiple cognitive deficits that have a significant impact in social or occupational functioning (DSM-IV, American Psychiatric Association, 1994). The average duration of AD from mild cognitive deficits until death is estimated to be 20 years (Sclan, 1995). In the United States, more than 5 million Americans are estimated to have AD (Alzheimer's Association, 2006). By the mid 21<sup>st</sup> century, that number is expected to increase to 14.3 million (Diagnostic Center for Alzheimer's Disease, 2006). With an estimated cost of exceeding \$100 billion per year, AD is the third most costly disease in the U.S., after heart disease and cancer (Alzheimer's Drug Discovery Foundation, 2005).

The prevalence, cost and suffering that result from Alzheimer's disease will increase dramatically over the next forty years unless the cause and a cure are found. Family members often assume the role of primary caregivers. Provision of care to those with AD is influenced by the progressive nature of the disorder, the increase in the average life span of adults, and the cost

of health and nursing home care for older adults. More than 70 percent of people with AD live at home (Dippel, 1996). Among these individuals, the majority of those with AD remain at home until the last and most severe stages of the disease. The average lifetime cost of caring for someone with AD and related disorder is close to \$200,000 (Ernst & Hay, 2003). Neither Medicare nor private health insurance covers the long-term care most people with AD need. Nursing home care is very expensive, ranging from \$40,000 to \$70,000 a year (Dippel, 1996).

Caring for people with AD or other related dementia has been recognized as a source of burden on caregivers (Zarit, Reever, & Bach-Peterson, 1980). Several studies have documented the negative effects on the health and well-being of caregivers and their families (Anthony-Bergstone, Zarit, & Gatz, 1988; Kiecolt-Glaser et al., 1991; Schulz et al, 1995). Studies have indicated that caregivers experience an increased risk for physical, emotional, and financial consequences (Biegel & Schulz, 1999; Schulz et al., 1995).

Several studies have reported the effects of caregiving on self-reported emotional distress and physical health (Schultz et al., 1995; Kiecolt-Glaser et al., 1991). Kiecolt-Glaser et al. (1991) assessed changes in depression, immune function, and health in 69 spousal caregivers and control subjects. They found that caregivers showed significantly poorer immune function, worse physical health, much greater incidence of depression than non-caregivers. Caregiving has been associated with increased levels of depressive symptoms and a higher prevalence of clinical depression and anxiety (Ory et al., 2000).

Caring for a person with AD is a difficult and stressful task. The progressive nature of AD leads to an accumulation of changes in the victim throughout the process of the illness. Changes include sleep disturbances, incontinence, disorientation, paranoia, catastrophic

reactions, and major shifts in moods and behaviors (Aneshensel et al., 1995; Zarit, Todd, & Zarit, 1986). As AD patients lose their ability to recognize and communicate, meaningful relations such as intimacy and affection with the caregivers are changed. These changes, and the accompanying need for care, may be overwhelming for family caregivers. Caregivers often deal with death and grief on a daily basis. The stress of caregiving responsibilities can bring on poor health, financial strains, and social isolation (Robinson, 1990). As the burden of caring for persons with AD is well recognized, support for the caregiver becomes more and more important. Researchers have tried to find ways that may assist caregivers in lessening their mental and physical burdens.

Religion may be one important factor that helps alleviate the impact of caregiving burden (Picot, Debann, Namazi, & Wykle, 1997; Chadiha & Fisher, 2003). Research has given attention to the importance of religion and spirituality as resources for coping with stressful life events. Religiosity has been associated with active and effective coping with problems and crises, such as a terminal illness (Pargament, 1997; Tix & Frazier, 1998). Religiosity also has been associated with improved mental health in people under stress (Smith & McCullough, 2003). Bearon & Koenig (1990) highlighted the importance of prayer during a sickness. They found that among an elderly population, the use of prayer as a supplement to medical care was common, though the practice of prayer varied by religion and education. Most prayed about health concerns on a regular basis.

In terms of race, literature suggests that African-Americans are more likely to use religious coping to deal with stress of caregiving (Picot, et al., 1997; Chadiha & Fisher, 2003). Studies found that African-American caregivers perceive less subjective burden and greater caregiving satisfaction than Caucasians (Lawton, et al., 1992).

Although there is evidence for growing interest in caregiving research, religiosity and well-being in caregivers of persons with AD has been relatively unexplored. In the current study, the relationship among religious behavior (attendance and prayer/meditation), religious coping, burden and depression in AD caregivers was examined using baseline data from the Resources for Enhancing Alzheimer's Caregiver Health (REACH) II multi-site study. Specifically, a path analysis was tested among these variables (Figure 1). Race was examined as a potential moderator.

## **1.2 RELIGION AND MENTAL HEALTH**

The literature on religion has found positive relationships between religion and mental health. Researchers have begun 1) to specify a causal mechanism involved in the beneficial effects of religion (Krause, 2002) or 2) to incorporate attention to religion and spirituality into clinical practice (Mueller, Plevak, & Rummans, 2001) and 3) into models of successful aging (Crowther, Parker, Achenbaum, Larimore, & Koenig, 2002).

Koenig et al.'s (2001) review of cross-sectional studies linking organized religious involvement with depression found that in more than 85% of the studies, participation in an organized religion was associated with lower depression. Similarly, higher levels of religious participation and commitments were also correlated with lower levels of anxiety and depression among the elderly (Johnson, 1995; Koenig, et al., 1998), and the bereaved (Gray, 1987).

A longitudinal study by Levin, Markides and Ray (1996) showed that religious attendance reduced depression in a prospective study of Mexican Americans from three generations, and Ellison, Levin, Taylor and Chatters (1997) showed that African- Americans

who attended religious services more than once a week and those who reported receiving a great deal of guidance from religion in their daily lives enjoyed a reduced psychological distress and reduced risk of major depressive disorders over the course of a 3-years.

Many studies have shown positive effects of religion on psychological well-being (Witter, Stock, Okun, & Haring, 1985; Levin, 1997). Religious attendance, indicators of religious personal piety, religious devotion (e.g., frequency of prayer, feelings of closeness to God), and subjective religious identity are associated with psychological well-being (Pollner, 1989; Levin, Chatters, Taylor, & 1995). Religiously inspired meaning, purpose, and certainty are also positively associated with indicators of well-being (Ellison, 1991). Members of relatively conservative churches (e.g., Baptists and nondenominational charismatic) enjoy greater life satisfaction, on average, than others (e.g. Ellison, 1991).

Literature suggests a variety of mechanisms through which religion may exert a positive influence on mental health. For example, many scholars agree that a membership in a religious community may enhance social resources, which in turn are beneficial for mental and physical health (Kessler, et al., 1985; Heaney & Israel, 1997; Berkman & Glass, 2000). Other mechanisms include the promotion of positive self-perceptions (e.g., self-esteem, feelings of personal mastery), provision of specific coping resources (i.e., particular cognitive or behavioral responses to stress) and generation of other positive emotions (e.g., love, forgiveness) (Ellison & Levin, 1998).

### 1.3 METHODOLOGICAL ISSUES IN STUDIES OF RELIGION

Although the positive effects of religion is well recognized, most studies of religion and mental health have employed cross-sectional research design, and had sampling and analytic limitations, such as small, unrepresentative samples and lack of appropriate statistical controls. Certainly, any observed effect of religion may result from psychologically healthy (or unhealthy) individuals being selected into religious group, rather than religion having any necessary ameliorative effect.

While a number of studies report salutary effects of religion, the overall thrust of this body of research is somewhat less clear. At least a few studies report what appear to be null effects of religion on symptoms of distress and depression (e.g., Ellison, 1995; Idler & Kasl, 1992). Bergin (1983) attempted to quantitatively synthesize the findings on religion and mental health. In this meta-analysis, which tabulated 30 effects sizes, 47% manifested positive relationships between religion and mental health, 23% indicated a negative relationship, and 30% revealed no relationship.

One of the major problem areas has been the conceptualization and measurement of religion, religiosity, and religious coping (Krause, 1993; Williams, 1994). Researchers have recognized that religion is a complex and multidimensional domain of human life comprising behaviors, attitudes, beliefs, experiences, values and so on. However, few researchers in clinical medicine, epidemiology, health behavior and health education, or gerontology have capitalized on these developments. Much of the research has assessed religion by a single measure, most often religious affiliation or frequency of church attendance (Chang et al. 1998; Flaskerud & Lee, 2001; Karlin, 2004). Other studies have used a single global measure of religious coping, e.g. asking the subject whether religion/spirituality was 'not at all involved' or 'very involved' in

coping with a particular event. Some studies employ one or more explicitly religious items, e.g., 'I prayed,' which excised from more wide ranging scale.

Since studies of religion have rarely used refined, multi-dimensional instruments which have established validity or reliability, outcomes tend to be diverse. Hummer et al. (1999) had only a single indicator of attendance at religious services available for the analysis. Hilton et al. (2002) analyzed records of the state of Utah and the Church of the Latter Day Saints (LDS) to measure suicide rates and LDS church membership and commitment but did not have any data representing individual feelings of religiousness.

Koenig, George, Cohen, et al. (1998) and Idler & Kasl (1997) had a small number of additional measures available for both attendance and religious feelings, but even these are at best measures of a complex construct that includes a wide variety of behavioral aspects, such as attendance at public worship services, solitary prayer, meditation, or reading sacred texts, as well as attitudinal aspects such as beliefs, values, and feelings. Koenig, George, Cohen et al. (1998) found that elders who frequently attended religious services or frequently involved in private religious activity were significantly less likely to smoke cigarettes. Idler & Kasl (1997) found that religious involvement was positively related to a broad array of behavioral and psychosocial resources, and that these resources were associated primarily with attendance at services, and not with subjective feelings of religiousness. These studies suggested that religiosity may be measured as a multidimensional constructs (Williams, 1994) and that a more comprehensive assessment can identify potentially the positive or negative effects of religiosity.

There is also disagreement over which dimensions of religiosity are salient for mental health (Idler et al., 1999; Krause, 1993; Williams, 1994). Although in recent years several observers have recommended measuring health-relevant functional aspects of religiosity (e.g.,

congregational support) directly (Ellison & Levin, 1998) and theorists have long speculated on the possible impact of specific theological beliefs (e.g., belief in divine grace and salvation, sin and judgment) on mental health (e.g., Ellis, 1980; Ellison, 1994), very few empirical studies have explored such issues.

#### **1.4 THE NEGATIVE EFFECTS OF RELIGION**

The effects of religion are not all positive. The literature also points to potentially detrimental effects of religion on health and well-being (Ellison & Levin, 1998). For example, there is some evidence that interpersonal conflict in the church may be associated with greater psychological distress (Krause, Ellison, & Wulff, 1998). Similarly, Pargament (1997) indicated that some individuals turn to negative religious coping responses (e.g., feeling abandoned by God) during stressful time that heighten or exacerbate the deleterious impact of life events. Watson & colleagues (1988) have analyzed a sample of college undergraduates and showed that belief in original sin is inversely correlated with self-esteem but that effects are offset by beliefs in the divine grace and forgiveness.

Religion may diminish perceptions of personal control and, instead, encourage the attribution of life outcomes to external forces such as a deity (Schumaker, 1992). Despite the presumably beneficent nature of religion, attributing significant life outcomes to forces outside oneself may increase depression (Ross & Sastry, 1999).

In summary, AD is a progressive memory disorder that significantly impairs one's ability to function in everyday life. Despite the problems of limited research design and measurement in studies of religion, the literature suggests that there is a potentially positive relationship

between religion and mental health. Because caregivers are faced with many stressors beyond their control, it is likely that religion is important in the coping process for caregivers of persons with AD. Yet, there is limited work that tests the association between religious coping and caregiving outcomes or explores how religious coping affects well-being of caregivers.

The purpose of the current study was to investigate the relationships between religious coping, burden and depression in AD caregiving. It tested the mediating effect of burden in the religious coping – depression relationship. It also explored the moderating effect of race. Measures included two types of religious behavioral practice (religious attendance, prayer/meditation), religious coping, a potential mediator (burden) between religious coping and depression, and outcome (depression).

## **2.0 LITERATURE REVIEW**

This section reviews literatures on religious coping, burden and depression among caregivers and provide theoretical bases for the study hypotheses.

### **2.1 RELIGIOUS COPING: MEANING AND MEASUREMENT**

Religiosity may be one adaptive coping resource that helps caregivers to deal with the burdens of caregiving. Some literature suggests that caregivers report high levels of religious involvement and frequently use religious coping strategies that they perceived as helpful (e.g., Baines, 1984; Hinton, 1999). According to a recent national poll, religion/spirituality is one of the most important coping resources for caregivers; 73 percent report that they pray to cope with the demands of caregiving (Caregiving in the US, 2004). Particularly, Alzheimer's disease has received a great deal of attention in caregiving research. In a study of 555 Alzheimer's caregivers, 61 percent reported praying for strength to keep going (Skaff, 1995).

Religious coping has been defined as the sacred cognitive, emotional, behavioral, and relational pathways used in the search for significance under times of stress (e.g., benevolent religious appraisals, seeking spiritual support; Pargament, 1997). Sacred is used here to refer to concepts of divinity, God, spirituality, and transcendence (Pargament & Mahoney, 2002).

Religious coping can be expressed in the cognitive construction of a situation, the methods used to reach desired goals, and the goals themselves. Its methods include sacred cognitions (e.g., theologies, beliefs, attributions), emotions (e.g., peace, joy) behaviors (e.g., practices, rituals), and relationships (e.g. congregations). The desired ends are numerous, including provision of meaning, a sense of mastery and control, comfort, intimacy, assistance in making life transitions, health, and experience of the transcendent (Pargament et al., 2000).

