MODERATING EFFECTS OF MUTUAL COMMUNAL BEHAVIOR ON CAREGIVER DEPRESSIVE SYMPTOMS: DIFFERENCES BETWEEN AFRICAN AMERICAN AND EUROPEAN AMERICAN CAREGIVERS

by

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(Under the Direction of Douglas Kleiber)

ABSTRACT

Caregiving is stressful and compromises the psychological health of caregivers. Data from a sample of 187 African American (AA) and 247 European American (EA) caregivers from the second Family Relationships in Late Life Project were used to examine variables associated with caregiver depressive symptoms. First, however, to ensure that the instruments used in this study were equally valid for all research participants, confirmatory factor analyses were conducted to determine measurement equivalence of the Care Recipient Controlling and Manipulative Behavior (CRCMB) Scale, Caregiver Resentment Scale (CRS), Mutual Communal Behavior Scale (MCBS), and the Center for Epidemiologic Studies Depression Scale (CES-D).

Results suggested that, for each scale, the number of factors and their loading patterns were the same for each group. Thus, AA and EA caregivers conceptualized CRCMB, caregiver resentment, mutual communal behavior, and caregiver depressive symptoms in the same ways. In other words, each construct had the same meaning for both groups. In addition, all four instruments had equivalent factor loadings between the groups, suggesting that AA and EA caregivers perceived and interpreted scale items in the same ways. Last, the CRCMB scale, the

CRS, and MCBS had full scalar equivalence (i.e., equivalent intercepts) whereas the CES-D had partial scalar equivalence. Put another way, the scores on the scales had the same meaning between groups. Overall, the reliability coefficients, goodness-of-fit indices, and equivalency outcomes suggested that the instruments were acceptable to make comparisons between AA and EA caregivers in this sample.

In primary analyses, moderated mediation was used to investigate whether (a) resentment mediated the relation between CRCMB and caregiver depressive symptoms and, (b) mutual communal behavior moderated the mediated effect (i.e., the mediation effect would vary according to the pre-illness communal strength of the caregiver-care recipient relationship). Since AA caregivers were hypothesized to have stronger communal relationships than EA caregivers, the moderated mediated effect was expected to vary according to race of the caregiver. The model was tested in the total sample, the AA sample, and the EA sample.

As expected, resentment mediated the relation between CRCMB and caregiver depressive symptoms in the total sample, the AA sample, and the EA sample. That is, for AA and EA caregivers, CRCMB predicted more caregiver depression largely to the extent that more CRCMB led to more caregiver resentment. There was no association between race and mutual communal behavior. Mutual communal behavior did not moderate the mediated effect in the total sample, the AA sample, or the EA sample. In other words, the mediated effect did not vary according to the strength of the pre-illness communal relationship between caregiver and care recipient, regardless of race.

INDEX WORDS: Caregivers, African Americans, Mutual Communal Behavior, Caregiver Depressive Symptoms, Measurement Equivalence

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DEDICATION

To my daughter, Isabella. I love you.

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CHAPTER 1

INTRODUCTION

The demand for informal (unpaid) caregivers will increase dramatically as the United States (U.S.) population ages. This issue is particularly relevant for the African American (AA) community as the number of AAs 70 and older is expected to nearly quadruple between 2010 and 2050 (U.S. Census Bureau, 2008).

A substantial literature shows that caregiving negatively affects caregiver health (e.g., Pinquart & Sorensen, 2003; Pinquart & Sorensen, 2007; Schulz & Beach, 1999; Vitaliano, Zhang, & Scanlan, 2003). Diminished leisure time, financial hardship, and grief associated with the physical and cognitive decline of a family member place considerable psychological strain on even the most resilient caregiver. Caregivers report more stress, more depressed mood, and lower subjective well-being compared with noncaregivers (see Pinquart & Sorensen, 2003, for a meta-analysis). Furthermore, the physical demands of caregiving, limited opportunity for health-promoting activities, and chronic stress can have deleterious effects on caregiver physical health as well. Dementia caregivers, for example, have higher stress hormone levels (23%), reduced antibody production (15%), and are at greater risk of health problems (9%) compared with demographically similar noncaregivers (see Vitaliano et al., 2003, for a review).

The economic, physical, and emotional costs of caregiving, particularly dementia caregiving, are felt at the micro (personal) and macro (sociocultural) levels. At the micro level, for example, care recipients (CRs) who are dependent on caregivers with depressive symptomatology are at risk for encountering potentially harmful behavior, such as screaming or swearing (Beach et al., 2005). At the macro level, in 2010, dementia caregivers alone

had healthcare expenditures that were 8% higher than noncaregivers, which resulted in an increase of $7.9 billion in healthcare costs (Alzheimer's Association, 2011).

Given the population projections, financial expenditures, and health risks associated with caregiving, there has been an increased interest in caregiving research. In fact, one of the objectives of the U.S. Department of Health and Human Service's *Healthy People 2020* is to increase health surveillance for caregivers of people with disabilities (Healthy People, n.d.). However, historically, the scope and quality of studies examining the health and well-being of AA caregivers have been limited. AA participants are frequently underrepresented in health research due to poor recruitment efforts by researchers (Wendler et al., 2006) and AAs' mistrust of the medical community (Shavers-Hornaday, Lynch, Burmeister, & Torner, 1997).

Fortunately, initiatives by the National Institutes of Health (2000) to raise the visibility of various racial and ethnic groups in medical research have increased the number of studies examining AA caregiver health. Thus, we are beginning to gain a better, albeit limited, understanding of the characteristics of AA caregivers. Compared with European American (EA) caregivers, AA caregivers are younger, are less likely to be a spouse, have less formal education, and have fewer financial resources (National Alliance for Caregiving, 2009; Pinquart & Sorensen, 2005). In addition, they perform more caregiving tasks, provide more hours of care, and have CRs who are more cognitively and physically impaired (see Pinquart & Sorensen, 2005, for a meta-analysis).

Despite these challenges, investigators consistently report that AA caregivers fare better psychologically compared to other ethnoracial groups (i.e., Asian Americans, EAs, Hispanic Americans; see Pinquart & Sorensen 2005, for a meta-analysis). Results from these investigations, however, might not provide a very clear picture of the effects of caregiving on

AA caregiver mental health. First, although many investigators pointed to cultural beliefs as a way to explain better psychological well-being among AA caregivers, they did not measure any cultural variables. In other words, they were using racial phenotype as a proxy for cultural distinctiveness without directly examining associations between race and cultural norms (Dilworth-Anderson, Williams, & Gibson, 2002; Janevic & Connell, 2001). Second, because caregiving researchers rarely assess the cross-cultural equivalence of their measurement tools, there is concern that the outcomes in these studies may not provide accurate estimates of AA caregiver mental health. Considerable effort and financial resources have been spent investigating the variables (e.g., level of social support, appraisals of burden) that may be associated with AAs seemingly being more psychologically resilient. Yet, these efforts are wasted if reports of well-being among AAs are due to or concealed by measurement artifacts. More importantly, if research results are, indeed, due to measurement error, the consequences can have long-ranging impact on support for interventions aimed at lessening the burden of AA caregivers.

Consequently, the objectives of this research were to investigate (a) the measurement equivalence of the scales used in this study and (b) the moderating effects of culture, as expressed through pre-illness mutual communal behavior, on caregiver psychological health. First, using confirmatory factor analysis (CFA), we examined whether AA and EA caregivers conceptualized depressive symptoms, pre-illness mutual communal behavior, caregiver resentment, and care recipient controlling and manipulative behavior in the same way. In addition, we explored whether the scores on the scales meant the same thing in both groups. Second, using moderated mediation, we sought to determine whether (a) caregiver resentment mediated the relation between care recipient controlling and manipulative behavior and caregiver

depressive symptoms, and (b) this mediation effect would vary according to the pre-illness communal strength of the caregiver-CR relationship (i.e., mutual communal behavior moderated the mediated effect). Moreover, since AAs are more likely to be enculturated to emphasize collectivistic and communal values (e.g., Jagers & Mock, 1995; Nobles, 1991), we expected that AA caregivers would have stronger mutual communal relationships than EA caregivers. Thus, we anticipated that the moderated mediation would vary according to the race of the caregiver.

CHAPTER 2

MEASUREMENT EQUIVALENCE

More than a decade ago, concerns were raised about the cross-ethnic validity of measures used in caregiving research, and it was suggested that between-group measurement equivalence/invariance (ME/I) needed to be addressed in future caregiving research (Connell & Gibson, 1997). The lack of attention to ME/I in the caregiving literature means we may not be aware of the true prevalence and magnitude of psychological disturbance among AA caregivers. Cultural beliefs, values, and attitudes influence the way in which people experience, express, and report their psychological symptoms, in turn affecting the prevalence of mental health estimates (e.g., Liang, 2002; Long Foley, Reed, Motrin, & Devilish, 2002). For example, sociocultural factors (i.e., awareness of racism, stigma of mental illness, and salience of physical illnesses) may explain the purported lower rates of anxiety disorders in AAs (Hunter & Schmidt, 2010). Awareness of racial stereotypes concerning intelligence, for instance, may prompt AAs to underreport cognitive symptoms (e.g., forgetfulness) of anxiety (Hunter & Schmidt, 2010).

It is critical to ensure that measures used in comparative research are equally valid for all research participants. If they are not equal, cross-group comparisons are meaningless (e.g., Long Foley et al., 2002; Vandenberg & Lance, 2000). As Vandenberg and Lance stated "… if one set of measures means one thing to one group and something different to another group, a group mean comparison may be tantamount to comparing apples and spark plugs" (p. 9). Two important types of equivalence in multicultural research are conceptual and metric (Liang, 2002).

Conceptual Equivalence

Conceptual equivalence ensures that a concept or construct has the same meaning for two or more groups (Crockett, Randall, Shen, Russell, & Driscoll, 2005; Hui & Triandis, 1985). For example, do AAs and EAs conceptualize dementia in the same way? AAs are more likely to view significant memory loss as an expected part of the aging process (rather than a sign of disease), a perception that could subsequently shape their responses to questions asked during assessment and diagnosis (Roberts et al., 2003). In addition, conceptual equivalence means that a concept or construct is expressed similarly within each society or culture being investigated (Singh, 1995). The tendency for AAs to somaticize depressive symptoms (e.g., changes in appetite, sleep disturbance) more than EAs suggests that AAs and EAs do not always express their depressive symptoms in similar ways (e.g., Baker, Okwumabua, Philipose, & Wong, 1996). Last, conceptual equivalence implies that a particular behavior serves the same function (or purpose) and is directed toward the same goal (Hui & Triandis, 1985). Sometimes this type of equivalence is referred to as functional equivalence. Former President Nixon discovered too late that the A-ok sign (connecting the thumb and forefinger into a circle) does not serve the same function in American culture as it does in Brazilian culture; Brazilians view the gesture as offensive. In another example, the "crying spells" item on the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) appeared to function differentially between men and women with equivalent scores (Cole, Kawachi, Maller & Berkman, 2000). More specifically, the proportional odds of women responding higher on the crying item were 2.14 times that of men matched on overall depressive symptoms. Crying spells might signal something other than depression (e.g., anger, anxiety) in women (Cole et al., 2000). Without establishing functional equivalence, researchers may inadvertently compare behavior that is functionally dissimilar and

directed toward unrelated goals (Hui & Triandis, 1985).

Focus groups and in-depth interviews can help to ensure conceptual equivalence (Liang, 2002). In addition, conceptual equivalence is supported by configural invariance, which is when measurement items demonstrate an equivalent number of factors and pattern of factor loadings among different subgroups (Crockett et al., 2005; Vandenburg & Lance, 2000). More specifically, configural invariance occurs when the same set of scale items is related to the same factors in each group being studied.

Exploratory factor analysis is useful in the preliminary stages of scale development to determine underlying constructs (i.e., factors) that are responsible for covariation in the data (Liang, 2002; Suhr, 2006). For example, in a large community sample of AA and EA participants, the initial factor analysis of the 20-item CES-D scale yielded four latent constructs: depressed/negative affect, positive affect, somatic symptoms, and interpersonal problems (Radloff, 1977).

Confirmatory factor analysis is a statistical technique used to test the hypothesis that an association between observed variables and their underlying latent constructs exists (Suhr, 2006). In one study, confirmatory factor analysis confirmed the presence of the CES-D's original factor structure (depressed affect, positive affect, somatic symptoms, and interpersonal problems) in a group of AA participants (Nguyen, Kitner-Triolo, Evans, & Zonderman, 2004). Alternatively, in another study, confirmatory factor analysis did not identify a four-factor solution in older AA men (Love & Love, 2006). In that study, there was evidence for a three-factor model with depressive and somatic factors merging as one factor suggesting that older AA men might not make conceptual distinctions between somatic complaints and negative affect when reporting their depressive feelings (Love & Love, 2004).

Metric Equivalence

Metric equivalence suggests that an assessment procedure measures a concept equally well among different groups. Metric equivalence is supported when the magnitudes of the factor loadings (i.e., correlation coefficients between the items and the factors) are invariant across groups (Crockett et al., 2005; Vandenberg & Lance, 2000). As stated, Nguyen and colleagues (2004) examined the factor structure of the CES-D in low SES AA men and women. In addition, they examined a separate sample of AAs and EAs for the purposes of cross-validation. They found an adequate fit for the original four-factor factor model for all three groups, which suggests conceptual equivalence. However, the factor loading coefficients were not equivalent across groups. Rather, the factor loadings were similar in both of the AA groups but variant between the AA and EA groups. For example, the CES-D item "My sleep was restless" from the somatic complaints factor loaded similarly for both AA groups. However, the item loaded more strongly for the AA groups compared with the EA group. That is, the AA participants identified the sleeping item with the somatic complaints factor more strongly than the EA participants did.

Scalar equivalence means that a given score on a scale has the same meaning between different groups. For example, scores of 16 or higher on the CES-D are considered indicative of probable depression. However, scores of $\geq$ 16 with older Mexican Americans (MA) led to elevated false positive rates. In other words, the CES-D may not have scalar equivalence for EAs and MAs (Andresen, Carter, Malmgren, & Patrick, 1994). Scalar equivalence is achieved when, in addition to equal factor loadings, the intercepts of the indicators in the measurement model are equal between groups.

Background on Scale Development

Mutual communal behavior. The ten-item Mutual Communal Behavior Scale (MCBS; e.g., Williamson & Schulz, 1995; see Appendix) measures pre-illness mutual communal behavior between caregiver and CR. Five items assess caregiver communal behavior toward the CR (e.g., "If she/he was feeling bad, I tried to cheer her/him up"), and five items evaluate CR communal behavior toward the caregiver (e.g., "She/he did things just to please me"). Caregivers report how often (1 = *never* to 4 = *always*) each behavior was exhibited in their pre-morbid relationships. Scores range between 10 and 40 with higher scores indicating stronger communal relationships. To date, there is no research investigating the measurement equivalence of the MCBS between AA and EA participants.

A principal component analysis conducted during the developmental phase of the MCBS revealed that all 10 items loaded onto one component, providing support for a unitary construct (Williamson & Schulz, 1995). This outcome was not surprising since Williamson and Schulz developed the scale with the specific intent to measure *mutual* communal behavior in interpersonal relationships. Therefore, the *a priori* hypothesis was that one construct (mutual communal behavior) would underlie item responses on the MCBS.