Although measurement of religious coping has been criticized for its oversimplified form of religion (e.g., single item as measures of religion), it has expanded for the last decades. Large survey studies usually measure religious activities, e.g. frequency of church attendance or prayer, as proxy measures of religious coping. More recently, researchers have developed scales to measure the prevalence of specific religious coping strategies. Five strategies that have often been used in research include spiritual support/discontent, congregational support/discontent benevolent/ punishing reframing, orientation to agency or control and the use of rituals (Fox et al., 1998; Miner & McKnight, 1999; Pargament, 1997). Three orientations to agency or control that have generated an interest are: self-directing, deferring, and collaborative. These three types of religious coping are varied in the degree to which the individual and God are actively involved in the coping process. Deferring religious coping reflects the stereotypic view of religion as passive. In this approach, the individual defers responsibility or solving problems to God. Self-directing coping, in contrast, involves a more active approach to coping on the part of the individual. God is seen as giving the individual the resources to solve problems him/herself. Collaborative approach involves a partnership between the individual and God in which the responsibility for problem solving is shared (Pargament et al., 1998). Pargament et al. (2000) developed and validated a comprehensive measure of 21 different types of situation-specific

religious coping strategies that serve a variety of functions: meaning, control, comfort/spirituality, intimacy/spirituality, and life transformation. These religious coping strategies have been categorized into positive and negative forms (Pargament, et al., 1998; Pargament et al., 2000).

## **2.2 RELIGIOUS COPING AND WELL-BEING**

There is increasing evidence that religious/spiritual cognitions and behaviors can offer effective resources for dealing with stressful events and conditions. Coping with stress has been shown to be a powerful factor in both preventing disease and hastening recovery from an illness. Religiosity has been associated with improved mood, caregiving experience, and well-being, and although less often, at times with less burden and depression among caregivers (e.g., Kaye & Robinson, 1994; Tarakeshwar & Pargament, 2001). Pargament suggests that a primary function of religious faith is to help people cope with adversity (Pargament, 1997). Folkman (1997) found that religious/spiritual beliefs and activities were associated with more positive reappraisal among caregivers of AIDS patients. Haley et al. (1987) also reported that church attendance was associated with less depression and greater life satisfaction among dementia caregivers.

There is consistent support for a relationship between religious coping and depression (Abernethy et al., 2002; Mckley et al., 1998; Shah et al., 2001; Tarakeshwar & Pargament, 2001; Moen et al., 1995; Rogers-Dulan, 1998). These studies indicated that caregivers with a higher use of religious coping reported less depression than caregivers with a lower religiosity.

On the other hand, a recent review on religion and the well-being of informal caregivers (Hebert, et al., 2006), pointed out that evidence for the effects of religion/spirituality was unclear

and the benefit of religion has not always been found. They confirmed that the majority (86%) of studies reported no or mixed association (i.e., a combination of positive, negative, or non-significant results). They examined the relationships between each dimension of religion and well-being in 83 articles and found that religion/spirituality dimension was no differentially associated with well-being (chi-square or fisher exact test  $p > 0.05$ ). The authors noted that these ambiguous results reflected the multidimensional nature of religion and the diversity of well-being outcomes. Dyck, Short, & Vitaliano (1999) studied predictors of burden and infectious illness in schizophrenia caregivers. They used a cross-sectional sample of 70 caregivers of schizophrenia patients. Measures included caregiver health status, caregiver resources (e.g. active coping, social support, religious coping), patient stressors, vulnerabilities and burden. They found that schizophrenia caregiver burden and infectious illness were predicted by patient stressors, vulnerabilities and other resources, but not by religious coping.

Propst, Ostrom, Watkins, Dean, and Mashburn (1992) looked at the efficacy of religious and nonreligious cognitive-behavioral therapy for treating depression. They used two versions of cognitive-behavioral therapy, one with religious content and one with nonreligious standard protocol and created pastoral counseling treatment and waiting list control conditions. They randomly assigned 59 religious patients to pastoral counseling therapists or the waiting list group. They found religious imagery and forms of prayer to be effective in psychotherapy. They reported that religious content and pastoral counseling treatment patients showed significantly lower depression and better adjustment than did either the nonreligious content or the waiting list control condition.

Fenix et al., (2006) conducted a 13-month follow-up study that examined religiousness and major depressive disorder (MDD) among bereaved family caregivers. They used a

prospective longitudinal design of primary caregivers of consecutive patients (n = 175) with cancer. They reported that caregivers with a high religiousness score were significantly less likely to have MDD at the 13-month follow-up interview. This finding remained significant even after adjustment for a caregiver's MDD at baseline, age, burden and number of activities restricted due to caregiving roles.

Tix & Frazier (1998) surveyed 235 renal transplant patients and 178 family members of renal transplant patients, 3 months and 12 months after surgery. Measures included: religious coping, social support, cognitive restructuring, and perceptions of control three months after the surgery. Only the psychological distress and life satisfaction measures were administered 12 months after surgery. A hierarchical multiple regression analysis suggested that religious coping was associated with positive outcomes that were not fully accounted for by social support, cognitive restructuring, and perceived control.

Ano & Vasconcelles (2005) conducted a meta-analysis of 49 studies in religious coping and psychological adjustment to stress with a total of 105 effect sizes. The results of this study indicated that positive and negative forms of religious coping were related to positive and negative psychological adjustment to stress, respectively. However, the authors did not find support for the hypothesis that negative religious coping was inversely related to positive psychological adjustment. In other words, people who felt punished by God, attributed their situations to the work of the devil, etc., did not necessarily report lower self-esteem, less purpose in life, and lower spiritual growth. The authors explained the possibility that some forms of negative religious coping might represent spiritual struggles that are actually pathways on the road towards growth.

Kelly (2003) studied grief and bereavement related to a significant death. Ninety- four participants completed the measures of religious coping, depression, traumatic distress, separation distress, stress-related growth, positive religious outcome, and sense of meaning in life. Her investigation revealed that positive religious coping was positively associated with stress-related growth and positive religious outcomes while negative religious coping was positively correlated with depression, traumatic distress and separation distress and negatively correlated with positive religious outcomes.

Leblanc, Driscoll, and Pearlin (2004) conducted a study to understand how religiosity may influence the expansion of stress. They used a cross-sectional sample of 200 caregivers to a spouse with Alzheimer's disease recruited via media advertising, outreach, community based providers, churches, and a university hospital. Survey instruments included demographic information, measures of social stressors, different dimensions of religious life (self-perceived religiosity, frequency of attendance at religious services and prayer, religious denomination), and two measures of well-being (depression and self-assessed physical health rating). They observed the relationships among three variables: (1) care-related stress, (2) religiosity, and (3) depression. Religiosity was not found to be related to stress and stress expansion. However, the data showed that religiosity was associated with greater depression in caregivers with worse physical health and one stressor – feelings of role overload – was correlated with greater levels of self-perceived religiosity.

Chang et al. (1998) hypothesized that religious/spiritual coping would influence caregiving distress indirectly through its effect on the quality of relationship between caregivers and care recipients. The participants included 131 caregivers from the larger Massachusetts

Elder Health Project (MEHP). Religious/spiritual coping was measured with a single item and quality of relationship was assessed with five items. Caregivers who used religious/spiritual beliefs to cope reported better relationships with the care recipients, which were then associated with lower levels of depressive symptoms. The authors acknowledged several limitations to the study, including the small number of items used to measure religious/spiritual coping and quality of relationship. Yet, they felt the research showed the value of spirituality in alleviating the stress of caregiving.

### **2.3 RELIGIOUS COPING AMONG AD CAREGIVERS**

Shah, Snow, and Kunick (2001) examined the correlation between the use of religious coping mechanisms and caregivers' mental health. They used a cross-sectional design with a convenience sample from the Alzheimer's Association support groups. Forty eight caregivers completed scales measuring depression, burden, religiosity, and religious coping. The data did not show a significant correlation between lower levels of caregiver burden/ depression and higher levels of spirituality/religiosity. However, those caregivers who had negative feelings toward spirituality/religion (e.g. feeling of anger or distance from God, questioning about one's faith or religious beliefs) had significantly higher depression and perceived burden.

Stolly (1998) conducted a study on religiosity and coping for caregivers of persons with AD and related disorder. The author used a dataset from a larger study that compared the effectiveness of an intervention for caregivers who live at home. The sample consisted of 64 participants. Measures were used to determine caregiver eligibility and stage of AD patient,

measure mood or morale of caregiver, caregiver depression, religiosity of caregivers, coping and coping effectiveness. The author did not find a significant relationship between religiosity and caregiver health indicating that religiosity may not affect physical health. However, the author did find a significant relationship between prayer use and effective coping and reported that prayer was an effective coping strategy for managing stress related to caregiving.

Campbell (2001) conducted a study on religious coping in AD caregivers. The sample consisted of 112 caregivers who: (1) were the primary caregiver of an Alzheimer elder, (2) were at least fifty years of age, (3) self-identified as using religion as a coping mechanism, and (4) did not receive monetary compensation for providing services to the caregiver. Measures included: religious problem solving, cognitive restructuring, hope, social support, perception of control, caregiver burden, depression, and stress related growth. He found that perceiving that God has at least some responsibility in the coping process (deferring and collaborative coping style) is associated with more adaptive outcomes than perceiving that God has no responsibility (self-directing coping style).

Novian (2007) explored the impact that spirituality has on the life of an Alzheimer's and Related Dementia (ARD) spouse caregiver. He employed an interpretive phenomenological qualitative methodology and reported the description of how 11 ARD caregivers' spiritual lives influenced their daily experiences in caring for their spouse. The thematic elements emerged through the discussion with participants: spirituality versus religion, trusting God, don't ask why, and growth and understanding. The investigation showed that spirituality primarily impacted the daily experiences ARD spousal caregivers by allowing them to *Let Go and Let God* instead of

dwelling on asking God why their spouse developed ADRD. This study provides insight into the caregiving experience and how religious belief serves as comfort.

## **2.4 THE IMPACT OF RELIGIOUS COPING ON CAREGIVER BURDEN**

Many studies have examined the relationship between religiosity and negative caregiving experience such as caregiver burden and stress. Studies reported that high levels of religious beliefs and activities were associated with less caregiver burden (Burgener, 1994; Folkman et al., 1994; Rogers-Dulan, 1998; Wright et al., 1985). Burgener (1994) found that religiosity was positively related to caregiver well-being and negatively related to caregiver burden. Shah et al., (2001) found a positive association such that Alzheimer's caregivers who felt angry or distant from God reported greater perceived burden. Spurlock (2005) examined the relationship between spiritual well-being and caregiver burden in family caregivers of persons with Alzheimer's disease. The author found that there is a significant inverse relationship ( $r = -.49$ ) between spiritual well-being and caregiver burden. Pratt, Schmall, and Wright (cited in Sistler, 1989) focused on the relationship between spiritual support and caregiver burden. They found that lower levels of spiritual support were related to higher levels of caregiver burden.

## 2.5 CAREGIVER BURDEN

Caregiver burden can be viewed as an emotional reaction to the demands of care situations. Lawton and colleagues (1989) refer to “burden” as “the largest category of appraisal that includes all cognitive and affective appraisals and reappraisals of the potential stressor and the efficacy of one’s coping efforts” (p.61). Pearlin & his colleagues (1990) have suggested that role strains associated with caregiving develop and intensify as the person afflicted with AD becomes increasingly dependent on the family caregiver to assist with or perform basic and instrumental activities of daily living. Strain is also expected to arise as the caregiver has to deal more frequently with the occurrence of problem behaviors and begins to experience role overload. Other strains can arise from the caregiver’s associated roles. Family roles and obligations, such as those of parenthood or grandparenthood, may compete for the caregiver’s time and energy (Brody, 1985). Researchers have found that family members’ social lives and interactions with other family members have been influenced by the burden of caregiving (Moritz, Kasl, & Berkman, 1989).

Increased burden, particularly with care recipients who have difficulty completing Activities of Daily Living (ADL) task and have become incontinent, is associated with institutionalization of the care recipient (Zarit et al., 1986). Burdens of caregiving also have been linked with physical health outcomes (Fuller-Jonap & Haley, 1995). Fuller-Jonap, and Haley (1995), in a study of 52 husband caregivers and 53 husband non-caregivers, reported that caregiving husbands had significantly higher levels of physical health problems than non-caregiving husbands.

Nonetheless, the demand that one give care does not in itself necessarily become a stressor. Whether such a demand is stressful is a matter of subjective appraisal. For caregivers

of AD, appraisal of burden is related to the stress of cognitive and physical decline as evaluated by the caregiver (Thompson et al., 1993). Yet, the prediction that caregivers caring for the most impaired care recipients would report the greatest degree of burden, have been refuted in many studies (Hadjistavropoulos, Taylor, Tuokko, & Beattie, 1994; Haley et al., 1987; Vitaliano et al., 1991). Rather, the experience of burden appears to be affected by many factors, including the caregiver's available resources, such as social support and financial resources, coping abilities, feelings of self-efficacy, ethnicity, and religion/spirituality (Vitaliano et al., 1991). Why and how some caregivers adapt to the difficult changes in caring for their loved ones and others fail to do so remain some of the least understood, yet one of the most important, questions in this area of research. (Vitaliano et al., 1991). The current study attempted to answer those questions by looking at religious coping in AD caregiving and its relationships to caregivers' well-being.