Caregiver resentment. The 17-item Caregiver Resentment Scale (CRS; see Appendix) is a combination of items from the Caregiver Burden Scale (Zarit, Reever, & Bach-Peterson, 1980) and a resentment scale devised by Thompson, Medvene, & Freedman (1995). For items taken from the burden scale, caregivers indicated how often (1 = *never*, 5 = *almost always*) they felt burdened when, for example, CR made unreasonable demands. Using the same response scale, caregivers rated the resentment items (e.g., not having enough time for themselves). Recently, Flynn Longmire and Knight (2011) investigated the metric equivalence of the 14-item

version of the Zarit Burden Interview (Knight, Fox, & Chou, 2000) among AA and EA participants. They found support for a three-factor model in both AA and EA dementia caregivers. In addition, the pattern of factor loadings and the relation of items and factors were invariant between groups (Flynn Longmire & Knight, 2011). To our knowledge, there is no research concerning the measurement equivalency of Thompson and colleague's resentment scale among any ethnoracial groups.

As well, there is no measurement equivalence research on the 17-item CRS. Furthermore, there is no published data concerning the factor structure of CRS. Thus, to determine the latent construct(s) that underlie the items on this scale, an exploratory factor analysis was needed before assessing measurement equivalency.

Care recipient controlling and manipulative behavior. The CRCMB Scale (see Appendix) consists of seven items adapted from the Steinmetz Control Scale (1988). Caregivers rated how often (0 = *never*, 4 = *always*) their CRs engaged in problem behavior. Items include, "Was self-centered (e.g., thought only about him/herself)" and "Invaded your privacy." Williamson and colleagues (2005) conducted a principal component analysis that revealed that those seven items loaded onto the same component. Therefore, the *a priori* hypothesis was that one construct would underlie item responses on the CRCMB.

Caregiver depressive symptoms. The CES-D is a 20-item self-report scale designed to measure current levels of depressive symptomatology in the general population (Radloff, 1977; see Appendix). Respondents rate how often each symptom was experienced during the past week from 0 (*rarely or none of the time*) to 3 (*most or almost all the time*) with scores ranging from 0 to 60. A score of 16 or above indicates risk for clinical depression. The CES-D has demonstrated very good internal consistency, test-retest reliability, and construct validity in EA

samples (Mui, Burnette, & Chen, 2002).

The initial factor analysis yielded four latent constructs among a large community sample of AA and EA participants: depressed/negative affect, positive affect, somatic symptoms, and interpersonal problems (Radloff, 1977). A meta-analysis of 28 studies examining the factor structure of the CES-D found strong support for the original four-factor model (see Shafer, 2006). However, very few studies (e.g., Callahan & Wolinsky, 1994; Radloff, 1977) in the Shafer (2006) meta-analysis included AA participants. Radloff (1977) reported that AAs and EAs did not differ from each other in factor structure. Alternatively, Callahan and Wolinsky (1994) did not find support for conceptual equivalence between AAs and EAs. Rather, they found a four-factor structure with AA women, a seven-factor solution with AA men, and five and six factor solutions for EA women and men, respectively. Furthermore, there were major differences in the pattern of factor loadings. For example, six items ("sad," "depressed," "blues," "happy," "enjoyed," "insomnia") comprised the depressed affect factor for AA men whereas only four items ("crying," "sad," "lonely," "trouble keeping my mind on what I was doing") loaded on that factor for EA men. The sample utilized by Callahan and Wolinsky consisted of low income, chronically ill AA and EA participants which may explain why they found a factor structure that differed from the original four-factor model (Radloff, 1977).

Other research (not included in meta-analysis) confirmed that the original factor structure and pattern of factor loadings were equivalent between AA and EA participants (Blazer, Landerman, Hays, Simonsick, & Saunders, 1998; Nguyen et al., 2004). However, findings from these studies did not support metric equivalence. Blazer and colleagues found that, among AAs, the factor loading for the item, "I felt hopeful about the future," on the positive affect factor was less than half the corresponding loading for EAs. Nguyen and colleagues (2004) reported

discrepant factor loadings between AA and EA participants on numerous items. For instance, the item, "My sleep was restless" loaded more strongly on the somatic symptoms factor for the AA groups compared with the EA group. This result suggests that the CES-D does not measure symptoms of depression the same way for each group.

Results from other studies do not support the "original" four-factor model among AA participants. Long Foley and colleagues (2002) uncovered a four-factor solution that deviated from the original. That is, they identified a new factor (social well-being) and reported no distinction between somatic complaints and depressed affect among AAs. Love and Love (2006) provided evidence for a three-factor model among older AA men, with depressive and somatic factors merging as one factor. Last, Canady, Manfred, and Stommel (2009) found an acceptable fit for the four-factor model among a group of AA and EA pregnant women. However, because the inter-factor correlations were quite large, they argued for a more simplified factor structure. They subsequently found support for a two-factor model (depressive symptoms and positive affect, well-being).

Recently, a few investigators have examined the factor structure of the CES-D with caregiver samples. Rozario and Menon (2010) tested the validity of the CES-D among 521 urban and rural AA women caregivers. As they were replicating a previous study, they excluded two items, "Your sleep was restless" and "You had crying spells," from their analysis. Using confirmatory factor analysis with the 18-item CES-D, they found statistical equivalence between a three-factor somatization model (i.e., affective and somatic items merged into one factor) and the original four-factor model.

In another study, Roth, Ackerman, Okonkwo, and Burgio (2008) examined the ME/I of the CES-D with a sample of 1,183 dementia caregivers. Their analysis of AA (N = 294), EA (N

= 681), and Hispanic American (HA; N = 208) participants supported the expected four-factor structure of depressed affect, positive affect, somatic symptoms, and interpersonal problems. However, three items (“hopeful,” “failure,” “fearful”) loaded significantly higher in the EA group compared with the AA and HA groups.

Finally, Flynn Longmire and Knight (2010) examined the factor structure of the CES-D among 157 AA and 214 EA caregivers. They found support for conceptual and metric equivalence in that as the factor structure, pattern of factor loadings, and factor loadings were invariant between groups.

Taken together, these results suggest conflicting evidence for the ME/I of the CES-D with AA and EA participants. Researchers who do not examine the equivalence of the CES-D in comparative research should use caution when interpreting results. In this investigation, multi-group CFAs were conducted on the four-factor model (depressed affect, somatic symptoms, positive affect, interpersonal problems).

CHAPTER 3

CULTURE AND CAREGVING

Culture is defined as a "set of attitudes, behaviors, and symbols shared by a large group of people and usually communicated from one generation to the next" (Shiraev & Levy, 2010, p. 3). Studying culture allows investigators to examine the social forces that produce differences in human behavior as well as the underlying reasons for attitudinal, emotional, and motivational differences between cultural groups (Shiraev & Levy, 2010). In terms of caregiving, cultural beliefs are influential in shaping family members' attitudes toward caregiver burden and intrusiveness, willingness to provide care, filial obligation, duty, and reciprocity (Dilworth-Anderson & Anderson, 1994; Dilworth-Anderson, Wallace Williams, & Cooper, 1999).

Cross-cultural researchers frequently contrast U.S. ethnoracial groups based on whether they extol individualistic or collectivistic belief systems (Oyserman, Coon, & Kemmelmeier, 2002). Individualists value personal initiative, achievement, privacy, and autonomy (Hofstede, 1980) and believe that citizens are independent of one another (Oyserman et al., 2002). In contrast, people with collectivistic orientations share common goals, base their identity in the social system, and respect the expertise, order, and security provided by their group (Hofstede, 1980). Social scientists generally assume that collectivists are more prevalent in nonwestern societies, whereas individualists are more common in the United States and Western Europe (Oyserman et al., 2002).