## **2.6 DEPRESSION AMONG CAREGIVERS**

With caregiver burden, depression is the one of the most common outcome reported in caregiving research. Caregiver depressive symptoms indicate a mood disturbance that can result from the stress of providing care (Fortinsky et al., 2002; Harris, Godfrey, Partidge, & Knight, 2001). Caregiver depressive symptoms include feelings of loneliness, isolation, fearfulness and somatic components, such as decreased appetite, fatigue, and insomnia. Depression may have untoward consequences for both the caregivers and the care recipient. In addition to the obvious negative effect on the caregiver's well-being, the depression may hamper the caregiver's ability to care for their loved ones with AD. The empirical evidence indicates that family caregivers exhibit significantly higher levels of depression compared to non-caregivers (Biegel et al., 1991).

Song et al. (1997) found that over two-fifths of the caregivers in the sample were at risk for clinical depression.

Depression among caregivers has been examined in relation to the impairment of the care recipient, caregiving activities, the relationship of the caregiver to the care recipient, and the caregiver's receipt of informal and formal support. Schulz & Williamson (1991) conducted a 2-year longitudinal study of depression among AD caregivers and showed a strong evidence for care recipients decline and high levels of depressive symptoms among caregivers. They also found that a decline in social support resulted in increased depression. Meshefedjian et al. (1998) found that a higher level of depression was significantly associated with caregiver characteristics (being a spouse or child of the patient and lower education) and patient characteristics (greater behavioral disturbance and moderate to severe functional impairment).

Literature suggests that caregiver burden predicts caregiver depressive symptoms (Clyburn et al., 2000; Raveis, Karus, & Siegel, 1998; Song, Biegel, & Milligan, 1997; Whitlatch, Feinberg, & Sebesta, 1997). Caregiver burden may be an initial reaction to demands for care that would in turn affect depressive symptoms. Sherwood et al., (2005) found that care recipients' mental and functional status and recency of care demands predicted caregiver burden; burden, in turn, was significant in predicting depressive symptoms. The current study examined whether religious coping has positive effects on depression through its relationship to burden among AD caregivers controlling for physical health.

## 2.7 RACIAL DIFFERENCE IN RELIGIOUS AND CAREGIVING

Despite more than a decade of caregiving research, studies have only recently examined whether differences exist between African-American and Caucasian caregivers. Studies found that African-Americans are more likely to use religious coping to help eliminate or reduce the negative impacts of providing care (Picot, 1997; Chadiha & Fisher, 2002). Dilworth-Anderson et al. (2002) assert that African-Americans tend to cope with the difficulties of caregiving using prayer, faith in God, and religion. Picot et al. (1997) submit that higher levels of religiosity were reported for caregivers who were African- Americans, females and older persons. Moreover, Picot's team implied that race was significantly related to perceived rewards, with African-Americans reporting higher levels of reward than their Caucasian counterparts.

The examination by Lawton and colleagues (1992) of caregiving in African- American and Caucasian families of Alzheimer's disease patients found greater caregiving satisfaction and caregiving mastery among African-Americans than among Caucasians, with African-Americans perceiving less subjective burden and intrusion on their lives because of caregiving. Covinsky et al. (2003) studied the existence of depression among primary caregivers of patients with moderate to advanced dementia and found that African-American caregivers had the lowest rates of depression. Gonzalez (1997) studied appraisals of behavioral problems, resourcefulness, and coping in 25 Caucasian and 25 African-American caregivers. Results indicated that African-American caregivers experienced significantly less upset than the Caucasian caregivers. Gonzales attributed the more benign appraisal of behavioral problems by African- American caregivers to differences in life experiences, religious orientation, and cultural background. Toth-Cohen (2004) examined factors influencing appraisal of upset in African-American

caregivers of persons with Alzheimer's Disease and Related Dementias (ADRD). The author used content analysis to compare African-American caregivers' descriptions and interpretations of responses to memory and behavioral issues of relatives with ADRD to 11 explanations for lower levels of upset proposed in the caregiving literature. The author confirmed that two explanations from the literature, social support and religious orientation as factors that influenced appraisal of upset.

Religion plays a very important role among Hispanics. Morano & King (2005) found that Hispanic caregivers reported significantly higher religiosity than White caregivers and both African-American and Hispanic caregivers reported both lower levels of depression than White caregivers. Studies indicated that Hispanic cultures are centered on the family and family members are expected to provide care to the elderly (Cox & Monk, 1993). The current study explored racial differences (African-American, White, and Hispanic) in religious coping and depression.

## **2.8 CONCEPTUAL MODEL**

The current study used an adaptation of the stress and coping model of Lazarus & Folkman (1984) to examine the pathways from religious coping to depression. This model provides a useful tool for identifying individual differences in caregiving experience. It helps us understand why some caregivers are better able than others to adapt to the caregiving situation. According to this model, it is not the negative event per se that determines how well one will adapt,

but rather the appraisal of both the event and one's ability to meet the associated demands (Lazarus & Folkman, 1984).

Lazarus & Folkman (1984) states that, "while stress is an inevitable aspect of the human condition, it is coping that makes the big difference in adaptational outcome" (p.6). They assume that coping under stress is a cognitive process. Life events are assessed as to how threatening they can be to a person's ability. The appraisal determines what action will take place to buffer or fend off the threat. Lazarus & Folkman suggests the concepts of cognitive appraisal and coping in this process. Cognitive appraisal is, "an evaluative process that determines why and to what extent a particular transaction or series of transactions between the person and the environment is stressful" (p.19). Coping is, "the process through which the individual manages the demands of the person-environment relationship that are appraised as stressful and the emotions they generate" (p.19).

Lazarus & Folkman noted two types of appraisals that lead to outcome. Primary appraisals are initial reactions or responses to the stressor in terms of how it may impact a person's well-being. These appraisals can include specific fear or confidences about threat to self. Secondary appraisals are the evaluations of which coping options are available, the likelihood that a given coping option will work, and the likelihood that one can apply the available coping options effectively. Coping is a dynamic activity that involves an initial assessment of a crisis; an evaluation of available resources and the integration of a result (Pargament, 1997). Available resources and result consist of the systems of significance that continuously shapes a person's ability to tolerate stressful events when that persons' well-being is threatened. Pargament (1997) elaborates on coping by assuming that coping is an adaptive

process. A person chooses a way to cope through the multiple resources that are available to him or her.

The caregiving appraisals are affected by the resources available to the caregiver, and the resources enable him/her to cope with the stressors. Based on this theoretical model, the extent to which caregivers demonstrate resiliency in caregiving is affected by their ability to appraise stressful situations and draw upon available resources to cope with their individual situations. In this model, religion is viewed as a resource that acts to reduce the adverse effects of stress.

Studies illustrate that the way in which caregivers interpret their situation may be more consequential than objective characterizations of that situation. Haley, Levine, Brown, and Bartolucci (1987) first applied this framework to caregivers. They reported that caregivers' subjective appraisals of the severity of their caregiving problems were better predictors of depression than were objective measures of the severity of their caregiving problems.

## **2.9 PURPOSES AND HYPOTHESES**

Stress coping models focus on identifying the factors that likely mediate or intervene between the stress of caregiving and subsequent outcomes (Haley, Levine, Brown, & Bartolucci, 1987). The literature above suggests that religious coping appears to be a common and useful way of dealing with stressors in life. While studies help us understand the general impact of religious coping, they do not provide greater awareness of how and which aspects of religion supports caregivers. It is critical to evaluate the influence of religious coping on caregivers and mediating variables in the caregiving process.

The purpose of the current study was to provide a better understanding of the role of religious coping and underlying structures in the relationships between religious coping, burden and depression in AD caregiving by analyzing baseline data from REACH II study. It tested a theoretical path model in which burden is a mediator of the effect of religious coping on depression. It examined which aspects of religion have more significant impacts on caregiver's well-being by looking at two separate measures of religion (religious behaviors, religious coping). In the current study, acts of religious coping were defined as positive coping – seeking spiritual connection, support and collaboration with God in problem solving. It also explored the moderation effect of race.

Understanding the role of religious coping may inform us about intervention and mental health service delivery. Exploration of this construct may result in a more accurate knowledge of the treatment needs of caregivers.

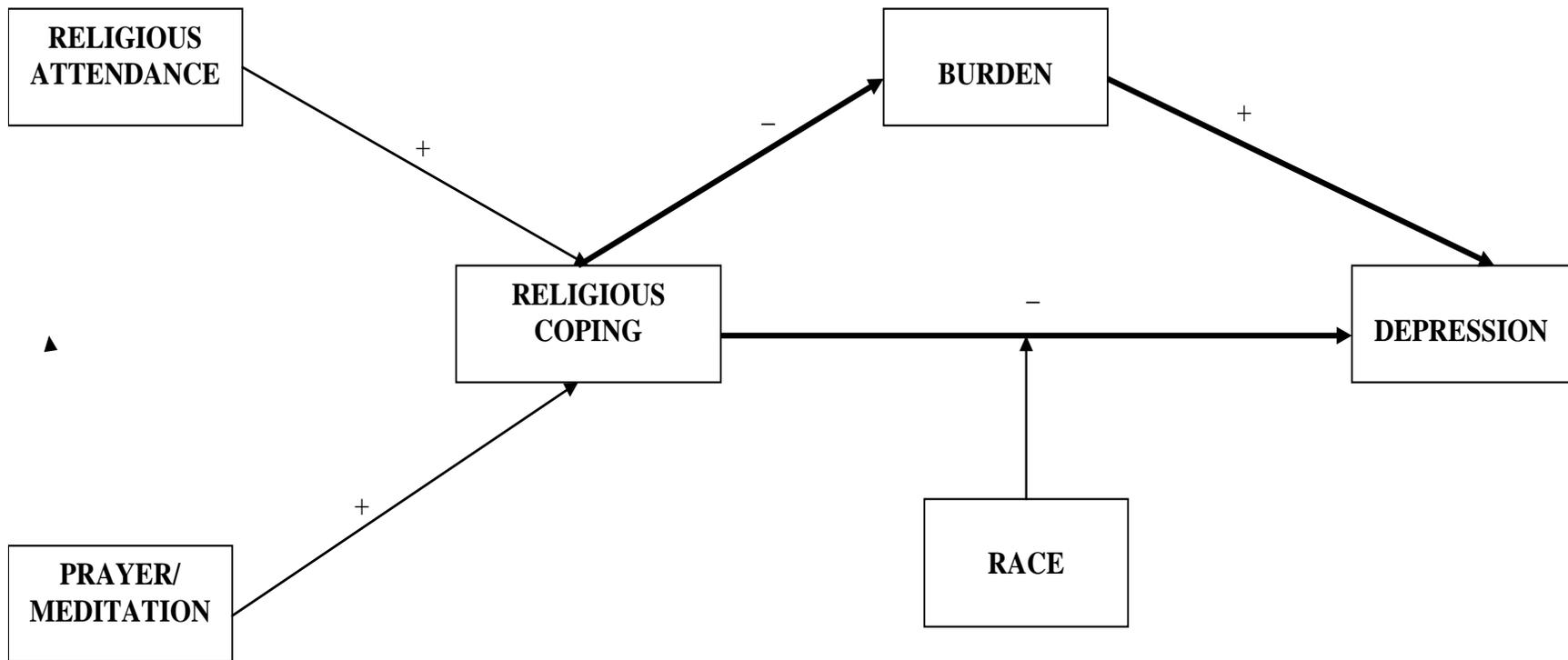
It is expected that religious coping results in lower levels of burden and depression (Abernethy et al., 2002; Tarakeshwar & Pargament, 2001) and caregivers who have higher level of burden will experience more depressive symptoms (Sherwood et al., 2005). Pargament (1997) whose work focuses on the role of religion in coping noted “Religions of the world have a deep appreciation for the often painful nature of the human condition. Even more important though, religious traditions articulate their visions of how we should respond to this condition” (p.3). It addressed religion in a context that is meaningful for those concerned with the problems and issues of everyday living. Finding positive value in negative events helps caregivers reduce emotional distress. Figure 1 is a graphical depiction of this conceptual model. Religious attendance and prayer/meditation were expected to predict higher religious coping. Religious coping was expected to relate to lower caregiver burden and lower depression. Higher caregiver

burden was expected to predict higher depression. The two religious behaviors (attendance and prayer/meditation) were not expected to have direct effects on burden or depression, but they would work through religious coping.

The current study's hypotheses were evaluated controlling for caregiver's physical health. The current study has the following three specific aims and hypotheses:

- 1) Examine the relationship between religious coping and depression. It is hypothesized that caregivers who have higher levels of religious coping will have lower levels of depression (Figure 1).
- 2) Test the mediation of burden in the relationship between religious coping and depression. It is hypothesized that caregivers' religious coping will have an impact on their depression through its relationship with burden. It is hypothesized that religious coping will lower burden and burden will lower depression. It is expected to be a partial mediation (Figure 1). Partial mediation occurs when the mediator (burden) is controlled the effects of religious coping on depression are reduced, but still significant. Partial mediation is expected as religious coping has a specific and direct effect on the outcome of depression in addition to its indirect effect through burden.
- 3) Explore the moderating effect of race in the relationship between religious coping and depression (Figure 1). Given the small amount of evidence from previous studies, the effects of religious coping on depression might be more

strongly manifested in the lives of African-American and Hispanic caregivers than White caregivers.



**Figure 1 Theoretical Path Model of Hypothesized Relationships**

## **3.0 METHOD**

### **3.1 PARTICIPANTS**

Participants (N = 642) for this study came from the Resources for Enhancing Alzheimer's Caregiver Health (REACH) II study. Study participants are caregiver-care recipient dyads who meet the inclusion and exclusion criteria. In the current study, only baseline assessment data (Time 1) were used for analysis, because there is a larger N than the follow up data (Time 2) and the follow up data would be affected by the intervention.