In caregiving, collectivists tend to view providing care as a worthwhile activity, describe family relations in positive terms, and may offer more help than older relatives actually need (Pyke & Bengston, 1996). Conversely, individualists have less frequent contact, are inclined to

describe family relations in negative terms, and have lower personal commitment to one another (Pyke & Bengtson, 1996). A few caregiving investigators have explored the collectivistic/individualistic framework in AA caregivers by evaluating the influence of traditional values (e.g., duty to family) and familism (i.e., strong identification with family) on caregiving outcomes. Due to the vestiges of an African cultural legacy that emphasizes collective well-being, almost all of the researchers examining traditional values and familism hypothesized that AAs would have more traditional attitudes and/or higher levels of familism. A review of these studies, however, would not be complete without first understanding AA cultural and philosophical principles.

African American Cultural Values

Nobles (1991) believes that AAs derive their most fundamental self from West African culture and tradition. He argues that social scientists must have an understanding of the West African cultural milieu in order to appreciate the worldview and psychological processes of contemporary AAs. The Africentric paradigm places great emphasis on community well-being and little emphasis on the individual; whatever happens to one person happens to the collective and vice versa. Together, they suffer when one person suffers, and they rejoice when one person rejoices (Nobles, 1991). The West African axiom, "I am because we are; and since we are, therefore I am" (Mbiti, 1990, p. 141) exemplifies the importance that Africans place on collective identity and human relationships.

Communalism is an important value in African culture (e.g., Boykin, Jagers, Ellison, & Albury, 1997; Hurley, Boykin, & Allen, 2005; Jagers & Mock, 1995; Moemeka, 1998; Nobles, 1991; Schwartz et al., 2010). Communalism "is the principle or system of social order in which, among other things, the supremacy of the community is culturally and socially entrenched,

society is hierarchically ordered, life is sacrosanct, and religion is a way of life" (Moemeka, 1998, p. 124). Boykin and colleagues (1997) offer this interpretation: "Communalism denotes awareness of the fundamental interdependence of people. One's orientation is social rather than being directed toward objects. There is overriding importance attached to social bonds and social relationships" (p. 411). The African slave community in America relied on aspects of this value system (e.g., mutual aid, sharing resources, collaborative child rearing, spirituality, and strong affiliation to immediate and extended kin, blood and nonblood alike) as a means of survival. Ultimately, these values served as a foundation for contemporary AA community and family structure (Dilworth-Anderson & Rhoden, 2000). Thus, the AA ethos is a combination of values that emerged from the alienating and oppressive conditions created by slavery and traditional African cultural philosophy (e.g., Dilworth-Anderson & Rhoden, 2000; Nobles, 1991; Wallace & Constantine, 2005, p. 371).

Evidence for this legacy in contemporary AA culture comes from research suggesting that: (a) AA parents, more than EA parents, expect support from their adult children (Lee, Peek, & Coward, 1998), (b) AAs have strong, extensive social support systems (e.g., Mui, 1993), and (c) spirituality and religion play an especially important role in AA lives (e.g., Kim & McKenry, 1998; Roff et al., 2004). Furthermore, compared with EAs, AAs are more likely to live in multigenerational households (Pew Research Center, 2010), where AA grandmothers often play a significant role in child rearing (e.g., Dilworth-Anderson & Rhoden, 2000).

In terms of communalism, AA elementary school students and their parents strongly prefer communal and vervistic activities (i.e., energetic and physical expression; Boykin, 1982) when at home and in school rather than individualistic and competitive activities (Tyler, Boykin, Miller, & Hurley, 2006). In addition, among AAs, communalism enhances moral reasoning

(Humphries, Parker, & Jagers, 2000), protects against race-related sources of stress (Scott, 2003), increases performance on learning tasks (Dill & Boykin, 2000; Hurley et al., 2005), and promotes cooperation (Dill & Boykin, 1999), volunteerism (Mattis et al., 2000), and maternal health (Abdou et al., 2010).

As the formative experiences of many AAs include an emphasis on interpersonal relationships and a sense of shared responsibility, it seems reasonable for caregiving researchers to hypothesize that AA caregivers endorse strong traditional values toward caregiving (e.g., duty to family) and high levels of familism (i.e., strong identification with family).

Traditional Ideology in Caregiving Research

Individuals with traditional attitudes, a multi-faceted construct, typically want to maintain family traditions, wish to set good examples for their children to follow, believe people are morally obligated to take care of family, and perceive caregiving as a form of reciprocity (Lawton, Kleban, Moss, Rovine, & Glicksman, 1989). Generally, researchers assume that, compared with EAs, AAs will endorse stronger traditional caregiving beliefs and, furthermore, that this belief system will help to explain why AAs report more positive caregiving outcomes. However, as described below, it appears that traditional ideology is not associated with more caregiving satisfaction or better psychological health in AA caregivers (e.g., Lawton et al., 1992; Long Foley, Tung, & Mutran, 2002). Rather, this belief system appears to be associated with more caregiving satisfaction or rewards only among EA caregivers (Lawton et al., 1992; Long Foley et al., 2002).

Lawton and colleagues (1992) suggested that individuals who are enculturated to respect and care for older family members have greater traditional caregiving ideology. To provide support that caregiving is a culturally normative experience for AAs, they administered the four-

item Traditional Caregiving Ideology subscale (e.g., "A strong reason for taking care of ____ is to be true to family traditions;" Lawton et al., 1989) to 157 AA and 472 EA caregivers. Indeed, compared with EA caregivers, AA caregivers expressed stronger traditional attitudes toward caregiving. However, among AA participants, there was no association between traditional caregiving ideology and caregiving satisfaction, burden, or depressive symptomatology. Conversely, there was an association between traditional ideology and caregiving satisfaction among EA caregivers (Lawton et al., 1992). In other words, those EA caregivers that reported strong traditional attitudes also tended to report greater caregiver satisfaction.

Consistent with these findings, Long Foley and colleagues (2002) found that EA caregivers with more traditional beliefs reported more caregiving rewards. They compared the effects of traditional ideology (i.e., preference for family care) on the intrinsic rewards (gains) and consequences (loss) of caregiving among 257 AA and 224 EA caregivers. AA caregivers reported fewer consequences, more rewards, and more conventional caregiving ideology than did EAs. Traditional beliefs, however, were not associated with caregiving rewards for AA caregivers but they were associated with self-gain for EA caregivers (Long Foley et al., 2002).

Results from other studies suggest that traditional beliefs are not associated with AA caregivers or, worse, directly or indirectly negatively affect AA caregiver health. Rozario and DeRienzis (2008) examined traditional beliefs and psychological distress among 521 female AA caregivers. Caregiver attitudes were measured with a four-item scale (e.g., "My family expected me to provide care for them"). They reported that (a) spousal caregivers, caregivers with lower levels of education, and caregivers with lower levels of mastery (i.e., ability to provide proper care) had more traditional caregiving beliefs, and (b) caregivers with stronger traditional caregiving beliefs had higher levels of depression symptoms and perceived stress (Rozario &

DeRienzis, 2008).

Dilworth-Anderson (1995) developed the Cultural Justifications for Caregiving Scale (CJCS) to measure caregiver cultural beliefs and motivations for providing care. The CJCS consists of ten items such as, "I was raised to believe care should be provided in the family." Two subsequent studies revealed that cultural justification had either no effect, or negative effects, on caregiver health outcomes. In the first study, Dilworth-Anderson and colleagues (1999) examined predictors of emotional distress among 187 AA caregivers. They posited that understanding the influence of sociocultural (e.g., cultural beliefs and attitudes), situational (e.g., caregiving duties), interpersonal (e.g., relationship quality), temporal (e.g., timing of stressors), and personal (e.g., income and employment) contexts would provide a better understanding of caregivers' experiences. Caregivers' cultural reasons for providing care (the sociocultural context) did not predict emotional distress; only interpersonal, personal, and situational contexts were significant in predicting emotional distress in AA caregivers.

In the second study, Dilworth-Anderson, Goodwin, and Wallace Williams (2004) collected data at three time points from 107 AA caregivers. They found that cultural justification had a curvilinear relationship with psychosocial health (i.e., general perceptions of health). AA caregivers with very strong or very weak cultural beliefs at baseline reported lower psychosocial health at time three. The authors surmised that those caregivers with very strong cultural beliefs were experiencing role engulfment (i.e., loss of self) and that those with very weak beliefs were providing care out of obligation rather than affiliation. In addition, they investigated the relation between culture and physical functioning of the caregiver (e.g., ability to carry groceries) and found that cultural justification at baseline did not predict physical functioning at time three.

In another study, Dilworth-Anderson and colleagues (2005) compared 48 AA and 121 EA caregivers and found that AAs had stronger cultural reasons for providing care than did EA caregivers. They also assessed whether certain caregiver characteristics (i.e., age, gender, education, income, work status, relationship to CR) would predict CJCS scores. Education was the only caregiver characteristic that predicted cultural justification scores; AA and EA caregivers with lower education reported stronger cultural justifications for caregiving.

In summary, when direct comparisons were made between AA and EA caregivers (Dilworth-Anderson et al., 2005; Lawton et al., 1992; Long-Foley et al., 2004), AAs reported more traditional caregiving ideology than did EAs. However, traditional attitudes did not help to explain AAs' favorable attitudes toward caregiving as there was no association between traditional beliefs and caregiving satisfaction and caregiving rewards. Indeed, traditional values seem to aid EA caregivers since those with stronger traditional beliefs reported more caregiving satisfaction (Lawton et al., 1992) and rewards (Long Foley et al., 2002).

Furthermore, traditional ideology did not offer any protection against the psychological or physical health consequences of caregiving. Results from the remaining three studies suggested that traditional beliefs were associated with poor health in AA caregivers (Dilworth-Anderson et al., 2004; Rozario & DeRienzis, 2008) or not related to AA caregiver health at all (Dilworth-Anderson et al., 2004; Dilworth-Anderson et al., 1999).

Familism in Caregiving Research

Familism is characterized by placing the wishes of the family over that of the individual, strongly identifying with family, and honoring parents, siblings, and extended family well into adulthood (Knight & Sayegh, 2010; Schwartz et al., 2010). There is a notable dearth of data examining the effects of familism on AA caregiver health. However, the few studies

investigating the association between familism and AA caregiver health suggest that it is harmful or negligible.

McCallum, Flynn Longmire, and Knight (2007) simply examined differences between 35 AA and 35 EA female caregivers and reported that AA women had higher levels of familism. Because of the small sample size, however, it was not possible to test for the mediating effects of familism. Thus, it is not clear whether familism influenced appraisals of burden, coping, or health.

Shurgot and Knight (2005) found that AAs reported higher levels of familism compared with EA caregivers. However, caregivers high in familism perceived lower social support, which was associated with increased burden. Knight and Sayegh (2010) subsequently interpreted these findings to mean that caregivers with higher familism may have an elevated sense of obligation that prevents them from perceiving positive support from available helpers.

Kim, Knight, and Flynn Longmire (2007) investigated the role of familism in stress and coping processes among AA (n = 95) and EA (n = 65) caregivers. Contrary to their hypothesis that AA race would be directly associated with higher levels of familism, there was no direct effect of race on familism (i.e., they were unrelated). Instead, caregivers with lower levels of education tended to have higher levels of familism. Surprisingly, there was no relation between familism and caregiving burden. Moreover, caregivers with higher levels of familism reported more use of avoidant coping (e.g., emotionally withdrawing, not directly addressing the problem; Folkman & Moskowitz, 2004) that, in turn, was associated with poorer mental health.

Sayegh and Knight (2011) speculated that feelings of obligation, rather than positive feelings of family support, might explain some of the negative effects of familism on caregiver health. Using the same sample as Kim and colleagues (2007), they examined the effects of

familial obligation, expected support from family, and cultural justification on the mental and self-reported physical health of 95 AA and 65 EA caregivers. Familial obligation was defined as obligatory attitudes toward caregiving, and expected support from family was assessed by asking whether caregivers expected to receive any support (e.g., emotional, financial) from other family members. The cultural justification scale was a combination of items from the CJCS and the Traditional Caregiving Ideology subscale that measured cultural reasons for providing care (e.g., duty, religious beliefs). They found that AAs were more likely to perceive caregiving as an obligation than were EAs; otherwise, there were no differences between AA and EA caregivers (Sayegh & Knight, 2011). There was no relation (direct or indirect) between expected support from family and caregiver health outcomes. However, caregivers (AA and EA) with higher levels of familial obligation and cultural justification reported more avoidant coping that, in turn, was associated with lower mental and subjective physical health (Sayegh & Knight, 2011). These findings supported their supposition that measures that tap into feelings of duty and obligation help explain familism's negative effects on health outcomes.

A thorough review of the literature indicated that traditional caregiving ideology and familism are not associated with positive outcomes for AA caregivers. First, in four of the studies, there was no association between these cultural variables and the outcome measures. More specifically, there was no association with burden (Kim et al., 2007; Lawton et al., 1992), psychological health (Dilworth-Anderson et al., 1999), or physical health (Dilworth-Anderson et al., 2004). In the remaining studies, traditional beliefs and familism negatively affected caregiver health (Dilworth-Anderson et al., 2004; Kim et al., 2007; Rozario & DeRienzis, 2008; Sayegh & Knight, 2011; Shurgot & Knight, 2005). For example, Kim and colleagues reported that caregivers with higher levels of familism reported more use of avoidant coping that, in turn,

was associated with poorer mental health.

Interestingly, results from three studies revealed a relation between these variables and low education level (Dilworth-Anderson et al., 2005; Kim et al., 2007; Rozario & DeRienzis, 2008). Endorsement of traditional ideology or familism, therefore, may be more reflective of economic necessity than culture-specific belief systems.

These findings raise the possibility that cultural values, as expressed through endorsement of traditional ideology or familism, do not help to explain AA caregivers' positive appraisals of caregiving or greater well-being. To date, however, there is no published research on whether differences between AA and EA caregivers in communal behavior will affect health outcomes. Therefore, we will investigate the effects of culture, as expressed via mutual communal behavior, on caregiver depressive symptoms.

Theory of Communal Relationships

In communal relationships, people are concerned about their partners' welfare and have positive attitudes toward their partners when providing support to them (Clark & Mills, 1979; 1993). When one person provides a benefit to the other, that person does not expect anything in return (Clark & Mills, 1979). Clark and Jordan (2002) defined a benefit as "something of value one person intentionally gives to another person, such as gifts, services, compliments, instructions, and emotional support" (p. 3). For example, a woman may gladly provide two hours of babysitting services for her sister even though she knows that her sister is not in a position to reciprocate in the immediate future. People in communal relationships often want to provide a benefit just to make the other person happy (Mills & Clark, 1994). In contrast, people in exchange relationships expect repayment when they provide a benefit. For instance, Neighbor A agrees to babysit Neighbor B's children for two hours. In an exchange relationship, Neighbor

B incurs a debt and "owes" Neighbor A two hours of babysitting (or its perceived equivalent). In exchange relationships, people keep track of benefits given and received, whereas people in communal relationships do not (Clark & Mills, 1979). However, people in communal relationships expect their relational partner to demonstrate concern for their well-being and respond to their needs when they arise (Clark, Ouellette, Powell, & Milberg, 1987).

The quantitative dimensions of communal relationships can be defined (Mills, Clark, Ford, & Johnson, 2004). That is, communal relationships can vary in strength (i.e., degree of responsibility and sacrifice) and duration (Clark & Jordan, 2002). An example of a weaker, shorter communal relationship would be a student sharing his class notes, a small sacrifice for which he does not expect payment, with another student that he will not see again after the semester. In contrast, marriages exemplify relationships that are typically very strong and last for years. However, even within a normatively strong communal relationship, such as marriage, there is variation in communal strength and behavior (Mills et al., 2004; Williamson & Schulz, 1995). Mills and colleagues (2004) write:

> A very important quantitative way in which communal relationships vary from one relationship to another is the degree of responsibility the person feels for the welfare of the communal partner. (p. 214)

Mills and colleagues also suggest that individuals in strong communal relationships want to respond to their partners' needs and are willing to incur greater costs and sacrifices to meet those needs.