The majority (82%) of the respondents are female, the age of the caregivers range from 24 to 89 (M= 61.04, SD= 12.99). The respondents consist of 211 African-American, 220 Caucasian and 211 Hispanic. For the purpose of comparison among African-American, Caucasian and Hispanic caregivers, all of the analyses included in this study use only African-American, Caucasian and Hispanic respondents; six caregivers were excluded in the analyses because they did not belong to any of three main racial groups.

REACH II was a multisite randomized clinical trial, funded by the National Institutes on Aging (NIA) and the National Institutes of Nursing Research (NINR) that tested the efficacy of a multi-component social/behavioral intervention for caregivers of persons with Alzheimer's disease. The randomized cohort consisted of 212 Hispanic/Latino, 219 white/Caucasian, 211 black/African-American caregivers was recruited from five sites in the US: Birmingham, AL;

Miami, FL; Memphis, TN; Palo Alto, CA; Philadelphia, PA. The study also included a coordinating center at the University of Pittsburgh. Participants were screened for eligibility, given a baseline assessment, and subsequently randomized to treatment or control condition within each of the three ethnic groups.

The intervention was based on a risk-appraisal approach in which five areas of risk – depression, burden, self-care, social support, and patient problem behaviors – are central for the caregiver’s well-being and quality of life. These components included education, skills to manage troublesome care-recipient behaviors, social support, cognitive strategies for reframing negative emotional responses, and strategies for enhancing healthy behaviors and managing stress. Methods used in the intervention include didactic instruction, role-playing, problem-solving tasks, skills training, stress management techniques, and telephone support groups. To deliver the intervention in a cost effective manner the intervention was administered using a combination of in-home visits augmented by telephone/computer technology in 12 sessions over six month. Caregivers were also provided with a Caregiver Notebook that contained basic educational materials as well as other instructional materials provided by the interventionist during the home session. In contrast, caregivers in the control group received a packet of basic educational materials and two brief (<15 minute) telephone “check-in calls” at three and five months post randomization. They were also invited to participate in a workshop on dementia and caregiving following the six-month assessment. Caregivers were assessed a second time six months later after the intervention was completed. The primary outcome was a multivariate quality of life indicator that assessed caregiver burden, depressive symptoms, self-care, social support, and patient problem behaviors. In addition, caregiver clinical depression and patient institutional placement were assessed. The effect of intervention was reported elsewhere (Belle

et al., 2006). The current study focused on non-intervention component and used data prior to randomization and intervention.

### **3.2 RECRUITMENT PROCESS**

The REACH II study sites used a wide range of recruitment strategies but had in common media paid and free announcements using television, radio, and newspaper outlets. This included, but was not limited to the following: Brochures; Community Flyers; Articles in Newsletters; Targeted Mailings; Community Presentations; Health Fairs; Community Service; Churches; Faxes; Reminders/Thank you's for Existing Recruitment Sites. Referral through memory disorders clinics or primary care clinics were used by all sites. Recruitment of potential participants was also provided by community agencies and organizations (this action is permitted by Federal Wide Assurance policies). Each site developed an information packet about the study for dissemination to potential participants. These packets included information on how the potential participant could contact the research team. Each site utilized the same Participant Contact form to be provided to the community agencies. Specifically, the Participant Contact form documented the consent of the potential subject to have their name submitted to the research team. Local agencies then forwarded the names of potential participants and the Participant Contact forms to the research team. The research team then contacted the individual, screened them for eligibility and obtained informed consent. The consent granted by the potential subject was only for having their name submitted and did not grant any other consent. A copy of the signed permission to contact form was placed in the potential subject's permanent

folder. If the potential subject eventually entered the study, this consent sheet became a part of that permanent record.

### **3.3 ELIGIBILITY**

Eligibility criteria for caregivers included being Hispanic, Caucasian or African-American; being over the age of 21; being a family member of the care recipient; having a telephone; planning to remain in the area for the duration of the study; living with or sharing cooking facilities with the patient; providing care for a relative with Alzheimer's Disease and Related Disorder (ADRD) for a minimum of four hours per day for at least the past six months; caring for a patient with memory or behavior problems, and feeling overwhelmed, or angry, or having crying spells, or feeling cut off from family or friends because of caregiving demands. Caregivers were excluded if they were involved in another caregiver intervention study, participated in the earlier REACH I trial, did not live with the care recipient, were undergoing chemotherapy or radiation for cancer, had had more than three hospitalizations in the past year, were terminally ill, or were unwilling to participate in the study.

In order to be eligible for the study, care recipients were required to have score 23 or below on the Mini-Mental State Exam (Folstein, Folstein, & McHugh, 1975) or have a physician's diagnosis of Alzheimer's disease or related disorder. Care recipients were excluded if undergoing chemotherapy or radiation for cancer, had more than three hospitalizations in the past year, or if nursing home admission was planned within the next six months.

### 3.4 PROCEDURE

The research team recruited caregivers and care recipient dyads at 5 sites: Birmingham, Alabama; Memphis, Tennessee; Miami, Florida; Palo Alto, California; and Philadelphia, Pennsylvania. Enrollment began in June 2002, and follow-up ended in August 2004. They translated all intervention materials and assessment instruments into Spanish for the Hispanic/Latino and back translation and allowing for regional variation in at the 3 sites that recruited Hispanic/Latino participants: Palo Alto, Philadelphia, and Miami. At all sites, assessors and interventionists received cultural sensitivity training and were certified before entering the field. After telephone screening (n = 995) and baseline assessment (n = 670), the research team randomly assigned participants (n = 642) to the intervention or control group. They stratified randomization by using a block size of 2 or 4 within strata defined by the 5 intervention sites, 3 racial/ethnic groups (Hispanic, Caucasian, African-American), and 2 caregiver-care recipient relationships (spouse or non-spouse). They performed randomization at the coordination center by using a computer-generated algorithm and a standard protocol for transmitting randomization information between the coordinating center and the study sites.

They administered a baseline battery (Mini-Mental State Examination, personal appearance, caregiver and care recipient socio-demographics, ADL/IADL, vigilance, revised memory and behavior problem checklist, burden interview, formal care and services, positive aspects of caregiving, desire to institutionalize, caregiver health and health behaviors, CES-D, social support, religious/spiritual coping, social activities, quality of care, risk appraisal, caregiver medications, care recipient medications) at baseline and 1 of 3 follow-up batteries, on the basis of care recipient status at follow-up (full follow-up, bereavement battery, or placement

battery), to study participants 6 months after randomization when the intervention was completed. The data were collected through telephone interview with caregivers.

### **3.5 CRITICAL MEASURES USED IN THE CURRENT STUDY**

#### **3.5.1 Religious Coping**

Religious coping was assessed by the Brief RCOPE (Pargament et al., 1998). The Brief RCOPE assessed the use of specific positive methods of religious coping. Religious coping from the Brief RCOPE consisted of three items that measured seeking spiritual support, seeking a spiritual connection, collaboration with God in problem solving (e.g., “I think about how my life is part of a larger spiritual force”. “I work together with God as partners to get through hard times”. “I look to God [or higher force] for strength, support, and guidance in times of trouble”).

Caregivers indicated how often they engaged in each form of religious coping on a 4-point scale (0 = *not at all* to 3 = *a great deal*). The Brief RCOPE was standardized on two samples, 540 college students who experienced a serious negative event during the last three years and 551 general medical patients over the age of 55 (Pargament et al., 1998). The Brief RCOPE has demonstrated good construct validity and internal consistency among those facing major life crises (e.g., Koenig et al., 1998) and caregivers (Tarakeshwar & Pargament, 2001). For the hospital sample Cronbach’s alpha coefficients for the positive and negative scales were .87 and .81, respectively. For the college sample Cronbach’s alpha coefficients for the positive and negative scales were .90 and .81, respectively. There are two original 3 item subscales, but in the current study, only positive coping measure was used in this study. Negative coping measure

doesn't fit into the conceptual model as explicitly and generally findings are stronger for the positive items which are also more intuitive. Different mental health outcomes were associated with the scales such that the religious coping pattern was tied to fewer symptoms of psychological distress (Koenig et al., 1992; O'Brien, 1982).

### **3.5.2 Religious Behaviors**

Religious behaviors were assessed by two-item questions on religious behavioral practices. A question assessed how often the participant attends religious services, meetings and/or activities (0 = *Never* to 5 = *Nearly every day*). The other question asked how often the participant pray or meditate (0 = *Never* to 5 = *Nearly every day*). These two religious behavior questions were used separately from the religious coping measure in the analysis. Factor analysis showed a two factor structure in which the 3-item religious coping scale and the two religious behavior items loaded separately. The two behavioral items were used as separate measures in the path analysis and were considered antecedent to religious coping.

### **3.5.3 Caregiver Burden**

Caregiver burden was measured by the 12-item brief version of the Zarit Caregiver Burden Interview (ZBI) (Zarit et al., 1985, Bedard et al, 2001). The ZBI is the most commonly used measure of burden among family caregivers of demented older adults. The ZBI assesses the caregiver's impression of the impact their involvement in caregiving has had on their lives. The items were derived from clinical research experiences with caregivers of persons with dementia and reflect common areas of concern including health, social life, and interpersonal relations.

Caregiver burden score is based on the sum of 12 items (for example, “Feel stressed between caring for [the care recipient] and meeting other responsibilities?”, “Feel that because of the time you spend with [the care recipient] that you don’t have enough time for yourself?”, “Feel that you have lost control of your life since [the care recipient]’s illness?”). Caregivers rated each item on a 5-point scale from 0 (*never*) to 4 (*nearly always*). Higher values indicated greater levels of caregiver burden. Validity has been estimated by correlating the total score with a single global rating of burden ( $r = .71$ ) (Zarit & Zarit, 1988). The ZBI has been consistently shown to have excellent internal consistency with a Cronbach’s alpha range between .85 and .93 ( $\alpha = .89 \sim .92$  in Hebert et al., 2000;  $\alpha = .93$  in Arai, Kudo, & Hosokawa, 1997). Scores on the ZBI have also been significantly correlated with the care recipients’ functional ability or behavioral problems (Hebert et al., 2000) and the caregiver’s depression and health status (O’Rourke, Holly & Tuokko, 2003; Schulz, O’Brien, Bookwala, & Fleissner, 1995).

### **3.5.4 Depression**

Caregiver depressive symptoms were assessed by using the Center for Epidemiological Studies-Depression (CES-D) scale (Radloff, 1977). A short version of 10 item CES-D was used in this study. The CESD was developed to tap the major dimensions of depression specified in a wide range of standardized and validated indices of depression. In numerous previous studies, there has been replication of the four factors or symptom domains tapped by the CESD items: Negative Affect, Positive Affect, Interpersonal Problems, and Somatic Complaint (Clark et al., 1981; Radloff, 1977; Roberts et al., 1989). The CESD was designed to assess severity of symptomatology via measures of the number of symptoms experienced and the duration of each

symptom over the preceding 2 weeks. For each items, caregivers rated the frequency of this symptom on a 0 (*rarely or none of the time*) to 3 (*most of the time*) scale.

The CES-D has demonstrated content, criterion-related, and construct validity in addition to good sensitivity and specificity (Geisser, Roth, & Robinson, 1997). Reliability was established through inter-item and item-scale correlations. The corrected split-halves correlation and coefficient alpha were high (.85 to .92) (Radloff, 1977). Cronbach's alpha reliabilities for older populations reported between .86 and .89 (Schein & Koenig, 1997). The 10-item questionnaire, the CESD-10, showed good predictive accuracy when compared to the full-length 20-item version of the CES-D in a sample of older adults ( $\kappa = .97$ ,  $P < .001$ ; Andresen et al., 1994). The CESD-10 showed an expected positive correlation with poorer health status scores ( $r = .37$ ) and a strong negative correlation with positive affect ( $r = -.63$ ). Participant scores were generated by reverse coding negative items and summing across 10 items. Higher scores indicate greater depression.

### **3.5.5 Caregivers' demographic variables**

Race was measured by respondents' self-identification. In survey, two questions were given to caregivers to categorize their race. The first question was "Would you describe yourself as Hispanic or Latino/a?" and the second was "How would you describe your primary racial group?" Those who responded "Yes" to the first question and checked "White/ Caucasian" to the second were categorized into Hispanic. Race was explored as a moderator in the relationship between religious coping and depression.

Based on the caregiving literature, physical health (Morrissey, Becker & Rubert, 1990) was included in the analysis as a potential predictor of religious coping, burden and depression. Physical health of caregivers was assessed by one question “In general, would you say your health is?” Caregivers rated each item on a 5-point scale from 0 (*excellent*) to 4 (*poor*).

### **3.6 DATA ANALYSIS**

The hypothesized path model composed of study variables was evaluated using structural equation modeling (SEM). EQS 6.1 for Windows software (Bentler, 2004) was used to analyze the hypothesized relationships. Four steps of analysis were performed. First, preliminary analysis of important demographic variables was performed to determine which variables should be included in the model. Second, model specification was conducted based on theoretical considerations. Third, the specific tests for the significance of each path in the model were conducted. Fourth, the exploratory moderation tests for the difference among race groups were examined.

#### **3.6.1 Preliminary Data Analysis**

The relationships between depression and demographic variables were examined. If any of the demographic variables were significantly associated with depression, they were included in the model. According to theory, physical health, severity of symptoms and age were considered as important variables in predicting depression. However, the preliminary analysis showed that

only physical health was significantly associated with depression. Consequently, it was included as a predictor in all model tests.