Mutual Communal Behavior

Williamson and Schulz (1995) introduced the theory of communal relationships to the caregiving literature by suggesting that caregivers in historically highly communal relationships

(i.e., frequent displays of communal behavior) would experience better caregiving outcomes. They reasoned that individuals in relationships characterized by frequent displays of mutual communal behavior before the need for care arose would have positive feelings about helping that partner when he or she requires care (Williamson & Schulz, 1995). In contrast, caregivers in relationships with fewer displays of mutual communal behavior should have less positive feelings toward caregiving (Williamson & Schulz, 1995; Williamson, Shaffer, & Schulz, 1998). To test this hypothesis, they investigated whether pre-illness communal behavior could predict caregiver depressed affect (Williamson & Schulz, 1995). They asked 82 caregivers to complete the Mutual Communal Behavior Scale (MCBS). The ten-item scale (e.g., "If she/he was feeling bad, I tried to cheer her/him up," "She/he did things just to please me") measured the frequency of *mutual* communal behavior between caregiver and CR *prior* to illness or disability. Williamson and Schulz believed that past communal behavior would provide a more accurate reflection of the relationship's communal strength than would current communal behavior because it would minimize the effects of confounding variables (e.g., CR's dementia). As predicted, caregivers with weak pre-illness communal relationships reported more caregiver burden that, in turn, was associated with greater depressive symptomatology (Williamson & Schulz, 1995). Williamson and Schulz suggested that caregivers with infrequent mutual communal behavior prior to the onset of disability might provide care out of obligation rather than affection for the CR.

Caregivers in relationships characterized by frequent mutual communal behavior provide more exemplary care (e.g., being especially considerate of CR; Christie et al., 2009; Dooley, Shaffer, Lance, & Williamson, 2005). They are less depressed (Shovali, 2009; Williamson & Schulz, 1995; Williamson, Shaffer, and the Family Relationships in Late Life [FRILL] Project,

2001; Williamson et al., 1998), engage in less potentially harmful behavior (Christie et al., 2009; Williamson et al., 2001), feel less resentful (Durkin, 2010), and experience less anxiety and better self-perceived health over time (Durkin, 2010). Moreover, they display less hostility and greater warmth (Hinrichsen, Adelstein, & McMeniman, 2004) and are less likely to desire institutionalizing their CR (Winter, Gitlin, & Dennis, 2011).

The MCBS is not a cultural measure. Rather, it measures the frequency of communal behavior between caregiver and CR. However, a primary assumption underlying the theory of communal relationships is that people acquire knowledge of communal norms through the process of socialization (Clark & Jordan, 2002; Shaffer & Williamson, 2006; Williamson & Schulz, 1995). More specifically, people develop norms about helping family members, romantic partners, and friends by observing their parents, teachers, peers, and religious leaders.

Shaffer and Williamson (2006) wrote, "*Exactly how* [emphasis added] people form these kinds of relationships— and, indeed, how they develop a predisposition toward having communal relationships remains an empirical question" (p. 54). We are proposing that caregivers and CRs who display high levels of communal behavior may do so because of cultural norms that emphasize the importance of social bonds and human relationships. According to Miller (1997), researchers should recognize cultural perspectives in the formation of psychological theory and proposed that the theory of communal relationships (Clark & Mills, 1979; 1993) should acknowledge cultural meanings and practices. For example, she suggested modifications to the theory "to accommodate the less voluntaristic views of interpersonal bonds maintained in a culture such as India" (p. 228). She wrote:

> Studies that we have conducted demonstrate that whereas selflessness is viewed by Americans as having deleterious individual and interpersonal implications, it

> is regarded in positive terms by Indians (Miller & Bersoff, 1995). Thus, as compared with Americans, Indians judge that agents experience greater personal satisfaction in behaving in selfless ways (e.g., in remaining loyal to a spouse who has become severely disabled). (p. 226)

A few researchers have proposed that communal relationships among people in collectivistic societies are more prevalent than in individualistic cultures (e.g., Belgrave & Allison, 2010; Triandis, 1989). For example, Triandis stated that relationships among family and friends in collectivistic societies are communal whereas similar relationships in individualistic societies are likely to follow exchange patterns. Indeed, Indians and AAs (cultures known to promote communal values) tend to engage in generalized reciprocity (giving benefits based on others' needs) whereas EAs tend to engage in balanced reciprocity (Miller, Akiyama & Kapadia, 2008).

Because of cultural values that place great importance on social bonds and human relationships, AA caregivers and CRs may have stronger communal relationships compared to EA caregivers. It makes sense that reports of lower depressive symptomatology and greater rewards among AA caregivers may be due to communal feelings toward their CRs. Indeed, Williamson and Clark (1989, 1992) reported that people in communal relationships experience elevated affect after having helped their partners. This research is a *starting point* to investigate the role of culture in communal behavior by examining differences between AA and EA caregivers and, furthermore, to investigate if differences (should they exist) help explain favorable mental health outcomes among AA caregivers.

CHAPTER 4

THEORETICAL FRAMEWORK

We used the sociocultural stress and coping model (SSCM; Aranda & Knight, 1997; Knight & Sayegh, 2010; Knight, Silverstein, McCallum & Fox, 2000) as a guide for examining the variables of interest in this dissertation. The SSCM is an extension of Lazarus and Folkman's (1984) stress and coping model, which suggest that two processes, cognitive appraisal and coping, mediate the association between stressful events and their short- and long-term consequences. The stress and coping model posits that both primary and secondary appraisals of an event determine the stress response. During the primary appraisal process, individuals judge whether an event may be harmful to their well-being. In the secondary appraisal process, individuals evaluate their abilities and resources and determine whether they should accept the situation or try to change it. Coping refers to cognitive and behavioral efforts to manage the stressor (Folkman, Lazarus, Gruen, & DeLongis, 1986). For example, if a caregiver appraises an event as harmful (e.g., CR exhibits socially inappropriate behavior) but has sufficient resources (e.g., adequate social support) and effective coping strategies, the consequences of the stress event are minimized.

Aranda and Knight (1997) introduced the SSCM by proposing that cultural values would influence caregivers' coping styles and appraisals of stress. Later, Knight and colleagues (2000) posited that cultural values could influence each stage of the stress and coping process, perhaps, in varying directions. Indeed, they found that AA caregivers' lower appraisals of burden resulted in lower emotional distress compared with EA caregivers (Knight et al., 2000). However, this effect was counterbalanced by AAs' frequent use of emotion-focused coping (e.g., distancing,

escape-avoidance) thus resulting in AAs and EAs reporting equal levels of emotional distress (Knight et al., 2000).

Several researchers were critical of the SSCM (e.g., Dilworth-Anderson et al., 2002; Janevic & Connell, 2001). Rather than viewing ethnicity and culture as two distinct constructs, Knight and colleagues (2000) suggested that ethnicity implied cultural values (e.g., familism) and promoted the concept of "ethnicity as culture." More specifically, they conferred cultural values onto groups based solely on ethnoracial classification and/or phenotypic characteristics. Phenotype does not reveal a person's beliefs or values (Parham & Helms, 1981). For example, assuming that AAs rate caregiving as less stressful because they are communal without testing for an association between AA participants and communal behavior limits our understanding of the processes underlying AA caregiving experiences.

Subsequently, investigators utilizing the SSCM began (a) testing for associations between race/ethnicity and cultural values, specifically familism and East Asian value systems (e.g., filial piety), and (b) examining the effects of these cultural values on perceived social support, coping styles, and caregivers' appraisals of burden (e.g., Chun, Knight, & Youn, 2007; Kim et al., 2007; Losada et al., 2006; Knight et al., 2002; Robinson & Knight, 2004; Shurgot & Knight, 2005). Surprisingly, familism and East Asian value systems did not affect caregiver appraisals of burden among a variety of ethnoracial groups. Thus, Knight and Sayegh (2010) revised the SSCM, eliminating the link between cultural values and burden and suggesting that cultural values affect caregiver health through social support and coping styles only (see Figure 1).