### **3.6.2 Model Specification**

Given that the data departed from normality (Mardia's Coefficient = 6.07), robust statistics were reported for the relationships among the hypothesized relationships to correct for non-normal data (Satorra, & Bentler, 1994).

### **3.6.3 Path Testing and Test of Mediation**

The significance of the paths was analyzed to determine the size of their relationships within the model. The relationships among the variables were assessed in paths from religious attendance and prayer/meditation to depression and a statistical test of mediation. The standardized and unstandardized coefficients are reported for the relationships among the variables. A test of mediation was performed to determine if caregiver burden mediated the relationship between religious coping and depression. Partial mediation indicates a reduction in the size of the relationship between the independent variable (religious coping) and dependent variable (depression) after accounting for the mediator (caregiver burden). The reduction in size of the independent – dependent relationship is reflected by religious coping having a significant indirect effect on depression through its influence on caregiver burden.

### **3.6.4 Test of Moderation**

To explore the differences of race in prediction of the study variables, multi-sample SEM is conducted. The central concern of MSEM in this study is whether or not components of the structural model are invariant across race groups. A baseline model is estimated for race groups simultaneously. Because the estimation of baseline models involves no between-group constraints, the data could be analyzed for each group. However, in testing for invariance, equality constraints are imposed on parameters, and thus the data for all groups are analyzed simultaneously to obtain efficient estimates (Bentler, 2004).

## **4.0 RESULTS**

This study examined the role of religious coping in a sample of caregivers with persons of Alzheimer's disease. It is expected that religious coping will have positive effects on psychological well-being of caregivers. The analyses were completed for associations between and among religious attendance, prayer/meditation, religious coping, burden and depression. The results chapter is divided into four sections. First, description of the sample, descriptive analyses, and psychometric properties for each measure are presented. Second, bivariate relations between predictors and criterion are presented, including the background variables. These were used to determine which demographic variables should be included in the models that predict depressive symptoms. Third, findings from path analyses testing the study hypotheses are described. Finally, findings from testing of moderation using MSEM (multi-group structural equation model) are reported.

### **4.1 DESCRIPTION OF THE SAMPLE**

Demographic characteristics of the sample are shown in Table 1. Initially 648 caregivers of persons with Alzheimer's were included in this study; however six persons were excluded in the analyses because they did not belong to any of three main race groups (Black, White, and Hispanic). Caregivers' age ranged from 24 to 92 with a mean age of 62.3. The majority (79%)

of the 642 respondents was female. The average years of education were 12.6 with a range of 0 to 22. The average personal income was \$26,000. More than half of the caregivers identified themselves as religious; 30% were Roman Catholic, 24% were Baptist and 11% were other Christian denomination (Methodist, Presbyterian, Episcopal). Sixty two percent of caregivers indicated that they were in good, very good or excellent or physical health condition.

Results of tests of mean differences on demographic variables, religious coping, burden and depression by race are also presented in Table 1. Racial differences for almost all of the variables were significant at  $p < .05$  except gender and depression. Hispanic respondents differed from Black and Whites in that they were slightly older and had less formal education. Forty five percent of Hispanics reported that their health was better than good, whereas 65% of blacks and 75% of Whites reported that their physical health was better than good. Hispanics also reported the lowest level of average household income (\$17,500) and Whites reported the highest level of household income of the three groups (\$39,400). Whites reported the lowest level of religious coping and highest level of caregiver burden, whereas Blacks indicated the highest level of religious coping and lowest level of caregiver burden of the group.

**Table 1** Description of the Sample: N and % (in parentheses) or mean and SD (in parentheses)

Variables	Total (n= 642)	Black (n= 211)	White (n= 220)	Hispanic (n= 211)	Test statistics
Age (yrs)	62.31 (13.14)	62.42 (12.75)	62.4 (12.71)	63.8 (12.93)	F (2, 639) = 3.11*
Female (%)	506 (78.85)	174 (82.52)	172 (78.26)	160 (75.82)	$\chi^2$ (2, 642) = 2.94
Physical health (greater than “Good”)	396 (61.79)	137 (64.91)	164 (74.64)	95 (45.13)	$\chi^2$ (8, 642) = 85***
Education (yrs)	12.6 (3.11)	13.1 (2.22)	13.8 (1.91)	10.9 (4.12)	F (2, 639) = 58.96***
Income (\$)	26,000 (13,000)	23,000 (12,500)	39,400 (12,150)	17,500 (11,500)	F(2, 612) = 56.38***
Religious coping	6.8 (2.63)	7.7 (1.93)	5.9 (3.17)	6.9 (2.48)	F (2, 632) = 26.32***
Burden	18.8 (9.92)	16.8 (8.74)	20.8 (9.61)	18.7 (10.72)	F (2, 630) = 8.84***
Depression	9.9 (6.54)	9.2 (6.35)	10.3 (6.22)	10.4 (7.15)	F (2, 640) = 2.28

\*p&lt;.05, \*\*p&lt;.01, \*\*\*p&lt;.001

## **4.2 DESCRIPTIVE AND PSYCHOMETRIC RESULTS OF MAIN STUDY**

### **VARIABLES**

Descriptive and psychometric results for the three variables of interest were examined. The variables were examined in the following order: depression, measured by CES-D, religious coping measured by the Brief RCOPE, caregiver burden measured using the Zarit Caregiver Burden Scale (ZBI).

#### **4.2.1 Dependent variable: Depression**

The Center for Epidemiological Studies Depression Scale (CES-D) results (see Table 2) showed that the caregivers reported a meaningful level of depression ( $M = 9.96$ ; Median = 9). A score of 15 reflects extremely high levels of depression symptoms (Irwin et al., 1999). The cutoff score for clinical depression is 10 for the 10-item version (Andresen et al., 1994). Scores in this study ranged from 0 to 30. Nearly half (46%) of the caregivers showed a severity of depression that may warrant clinical attention ( $CES-D \geq 10$ ). The most frequently occurred depressive symptom during the past week was “My sleep was restless” ( $M = 1.26$ ). The next most often reported symptom was “I felt depressed” ( $M = 1.11$ ). Symptoms reported as occurring least often were “I felt fearful” ( $M = .60$ ), “I was bothered by things that don’t usually bother me” ( $M = .76$ ). The Cronbach’s alpha was .82 with 10 items. A principal component analysis showed that all 8 negative symptom items loaded above .40 on the first factor of the pre-rotation matrix and 2 positive items

loaded on the second factor. Forty percent of the variance was accounted for by the first factor.

**Table 2. CES-D Depression Scale for caregivers (N = 640)**

Depression Severity	N (%)
Severe (15 – 30)	149 (23.33)
Moderate (10 – 14)	147 (23)
Minimal (0 – 9)	344 (53.84)

#### **4.2.2 Independent variable: Religious attendance, Prayer/Meditation, Religious coping**

Religious attendance was measured by frequency of attendance at church services and activities. Prayer/meditation was measured by frequency of prayer and meditation of religious scripture. Religious coping was measured using the Brief RCOPE (Pargament et al., 1998). With a range from 0 to 9, the mean religious coping score in this sample (N= 642) was 6.8 with a standard deviation of 2.6 (see Table 1). The majority of caregivers (65.4%) reported a score between 7 to 9, indicating a high level of religious coping and 20.6% of them scored 4 to 6, medium level of religious coping and 14% reported a low level of religious coping (0-3). Most caregivers (80%) reported that they “looked to God for strength, support, and guidance in times of trouble” to a great extent. The frequency of religious attendance and prayer/meditation by race are shown in Tables 3 & 4. The data indicated that Black respondents were the most religious group among

the three in terms of religious attendance and prayer/meditation. More than half of Black caregivers reported that they attended religious service at least once a month (58%) and more than 90% of them indicated that they prayed nearly everyday. While 42% of caregivers reported that they attended religious services on a weekly basis most of them (80%) reported that they prayed/ meditated everyday.

**Table 3. Religious attendance by race**

Frequency	Total	Black	White	Hispanic	Test statistics
Never	143 (22.35)	21 (10.01)	57 (25.92)	65 (30.82)	
Once a year	30 (4.78)	4 (1.93)	14 (6.44)	12 (5.75)	$\chi^2$ (10, 642) = 48.35***
A few times a year	99 (1.59)	28 (13.38)	34 (15.54)	37 (17.55)	
At least once a month	73 (11.45)	35 (16.61)	23 (10.53)	15 (7.12)	
At least once a week	269 (41.91)	113 (53.62)	83 (37.74)	73 (34.63)	
Nearly everyday	28 (4.43)	10 (4.76)	9 (4.17)	9 (4.35)	

**Table 4. Prayer/Meditation by race**

Frequency	Total	Black	White	Hispanic	Test statistics
Never	27 (4.21)	1 (0.51)	16 (7.38)	10 (4.76)	
Once a year	4 (0.63)	1 (0.54)	1 (0.55)	2 (0.91)	$\chi^2$ (14, 642)
A few times a year	22 (3.41)	1 (0.51)	14 (6.42)	7 (3.33)	= 39.21***
At least once a month	16 (2.53)	2 (0.99)	9 (4.16)	5 (2.47)	
At least once a week	62 (9.72)	14 (6.63)	26 (11.89)	22 (10.45)	
Nearly everyday	507 (79.04)	191 (90.57)	151 (69.16)	164 (77.71)	

### 4.2.3 Mediating variable: Caregiver burden

Caregiver burden was measured using Zarit Caregiver Burden Interview (ZBI). Caregivers reported that the feeling that they had about caring for the care recipient (CR) most often than any other was “Stressed between caring for CR and trying to meet other responsibilities (work/ family)” (M = 2.37). The next most often reported feeling was “because of the time I spend with CR that I don’t have enough time for myself”

(M = 2.14). Feelings reported as occurring least often were “angry when I am around CR” (M = .99), “currently affects my relationships or friends in a negative way” (M = 1.1). The Zarit burden interview had a satisfactory Cronbach’s alpha of .87 with 12 items. With a range from 0 to 46, the mean burden score in this sample (N= 642) was 18.8 with a standard deviation of 9.9 (see Table 1). According to Bedard & colleagues (2001) a score above 17 on the Zarit Burden scale is suggestive of clinically significant

caregiver burden. More than half of the caregivers (56%) reported that they had significantly high burden ( $ZBI \geq 17$ ).

### 4.3 BIVARIATE RELATIONSHIPS

The relationships between religious attendance, prayer/meditation, religious coping, burden and depression are shown in Table 5. Religious attendance was associated with more practice of prayer/ meditation ( $r = .38, p <.01$ ) and higher level of religious coping ( $r = .47, p <.01$ ). Prayer/meditation was positively correlated with religious coping ( $r = .71, p <.01$ ). Consistent with the hypotheses, religious coping was associated with lower burden ( $r = -.18, p <.01$ ) and lower depression ( $r = -.23, p <.01$ ). Religious attendance was also associated with lower burden ( $r = -.12, p <.01$ ), and lower depression ( $r = -.26, p <.01$ ). Religious variables show a higher negative correlation with depression than burden. Burden was highly correlated with depression ( $r = .59, p <.01$ ). Better physical health was marginally related to more practice of prayer/meditation ( $r = .09, p <.05$ ). Physical health was correlated with lower burden ( $r = -.19, p <.01$ ) and less depression ( $r = -.35, p <.01$ ).

**Table 5. Correlation among study variables**

Variables	1	2	3	4	5	6
1. Physical Health	–					
2. Religious attendance	.06	–				
3. Prayer/Meditation	-.09*	.38**	–			
4. Religious coping	-.06	.47**	.71**	–		
5. Burden	-.19**	-.12**	-.14**	-.18**	–	
6. Depression	-.35**	-.26**	-.17**	-.23**	.59**	–

\*p<.05, \*\*p<.01, \*\*\*p<.001

#### 4.4 PATH MODEL TESTING AND TEST OF MEDIATION

The structural equation analysis (EQS) was run on all hypothesized paths. SEM (Structural Equation Modeling) is a useful tool that enables us to explain the relationships among variables and discover underlying structure by testing all variables simultaneously. A direct effect is a regression-like relationship between two variables involving a direct link between them (e.g.,  $A \rightarrow B$ ). An indirect effect is a relationship between two variables that operates through an intervening variables or set of variables (e.g.,  $A \rightarrow C \rightarrow B$ ).

Multiple fit indices were used to evaluate the fit of the data to the model. An overall chi-square index was used to assess the degree of fit between the estimated and observed covariance matrices. Lower chi-square values indicate better fitting models. There are two groups of fit indices. The incremental fit indices measure the improvement in fit over a nested baseline model and the absolute fit indices directly assess how well a model reproduces a sample covariance matrix. The most popular incremental fit index is the comparative-fit-index (CFI; Bentler, 1990). A value equal to or higher than .95 is considered a good fit. The root mean square error of approximate (RMSEA; Steiger & Lind, 1980) is an absolute fit index. A model with RMSEA less than .06 is considered a good model.

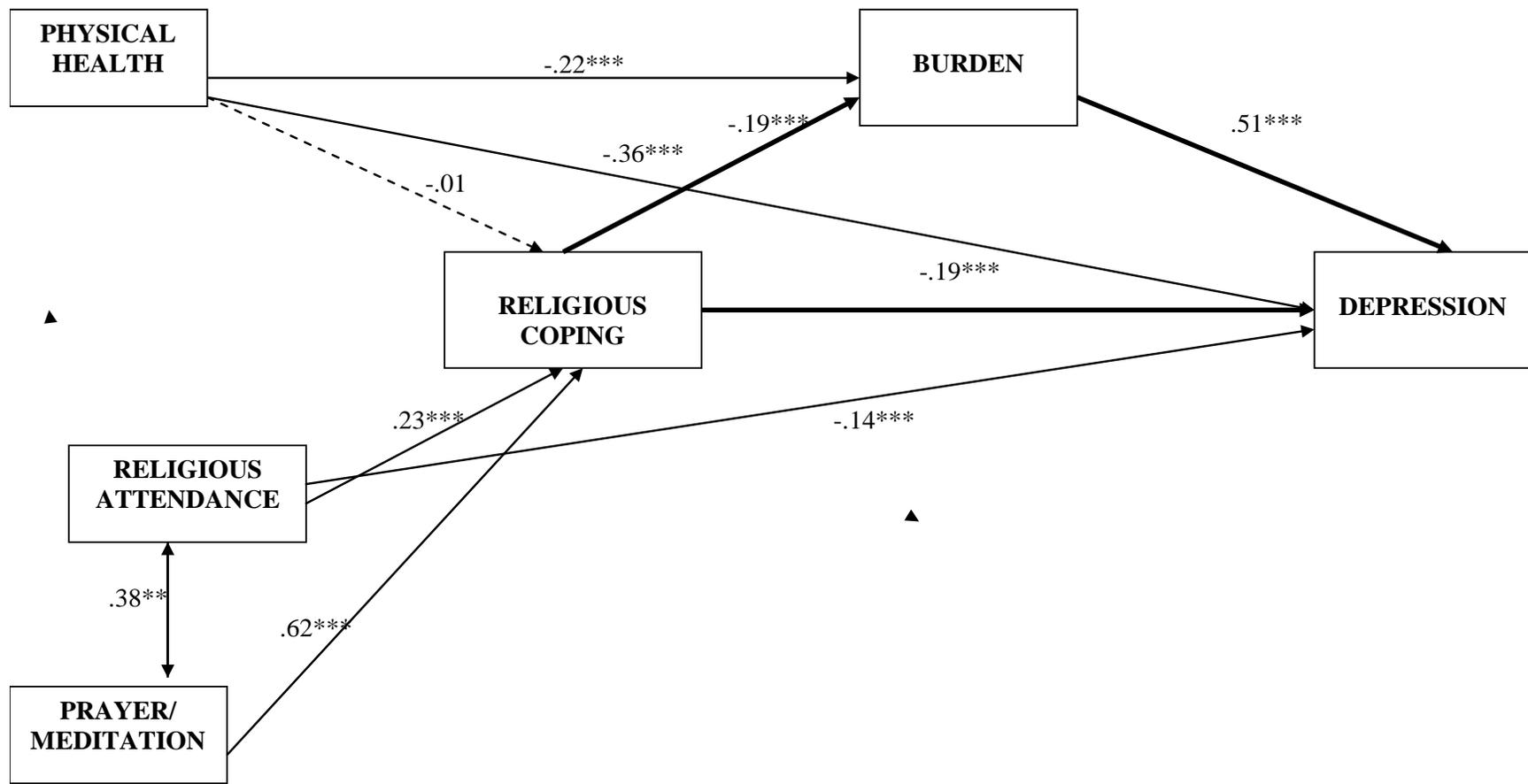
The fit of the specified model,  $\chi^2(4, N = 642) = 97.085$ ,  $CFI = .88$ ,  $RMSEA = .19$ ,  $p < .001$  suggested poor fit of the data to the model. Physical health was included in the model as a control variable because of its relationship to depression. Modification

indices (Lagrange multiplier test) suggested that adding a direct path from religious attendance to depression would improve model fit; this path was added to the model. Non-significant paths from physical health to religious attendance and physical health to prayer/meditation were removed. Reestimation of the model results in an improved fitting model,  $\chi^2(5, N = 642) = 11.68, p = .04, CFI = .99, RMSEA = .05$ . The model explained 55% of the variance in religious coping and 45% of the variance in depression. Figure 2 is a graphical depiction of the initially tested path model with a control variable. Table 6 reports the significance tests for each relationship in the hypothesized model. Figure 3 is a graphical depiction of the modified final model with standardized coefficients reported. A non-significant relationship is notated with a dashed line and the predicted mediation of burden is notated with a darker line.

Religious attendance was found to be a positive predictor of religious coping ( $\beta = .23, p < .001$ ). This is a significant path, indicating that as caregivers' religious attendance increases, their level of religious coping increases. Prayer/meditation was also found to be a positive predictor of religious coping ( $\beta = .62, p < .001$ ). This is a significant path, indicating that as caregivers pray/meditate more often, their level of religious coping increases. Religious coping predicted lower depression ( $\beta = -.19, p < .001$ ). Religious coping was related to less caregiver burden ( $\beta = -.19, p < .001$ ). There was a significant relationship between burden and depression ( $\beta = .51, p < .001$ ). Religious attendance predicted less depression ( $\beta = -.14, p < .001$ ). This is the direct path added based on the LM test. The result supports the first hypothesis that religious coping will decrease caregivers' depression (Hypothesis 1).

#### **4.5 TEST OF MEDIATION: CAREGIVER BURDEN WILL PARTIALLY MEDIATE THE RELATIONSHIP BETWEEN RELIGIOUS COPING AND DEPRESSION**

Caregiver burden was found to partially mediate the prediction of depression by religious coping ( $\beta = -.09, p < .001$ ). There was a significant negative prediction of caregiver burden by religious coping ( $\beta = -.19, p < .001$ ). There was a significant positive prediction of depression by caregiver burden ( $\beta = .51, p < .001$ ). The test of the indirect effect of religious coping on depression through burden was significant ( $\beta = -.09, p < .001$ ). Given that the direct path between religious coping and depression remains significant after caregiver burden is accounted for, caregiver burden is acting as a partial mediator of the relationship between religious coping and depression. These results support the hypothesis that caregiver burden will partially mediate the relationship between religious coping and depression (Hypothesis 2). The reverse mediation model of depression in the relationship between religious coping and burden was also examined (see Appendix A-Figure 5). The results showed that depression fully mediated the relationship between religious coping and burden. After adjusting for the mediator (depression), the association between religious coping and burden disappeared and was no longer significant. The data were consistent for both models indicating that reverse model is possible and the relationship between burden and depression is bidirectional.



\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

**Figure 2 The Final Path Model of Relationships with Standardized Coefficients**

**Table 6. Maximum Likelihood Parameter Estimates for Model**

DV	IV	B	SE	Beta	Z	P	R <sup>2</sup>
Depression							.45
	Burden	.34	.02	.51	16.42	<.001	
	Religious coping	-.23	.08	-.19	-4.89	<.001	
	Religious attendance	-.53	.13	-.14	-4.01	<.001	
	Physical health	-1.49	.18	-.25	-8.11	<.001	
Burden							.09
	Religious coping	-.73	.14	-.19	-5.06	<.001	
	Physical health	-2.02	.36	-.22	-5.53	<.001	
Religious coping							.55
	Religious attendance	.36	.05	.23	7.92	<.001	
	Prayer/Meditation	1.36	.06	.62	21.17	<.001	
	Physical health	-.03	.06	-.01	-.45	.65	

#### 4.6 TEST OF MODERATION

For the test of moderating effect of race, a multi-sample SEM was conducted. Multi-sample SEM (MSEM) was used to test for differences in the parameters of a model among multiple samples. In SEM, when a moderator is a grouping variable a test for a moderation is done using MSEM. MSEM provides a direct method for simultaneous testing and evaluating of hypotheses about group effects.

In MSEM, the first step was to analyze each group (Black, White, Hispanic) separately. Then a common model (baseline model) with all the parameters from the groups was tested. The baseline model hypothesizes (a) no significant group differences in parameter estimates and (b) equivalent model fit for all groups (Scott-Lennox & Lennox, 1995).

The baseline model among groups was estimated simultaneously. Next, restrictions were placed on a model by constraining parameters to be equal across groups. In this path analysis with no latent variables, only structural invariance was tested (no measurement invariance test). The second, group sensitive model estimated acknowledges that race subgroups may have distinct relationships among religious coping and depression. To identify significant group-specific differences, Lagrange multiplier (LM) tests of equality constraints across samples were examined.

The overall model fit for each sample: Black,  $\chi^2(5, N= 211) = 2.233, p = .82, CFI = 1.000, RMSEA = .000$  ; White,  $\chi^2(5, N= 220) = 11.097, p = .05, CFI = .98, RMSEA = .08$  ; Hispanic,  $\chi^2(5, N= 211) = 2.336, p = .801, CFI = 1.000, RMSEA = .000$ .

Unstandardized parameter estimates are reported in MSEM (see Table 8). In MSEM, unstandardized parameter estimates are being compared not standardized since a standard error of a standardized solution is unknown. Parameter constraints were added to the baseline model to test for a structural invariance among race groups. Chi-square difference test was conducted to observe if there is overall difference among groups. The overall test of constraints showed that there was no significant difference among race groups ( $p = .13$ , see Table 7).

**Table 7. Model fit and comparison**

<i>Model</i>	$\chi^2$	<i>Df</i>	<i>P</i>	<i>CFI</i>	<i>RMSEA</i>	$\Delta\chi^2$	$\Delta df$	<i>P</i>
Baseline	16.443	15	.353	.998	.022			
Structural Invariance	34.418	27	.154	.991	.039	17.431	12	.134

From separate analyses for each group, there are a few notable differences in the parameters among groups. The path from religious coping to depression was significant for Blacks ( $\beta = -.25$ ,  $p < .001$ ) and Whites ( $\beta = -.22$ ,  $p < .001$ ), but not for Hispanics ( $\beta = -.09$ ,  $p = .49$ ). Religious coping was a significant predictor of burden only for Blacks ( $\beta = -.26$ ,  $p < .001$ ). Physical health was a significant predictor of religious coping only for Blacks ( $\beta = .12$ ,  $p < .001$ ) and the direction of the relationship was the opposite of Whites and Hispanics. Figure 4 is graphical depictions of the final model by race with standardized coefficients reported. The separate analyses showed that the path model is better supported by Black caregivers than Hispanic and White caregivers.

**Table 8. Maximum Likelihood Parameter Estimates for Multi-sample (Unstandardized coefficient)**

DV	IV	Black		White		Hispanic	
		B	P	B	P	B	P
Depression							
	Burden	.35	<.001	.36	<.001	.31	<.001
	Religious coping	-.77	<.001	-.31	<.001	-.11	.49
	Religious attendance	-.34	.07	-.30	<.001	-.23	<.001
	Physical health	-1.41	<.001	-1.32	<.001	-1.78	<.001
Burden							
	Religious coping	-1.17	<.001	-.38	.07	-.56	.06
	Physical health	-1.76	<.001	-.23	<.001	-2.73	<.001
Religious coping							
	Religious attendance	.47	<.001	.50	<.001	.18	<.001
	Prayer/Meditation	1.21	<.001	1.33	<.001	1.32	<.001
	Physical health	.25	<.001	-.05	.69	-.01	.95

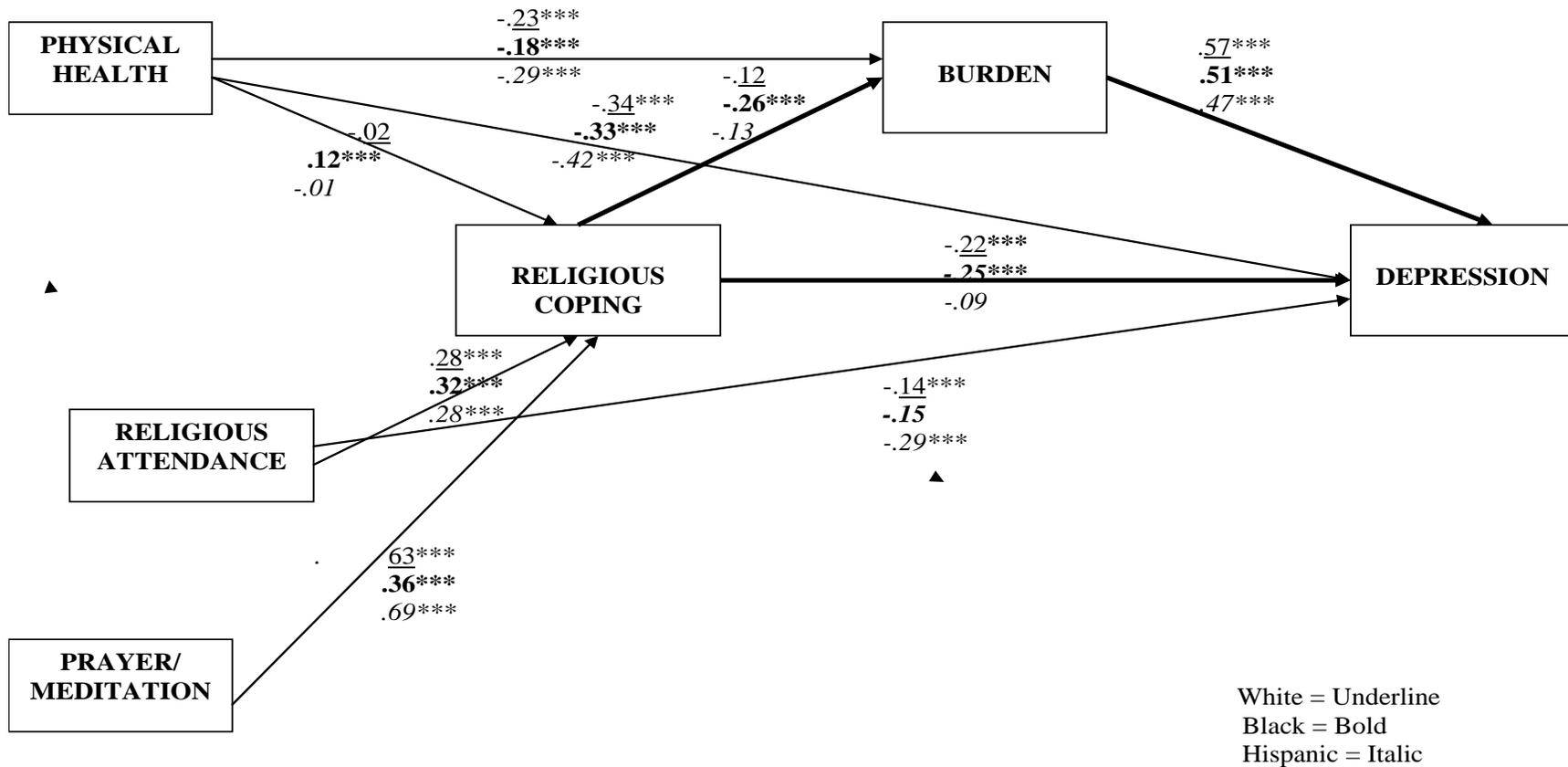


Figure 3 The Final Path Model of Relationships with Standardized Coefficients by Race