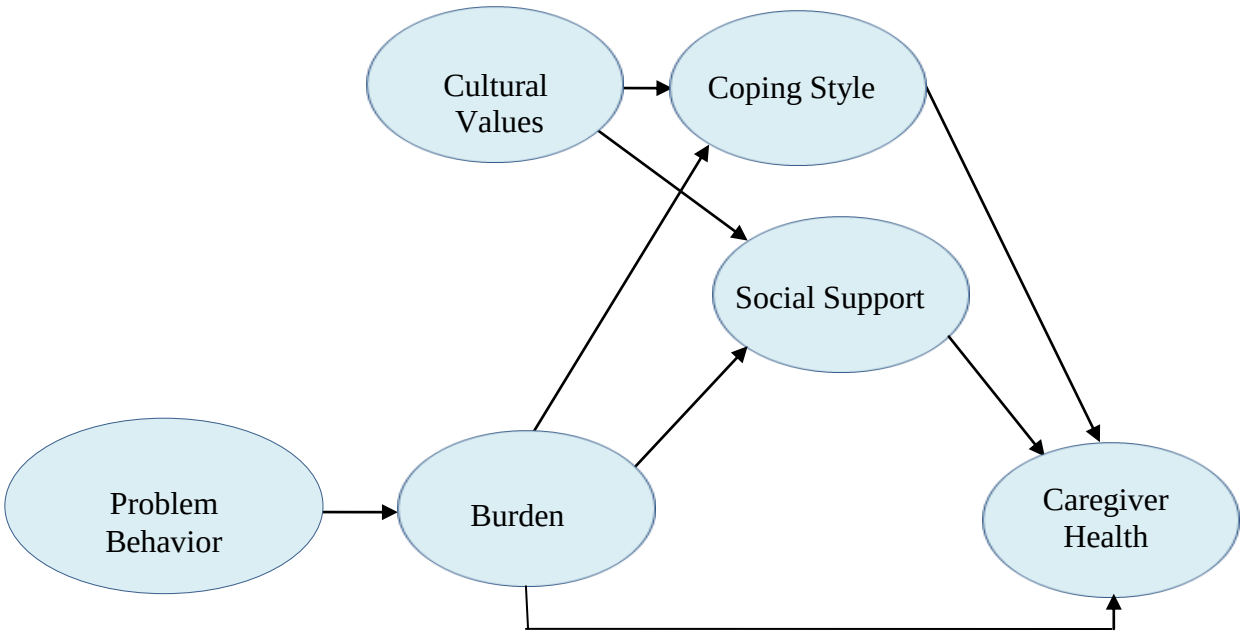

Figure 1. Sociocultural stress and coping model for caregivers (Knight & Sayegh, 2010, p. 6).

Knight and Sayegh (2010) also promoted a common core model of caregiver distress (see Figure 2). In this model, caregiver burden (appraisal) mediates the relation between CR problem behavior (stressor) and caregiver health (outcome). That is, more CR problem behavior is related to poorer caregiver health to the extent that caregivers perceive CR problem behavior as burdensome. CR problem behavior is consistently associated with caregiver burden and depression (e.g., Pinquart & Sorensen, 2003; Schulz et al., 1995). In fact, problem behavior (e.g., repeatedly asking the same questions, embarrassing the caregiver, throwing things) is more strongly associated with negative caregiver health outcomes than are CR physical and cognitive impairments (see Pinquart & Sorensen, 2003, for a meta-analysis). It is also a potent predictor of depression and burden among caregivers with diverse ethnoracial backgrounds (e.g., Sorensen & Pinquart, 2005).

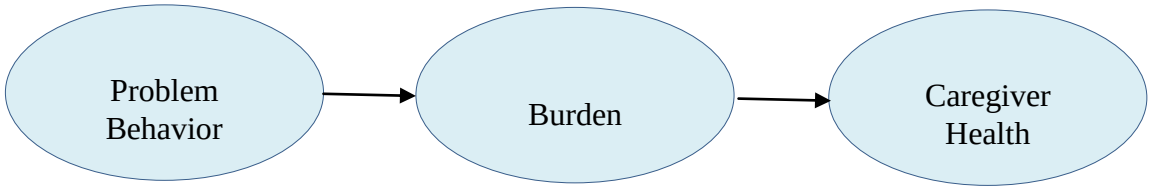

Figure 2. Common core stress and coping model for caregivers (Knight & Sayegh, 2010, p.6).

The mediation model proposed for in this dissertation (see Figure 3), loosely guided by the SSCM, depicts caregiver resentment as mediating the association between CR controlling and manipulative behavior (CRCMB; e.g., pouting, causing trouble between family members) and caregiver depressive symptomatology. There is little research concerning resentment in the caregiving literature (Williamson et al., 2005). This gap is surprising considering that resentful feelings are common among caregivers (Thompson, Medvene, & Freeman, 1995; Williamson et al., 1998; Williamson et al., 2005) and are associated with more caregiver depressive symptoms (e.g., Durkin, 2010; MacNeil et al., 2010) and lower quality of informal care (e.g., Williamson, Shaffer, & FRILL, 2001). Given that resentment plays a significant role in the caregiving situation, Williamson and colleagues recommend that investigators include it into their model-building efforts.

Figure 3. Proposed mediation model.

Note. CRCMB = Care Recipient and Controlling and Manipulative Behavior

Aims and Hypotheses

The first aim of this research was to investigate the extent to which the psychometric properties of the scales used in this study were equivalent for AA and EA caregivers. We made no specific hypotheses concerning *equivalency outcomes*. Rather, our goals were to investigate the extent to which the scales we employed in this dissertation were equally valid for both groups.

The other aims of this research were to determine whether: (a) resentment mediated the relation between CRCMB and depressive symptoms, (b) this mediation effect would vary according to the pre-illness communal strength of the caregiver-CR relationship, and (c) the moderated mediation effect would vary according to the race of the caregiver.

First, based on the proposed model for this dissertation (see Figure 4), we hypothesized that higher levels of care recipient controlling and manipulative behavior (CRCMB) would be associated with more caregiver depressive symptomatology. As stated, caregivers are distressed when CRs exhibit problem behavior (see Pinquart & Sorensen, 2003, for a meta-analysis). Similarly, caregivers also are distressed when CRs exhibit controlling and manipulative behavior (e.g., Smith, Williamson, Miller, & Schulz, 2011; Williamson et al., 2005). Smith and colleagues (2011), for example, found that when caregivers perceived an increase in CRCMB over time, they reported more depressive symptoms.

Second, we predicted that higher levels of CRCMB would be related to more caregiver resentment. Support for an association between CRCMB and resentment comes from Williamson and colleagues (2005). They hypothesized that caregiver resentment might be related to whether the caregiver attributes controlling and manipulative behavior to the person (internal attributions) or to the illness situation (external attributions). Indeed, they found that

caregivers were more resentful when they attributed controlling and manipulative behavior to the person rather than to the illness.

Third, we expected that resentment would mediate (or partially mediate) the association between CRCMB and caregiver depressive symptoms. Put another way, the extent to which CRCMB predicted caregiver depressive symptoms would depend, at least in part, on how much they resented CRCMB.

The fourth hypothesis was that the mediation effect would vary according to pre-illness communal strength of the caregiver-CR relationship. More specifically, we expected that resentment would mediate the association between CRCMB and depressive symptoms for those caregivers historically low in mutual communal behavior. For those caregivers in relationships historically characterized by frequent mutual communal behavior, resentment would not mediate the relation between CRCMB and depression. Williamson and colleagues (1998) provided evidence for the potential moderating effects of mutual communal behavior in caregiving situations. In that study, activity restriction (e.g., loss of recreational and social activities due to caregiving responsibilities) mediated the association between caregiver stress (i.e., indexed as patient symptom severity) and depressed affect among caregivers in highly communal relationships. For caregivers in relationships low in mutual communal behavior, activity restriction did not mediate the association between patient symptom severity and depressive symptoms.