## 5.0 DISCUSSION

This study examined the relationship between religious attendance, prayer/meditation, religious coping, burden and depression in a sample of people who provide care for their family members with Alzheimer's disease. A preliminary conceptual model adapted from the Stress and Coping model by Lazarus and Folkman (1984) was tested using path analysis. It was hypothesized that caregiver burden would mediate the effects of religious coping on depression. This study also explored the moderating effect of race in the relationship between religious coping and depression. The hypothesized theoretical model was largely supported. Caregiver burden mediated the effect of religious coping on depression with higher religious coping resulting in lower caregiver burden and thereby reducing depression. The following pathways were predicted and supported: the path between religious attendance, prayer/meditation and religious coping was significant. The direct pathways between religious coping and burden, burden and depression and religious coping and depression were significant. A significant path between religious attendance and depression was not predicted and had to be added to the model. The moderating effect of race was tested using Multi-sample Structural Equation Modeling. While the overall Chi-square difference test was not significant, separate analyses showed some differences among groups.

The results of this study revealed the critical role of religious coping in the lives of caregivers. Religious coping was most commonly utilized by African-American caregivers and the theoretical model of religious coping was better supported by African-American caregivers than White and Hispanic caregivers. This section includes a discussion of the study findings and interpretations. Implications for social work, study limitations, recommendations for future research, and conclusions are presented.

## **5.1 RELIGIOUS COPING AND DEPRESSION**

The tested path model demonstrated that religious coping was associated with lower depression. The caregivers with higher levels of religious coping reported significantly lower levels of depression. This result supports the hypothesis and is consistent with the existing literature (Folkman, 1997; Holland et al, 1999). Caregivers in this study used religion to provide relief and support for their arduous situation and as a resource for dealing with stress. Picot et al. (1997) had suggested that religion served as a deterrent to stress by “raising the threshold at which the caregiver perceives stress” (p.91). The reliance on religious faith can provide the sense of support and strength many caregivers need to continue in the caregiving role.

Religion may exert its influence by facilitating and increasing positive thinking and emotions. Researchers have found that when people consider something sacred, they derive more satisfaction from it, and invest more time, energy, and care (Mahoney, Pargament, Tarakeshwar & Swank, 2001). Religion may produce a sense of meaning (something worth living and dying for), stimulate hope and optimism, and give religious

people a sense of control by a higher power, which compensate for reduced personal control and prescribe a healthier lifestyle that yields positive health and mental health outcomes (Worthington et al., 1996).

Caregivers of persons with dementia suffer significantly from severe stress, which results in mental health problems such as depression and anxiety. A review study confirmed that the prevalence of depression in caregivers of dementia patients is substantially high (Cuijpers, 2005). The current study shows a direct and indirect benefit from religious coping. The indirect benefit is attributed to burden (stress) being perceived as less for religious coping; the direct effect is due to unmeasured (in this study) factors.

One of the most frequently noted factors is social support. Consistent with several studies (Toth-Cohen, 2004; Ellison, 1994), it is likely that social support was facilitated by spiritual beliefs and religious practices. Participation in a religious community could offer caregivers a sense of acceptance, of belonging and of having the support of a caring group of people. The other important factor may be a sense of hope. Caregivers' spiritual and religious beliefs may help them to keep themselves from becoming frustrated and hopeless. Farran and his colleagues (1995) discussed how caregivers often utilize hope as a problem-solving strategy. They find hope and meaning in the form of a belief that their experiences are part of a larger divine plan (Siegel & Schrimshaw, 2002). The findings from the current study suggest that religious coping makes a distinctive contribution to the coping process and helps caregivers to deal with depression.

## 5.2 RELIGIOUS COPING AND BURDEN

This research confirmed previous findings that higher levels of religious coping predict lower burden in caregivers (Burgener, 1994; Folkman et al., 1994). Caregiving is a life condition that demands adjustment. According to the stress and coping model of Lazarus and Folkman (1984), burden is the first appraisal of a caregiving situation. Burden may be defined as a stress reaction to one's perception of the caregiving situation. Religious and nonreligious people tend to experience equal amounts of stress (Shafer & King, 1990), but religion may help people deal better with negative life events and the attendant stress (Worthington et al., 1996). Religion may not actually reduce caregivers' work load or caregiving responsibilities, but it increases their perception of available resources such as feelings of personal mastery and confidence. The perception, in turn, would influence the way in which caregivers viewed their ability to meet the demands of the situation and make them feel less stress and burden.

Religious people may believe that their lives are controlled by a higher power, that caring for a person with Alzheimer's disease happens for a reason, or that caregiving is an opportunity for spiritual growth, thus they may experience caregiving as less threatening and less stressful (George et al., 2000). This suggests that religious coping is another psychosocial resource that one could use to cope with stress and burden. As caregivers' religious coping increases, they may develop a mechanism to fight against burden and stress.

The separate analysis by race showed that the relationship between religious coping and burden is significant only for African-American caregivers. Religious coping

is a strong and effective coping mechanism for African-American caregivers. Church and religion have been a source of strength and assistance to African-Americans, providing them with resources to cope with difficulties in life such as caring for family members with Alzheimer's disease. Williams & Wilson (2001) noted that "religion may be especially salient in the lives of minority elderly." Religion is a strong, positive helping system that has a significant impact on the lives of African-Americans.

### **5.3 CAREGIVER BURDEN AND DEPRESSION**

Another finding was that burden was strongly associated with depression. Stress and coping models suggest that higher levels of caregiver burden are associated with higher levels of depression. The path model indicates that burden predicts depression.

However, the reverse mediation model of depression in the relationship between religious coping and burden was also significant (see Appendix A). It suggested a bidirectional relationship between burden and depression. Caregiver burden may be an initial reaction to demands for care that will in turn increase depressive symptoms. Also, it could be that depressed caregivers feel more burdened with care demands and responsibilities.

Research indicates that caregivers who report higher subjective burden are at greater risk for negative health consequences such as depression, anxiety, and poor physical health.

Tsai et al. (2003) suggests higher perceived stress results in lower role enjoyment and poor functioning which may manifest itself as depression. Nonetheless, the literature is not conclusive as to the relationship between burden and depression and more

longitudinal studies are needed to differentiate between burden and depression and examine how one affects the other.

#### **5.4 BURDEN AS A MEDIATOR**

The results of this study show that religious coping had a strong negative association with depression. After testing the indirect effect of religious coping on depression through burden, burden was found to mediate some part of the relationship between religious coping and depression. Although the reduction in the coefficient for religious coping was significant, it was not reduced to zero. This indicates that burden did not explain all of the variance in the relationship between religious coping and depression and thus should be considered as one of the potential explanatory factors. Alternative models are also theoretically plausible. For example, it is possible that religious caregivers would be more likely to develop positive attitudes in life (Hebert et al, 2006) or social resources (Ellison, 1994), which could lead to better coping outcomes. Other suggested mediators include self-efficacy (Steffen et al, 2002), self-esteem (Krause, 1995), meaning and control (Pargament et al., 2000). The results also showed that religious coping had both a direct effect on depression and an indirect effect through burden. This finding suggests that caregivers who use religious coping will have lower burdens and in turn, less depression than those who do not.

## **5.5 RELIGIOUS ATTENDANCE AND DEPRESSION**

The only finding that was not predicted and had to be added to the model was the relationship between religious attendance and depression. The results indicated that religious attendance was associated with lower depression. Prayer/meditation did not significantly predict depression in the test of the proposed model. The finding that religious attendance was more consistently associated with lower levels of depression than prayer/ meditation is consistent with previous work (Baetz et al., 2004; Hebert et al., 2007).

Religious attendance allows caregivers to interact with people of similar religious values and perspectives (Hebert et al., 2007). Religious attendance also affords people opportunities for social support through relationships with other believers. People who are involved in religious activities have substantially more informal social contacts (Putnam, 2000). Social support has been known to protect against depression (Koenig et al., 2001; George, Larson, Koenig, & McCullough, 2000). Social support within the religious community, which has not been measured in this study, may account for some of the inverse association of religious attendance and depression.

## **5.6 ADDITIONAL MEDIATION MODEL**

Looking at the relationship between variables, multiple mediators are possible in this mediational model. Specifically, religious coping acted as a mediator between religious attendance and depression. A fuller mediation model, therefore, may involve religious

attendance impacting religious coping and religious coping impacting burden, which in turn influences depression. As caregivers attend religious services or activities more frequently, they are more likely to develop religious coping strategies, which in turn, decrease burden and thereby lower depression. The results reveal the importance of religious coping in dealing with the burden of caregiving.

## **5.7 RACIAL DIFFERENCES IN CAREGIVING**

Confirming some of the earlier research in this area (Foley et al., 2002; Haley et al., 2004), this study also found that African American caregivers reported the highest level of religious coping as well as the lowest levels of burden. African-American caregivers were more likely to report greater attendance at religious services and more practice of prayer/meditation than Hispanics and Whites. These findings are consistent with suggestions by Dilworth-Anderson and her colleagues (2002) and are of particular interest in understanding racial differences in coping with caregiving. Despite the fact that African-Americans had lower education and income than Whites, they still appraised their caregiving situation as less burdensome.

Hispanic caregivers were found to have higher religious coping and lower burden than Whites. Several studies note that Hispanic culture supports family responsibility and a stronger traditional caregiving role (Cox & Monk, 1993; Luna, de Ardon, Lim, Phillips, & Russell, 1996). Higher levels of informal support, stronger family values, and higher levels of religious coping may also explain lower burden among Hispanic caregivers.

The lower level of caregiver burden found in African-American caregivers may be due to powerful internal resources, such as religious coping and resilience to stress (Haley et al., 2004). This study showed that the religious coping meditation model worked best for African-American caregivers. This finding supports that it may be through religious coping that African-American caregivers experience less caregiver burden. African-American caregivers appear to benefit more from religious coping. This may also be related to the appraisal of what is normal versus abnormal stress among caregivers. It is through the appraisal process that one determines what is stressful for the individual (Lazarus and Folkman, 1984). In traditional African-American culture, illness is a natural part of life as one ages, therefore dementia may not be appraised as stressful or threatening compared with the majority culture (Yee & Weaver, 1994). Providing care for the elderly is a part of African-American family norms, values, and expectations (Brody, 1985; Kelly, 1994). Such factors as prior experience with adversity and cultural support for caregiving have been stated as possible explanations for racial difference in coping related to caregiving.

## **5.8 IMPACT OF PHYSICAL HEALTH**

Caregivers who provide care to people with Alzheimer's disease for many years are themselves at risk for poor physical health. In this study, poor physical health was strongly and negatively related to burden and depression. Caregivers with worse physical health had higher burden and depression. This finding confirms previous research that has noted that physical health is associated with mental health problems (Kroenke et al.,

1994; Fox, 1999). In racial group comparisons, African-American and Hispanic caregivers perceived their health to be significantly worse than White caregivers. This is consistent with previous studies (Mui, 1992; Haley et al., 1995). Racial minority groups are considered to face greater health problems and disparities. Racial minority caregivers' poorer physical health may be influenced by limited access to quality health care (Williams & Wilson, 2001), lower levels of insurance coverage (Sotomayor & Randolph, 1988), and a lifetime of racial discrimination (Finch, Hummer, Kolody, & Vega, 2001).

Physical health was significantly related to religious coping for African-American caregivers. African-Americans were found to be the most religious group and better physical health may positively affect religious coping. Caregivers with better health may be able to attend church service more often and thereby use a higher level of religious coping than caregivers with worse health. Or, it may be more plausible that highly religious caregivers have developed some mechanisms to protect against physical health problems. Religion may reduce high-risk health behaviors such as smoking, drinking, etc. and it may reduce emotional distress, which has been linked with various psychosomatic diseases (Ader, 1981).

## **5.9 LIMITATIONS**

This study reports on data collected at baseline from a randomized trial, so our information is cross-sectional. Therefore, the direction of the associations between religious coping, burden, and depression may not be directly implied and the results

should be interpreted with caution. The use of religious coping may affect caregivers in positive ways, but it may be that caregivers who have better caregiving experiences possess a greater sense of religiosity. This study tested one plausible model of religious coping and depression in the sample of caregivers based on the literature and current theory concerning the model relationships. Yet, alternative models could also be developed and tested. The recruited sample of caregivers limits the ability to generalize any of the findings from this study to other AD caregiving populations. As the data are from a trial of an intervention, a selection bias may have occurred in that those who participated did so because of the possibility of receiving an intervention that they felt they needed. In addition, the contribution of social support was not measured in the study. Social support may be an important factor in explaining the impact of religious coping on mental health among caregivers.

Most caregivers in the study sample were women. This is true for all caregiver samples in the studies of caregiving since the majority of caregivers are women, whether they are wives, daughters, or daughters-in-law. The results may have differed had the sample included more male caregivers. Future research can be done in the areas of differences in religious coping and caregiving that may exist between genders.

Correlational data does not provide information about the process of religious coping over time or its long-term effects. Longitudinal studies are needed to better address the threat arising from the time order issue and to examine the process of coping and its effects over a longer period of time. Much of the information in this study was self-reported, reflecting the experience of the family caregiver, and therefore it would be difficult, if not impossible, to obtain this information through any other method.

## **5.10 STRENGTHS OF THE STUDY**

This study examined a sample of caregivers for persons with Alzheimer's disease. Nearly half of these caregivers maintained a level of depression that would be of concern to mental health treatment providers. The depressive symptoms are an important intervention target for researcher and clinicians because it has been documented that depression can have a harmful impact on caregivers and their care recipients. This research fills an important gap in the development of models that are relevant to high-risk groups, such as caregivers for persons with AD. Two intervention targets for researchers and clinicians are suggested: introducing/increasing religious coping and reducing caregiver burden. This study examines the relationships between religious variables and mental health outcomes by demonstrating the differential effect of each religious variable independently (religious attendance, prayer/meditation, religious coping). It also investigates the role of religious coping among three different racial groups using Multi-sample SEM. This study is one of the few studies that include three racial groups of caregivers of persons with dementia.

## **5.11 IMPLICATIONS FOR PRACTICE AND POLICY**

The current study has several significant implications for social work practice, service delivery, and policy. First, it is important for social workers to ask caregivers if and how they use religion to help them to cope. Simply acknowledging and respecting caregivers' religious belief can be very helpful. Social workers could identify and support

caregivers' religious involvement. Social workers could ask caregivers about religious practices (e.g. scripture reading, prayer) that have been meaningful to them and discuss how they may be relevant to their ability to cope with the stress of caregiving. It may also be useful to refer caregivers to a pastoral counselor or chaplain who will be sensitive to the caregiver's religious background. Second, it is important for agencies or hospitals to provide services and training for caregivers that include the components of religiosity and its impact on the caregivers' burden and depression. Incorporating religious elements into an intervention will help caregivers develop positive appraisal and find meaning and purpose in caregiving. Spiritual/religious issues could be sensitively addressed in existing programs. Such training will help caregivers to be aware of their own religious beliefs and cope with difficult situations in caregiving.

Future research into the most useful methods for caregiver service programs will need to incorporate the important issues of religious coping that influence caregiving outcomes for families dealing with AD. Social workers should raise awareness and knowledge of issues of religious coping in AD caregiving. Finally, policy makers could improve caregiver support by providing faith-based programs/interventions.

The findings also suggest that religious coping affects African-American, Hispanic and White caregivers differently. Religious coping appears to be more prominent among African-American caregivers. The findings suggest that incorporating some form of religious support could serve as a protective factor, especially with ethnically diverse caregivers. It would be culturally sensitive and appropriate to encourage African-American caregivers to utilize religious coping resources. Moreover, given existing health disparities and physical health problems among minorities,

programs for caregivers not only have to focus on psychological well-being and reducing depression, but also create interventions to improve the physical health of caregivers (Pinquart & Sorensen, 2005).

The flipside of the positive effect of religious coping implies that non-religious caregivers may be more at risk because they do not have this internal resource to depend on. They may need a substitute for religious belief or other kinds of coping strategies. Social workers and policy makers must consider how to help non-religious groups of caregivers.

## **5.12 DIRECTIONS FOR FUTURE RESEARCH**

Future research might continue to examine the different pathways of religious coping to caregiving outcomes. The issue of how religion affects depression, whether through cognitive reframing of stressful situations or other mechanisms, is an important question for future study. It would also be interesting to study how the different dimensions of religion affects various elements of the caregiving process. It is possible that behavioral aspects of religion would have a stronger effect on caregiving appraisals than other dimensions of religion. Researchers should explore other factors impacting caregiver burden and depression. Future research might also compare motivation for caregiving, coping processes, and the spiritual/ religious perspective of different racial groups. Qualitative research could provide a deeper understanding of how racially diverse groups of caregivers use religion to cope with caregiving burden. Further, testing of a religious or spiritually focused support group with caregivers from different racial/cultural

backgrounds can be considered. Expansion of the substantive knowledge base concerning racial differences and the religious/spiritual dimension of caregiving are critical for enhancing prevention and intervention initiatives for mental and physical health of minority caregivers.

### **5.13 CONCLUSIONS**

This study demonstrates that religious coping may be a strong coping mechanism for caregivers of Alzheimer's disease. The findings suggest that religiosity plays an important role in decreasing caregiving burden and depression. The findings also give us further understanding that enhancing caregivers' religious coping would help them deal with the caregiving burden more effectively. This is particularly useful for ethnic minority caregivers. Being sensitive to and acknowledging religious coping may facilitate and reinforce this coping behavior among caregivers. The findings regarding religious coping and racial differences in caregiving are important in the further development and testing of psychosocial interventions for caregivers.

## **APPENDIX A**

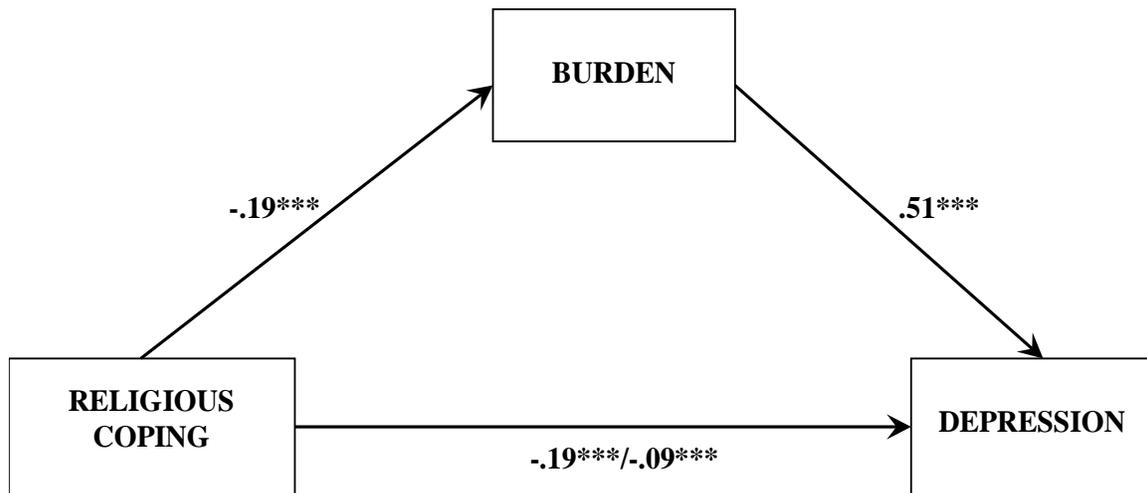
### **RESULTS WITH AN ALTERNATIVE MEDIATION MODEL**

The testing of mediation model of burden demonstrated that burden partially mediated the relationship between religious coping and depression; specifically there was a significant reduction in the size of the relationship between religious coping and depression and the direct path between religious coping and depression remains significant after burden is accounted for (Figure 4).

In addition to examining the mediating effect of burden on the relationship between Religious coping and depression, a reverse model, the mediating effect of religious coping on burden through depression was investigated. Within the context of this study, Baron and Kenny's (1986) criteria for mediation test rest on the presence of (1) a relationship between religious coping and burden, (2) a relationship between religious coping and depression and (3) a relationship between depression and burden.

The results showed after adjusting for the mediator (depression), the association between the independent variable (religious coping) and the dependent variable (burden) disappeared and was no longer significant. The data were consistent for both models indicating that the relationship between burden and depression is bidirectional (Figure 5).

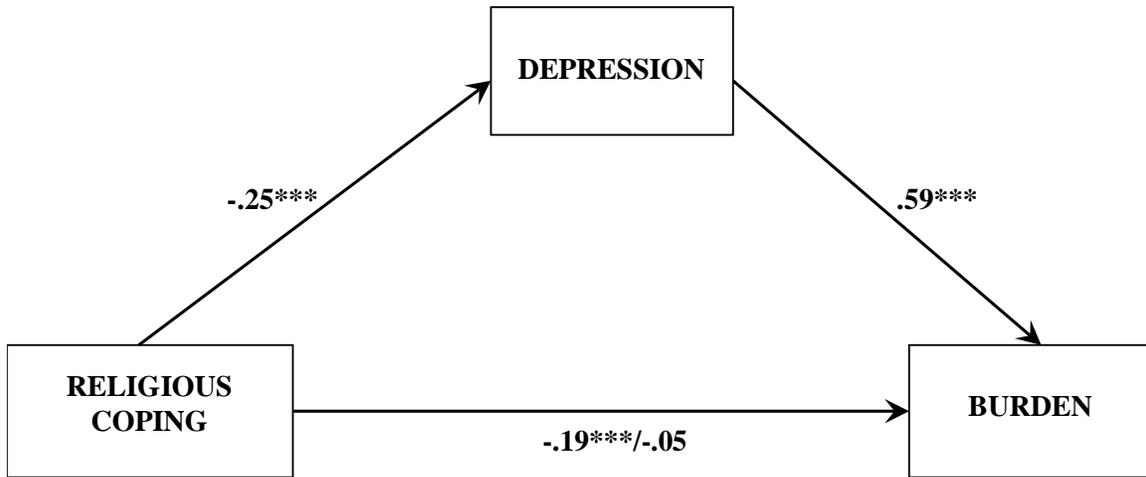
These results specified that the higher level of burden tends to lead to higher level of depression, and also the higher level of depression could lead to higher level of burden.



*Note.* Path coefficients to the right of the forward slash (/) indicate effects after adjusting for the mediator.

$***p<.001$

**Figure 4 Mediating Effect of Burden on the Relationship between Religious Coping and Depression**



*Note.* Path coefficients to the right of the forward slash (/) indicate effects after adjusting for the mediator.

\*\*\* $p < .001$

**Figure 5 Mediating Effect of Depression on the Relationship between Religious Coping and Burden**

## APPENDIX B – STUDY MEASURES

### BURDEN INTERVIEW

Now I am going to ask you some questions regarding your feelings about caring for (CR).

<i>Do you feel:</i>	<i>Never</i>	<i>Rarely</i>	<i>Some -times</i>	<i>Quite frequently</i>	<i>Nearly always</i>
1. that because of the time you spend with (CR) that you don't have enough time for yourself?	0	1	2	3	4
2. stressed between caring for (CR) and trying to meet other responsibilities (work/family)?	0	1	2	3	4
3. angry when you are around (CR)?	0	1	2	3	4
4. that (CR) currently affects your relationship with family members or friends in a negative way?	0	1	2	3	4
5. strained when you are around (CR)?	0	1	2	3	4
6. that your health has suffered because of your involvement with (CR)?	0	1	2	3	4
7. that you don't have as much privacy as you would like because of (CR)?	0	1	2	3	4
8. that your social life has suffered because you are caring for (CR)?	0	1	2	3	4
9. that you have lost control of your life since (CR)'s illness?	0	1	2	3	4
10. uncertain about what to do about (CR)?	0	1	2	3	4
11. you should be doing more for (CR)?	0	1	2	3	4
12. you could do a better job in caring for (CR)?	0	1	2	3	4

## CES-D

This section deals with statements people might make about how they feel. For each of the statements, please indicate how often you felt that way during the past week.

	<i>Rarely or none of the time</i>	<i>Some or a little of the time</i>	<i>Occasionally or a moderate amount of time</i>	<i>Most or almost all of the time</i>
	(<1 day)	(1-2 days)	(3-4 days)	(5-7 days)
1. I was bothered by things that don't usually bother me.	0	1	2	3
2. I had trouble keeping my mind on what I was doing.	0	1	2	3
3. I felt depressed.	0	1	2	3
4. I felt that everything I did was an effort.	0	1	2	3
5. I felt hopeful about the future.	0	1	2	3
6. I felt fearful.	0	1	2	3
7. My sleep was restless.	0	1	2	3
8. I was happy.	0	1	2	3
9. I felt lonely.	0	1	2	3
10. I could not get "going".	0	1	2	3

## RELIGIOUS/SPIRITUAL COPING

The next set of questions is about your religious or spiritual beliefs. We would like to know if religion or spirituality affects caregiving. Please respond to the following statements.

	<i>A great deal</i>	<i>Quite a bit</i>	<i>Somewhat</i>	<i>Not at all</i>
1. I think about how my life is part of a larger spiritual force.	0	1	2	3
2. I work together with God as partners to get through hard times.	0	1	2	3
3. I look to God (or a higher force) for strength, support, and guidance in times of trouble.	0	1	2	3

4. How often do you usually attend religious services, meetings, and/or activities?

0 *Never*

1 *Once a year*

2 *A few times a year*

3 *At least once a month*

4 *At least once a week*

5 *Nearly every day*

5. How often do you pray or meditate?

0 *Never*

1 *Once a year*

2 *A few times a year*

3 *At least once a month*

4 *At least once a week*

5 *Nearly every day*

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