According to Preacher, Rucker, and Hayes (2007), "There are multiple ways in which the magnitude of an indirect effect may be dependent upon a moderator" (p. 193). For example, a fourth variable could affect the path from the independent variable (IV) to the mediator, the path from the mediator to the dependent variable (DV), or both. We expected that mutual communal

behavior would moderate the association between the IV (CR controlling and manipulative behavior) and the mediator (resentment). That is, we expected that the relation between CRCMB and resentment would be stronger for those caregivers historically low in mutual communal behavior compared to those caregivers in relationships historically characterized by frequent mutual communal behavior.

Finally, following the considerable literature suggesting that AAs are more likely to be enculturated to emphasize collectivistic and communal values (e.g., Jagers & Mock, 1995; Nobles, 1991), we predicted that AA ethnicity would be directly associated with higher levels of mutual communal behavior. Thus, we expected that mutual communal behavior would have a stronger moderating effect among AA caregivers.

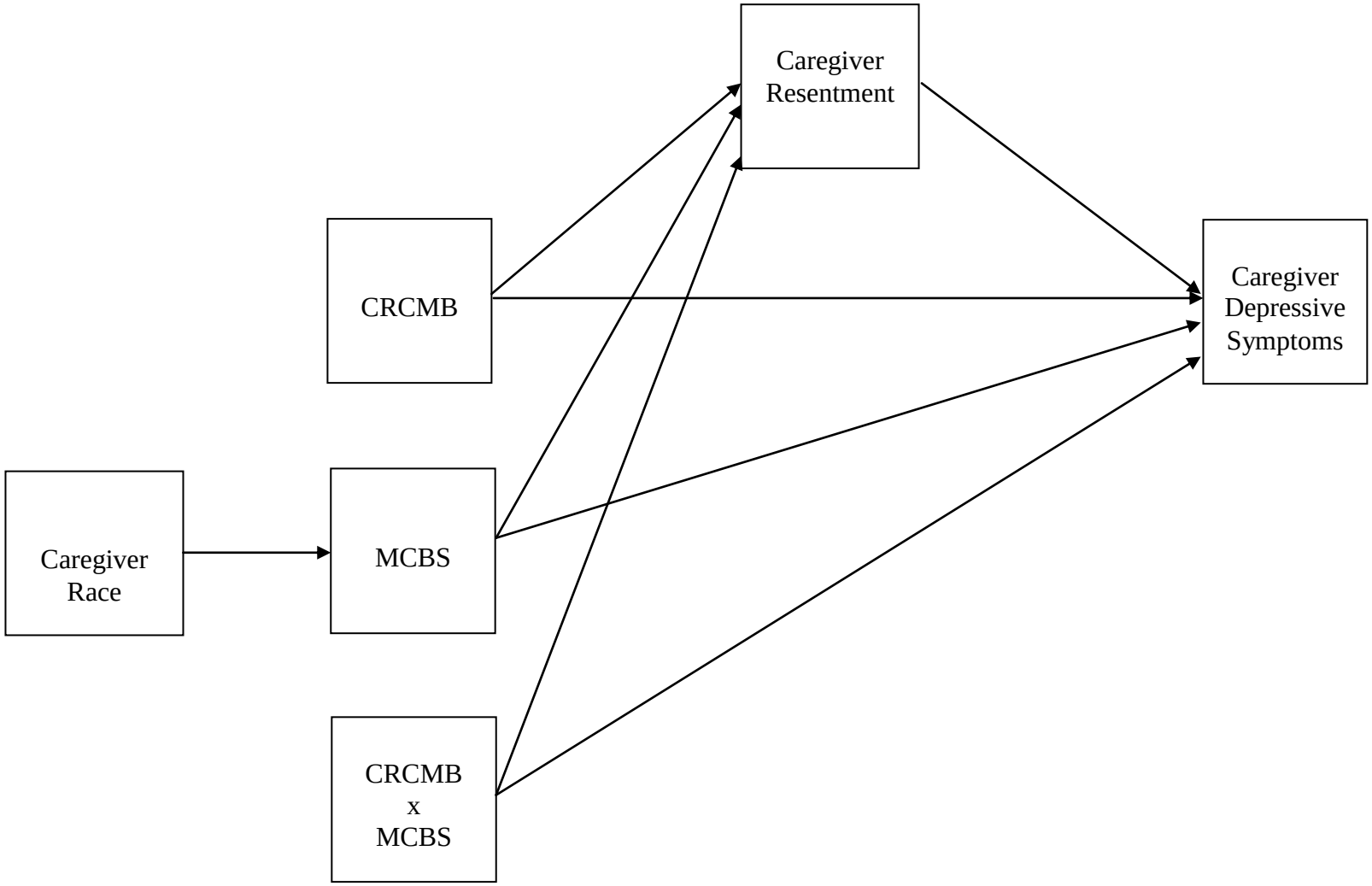

Figure 4. Proposed moderated mediation model.

Note. CRCMB = Care Recipient Controlling and Manipulative Behavior; MCBS = Mutual Communal Behavior Scale.

CHAPTER 5

METHOD

Sample and Procedure

First Family Relationships in Late Life Project (FRILL1). As stated, an exploratory factor analysis was needed to determine the underlying factor structure of the Caregiver Resentment Scale (CRS) before conducting CFAs. Data used in these analyses were provided by participants selected from the first wave of FRILL1 for which caregiver-CR dyads were recruited from various medical and community resources in areas served by the University of Georgia, the University of Pittsburgh, and the University of Texas Southwestern Medical Center at Dallas. Criteria for participation in FRILL1 stipulated that caregivers provide unpaid assistance with at least one basic activity of daily living (ADL; e.g., bathing) or two instrumental ADL (e.g., grocery shopping) to a community dwelling person age 60 or older. After they were screened by telephone to ensure eligibility, those who met study criteria were interviewed, most often in their homes. To prevent data contamination, caregivers and CRs were interviewed separately and simultaneously by a pair of trained researchers. On average, interviews lasted 1.5 to 2.0 hours. Caregivers and CRs were each paid $20.00 per interview. Recruitment efforts yielded a sample of 310 caregiver-CR dyads that was 79% EA, 17% AA, and 4% other.

Second Family Relationships in Late Life Project (FRILL2). This dissertation was based on the first wave of interviews from FRILL2, a multi-site longitudinal study of informal care provided by community-dwelling caregivers to elderly CRs with whom they resided. The voluntary sample was recruited from Athens, GA, Pittsburgh, PA, Tuscaloosa, AL, and surrounding areas. To be eligible for the study, caregivers had to be primarily responsible for the

care of a cognitively or physically impaired CR and had to provide unpaid help for at least one activity of daily living (ADL) or two instrumental ADLs.

A primary goal of FRILL2 was to oversample AA caregiving dyads in order to obtain data sufficient to address issues (e.g., longitudinal comparisons between EA and AA caregivers) conspicuously missing in previous research on the quality of informal elder care. Within these constraints, attempts were made to obtain as representative a sample as possible, employing the services of the Survey Research Center at the University of Georgia. These efforts began with Random Digit Dialing (RDD) in the areas including and surrounding the data collection sites. Project staff then narrowed the search to Age-Targeted RDD (e.g., individuals 60 years of age and older, according to U.S. Census data). These methods produced more eligible EA than AA dyads. To increase the number of AA participants, community-based snowball referral methods were used at the Georgia site in which completed AA dyads were re-contacted and asked to provide the names and telephone numbers of other potentially eligible dyads. Project staff then contacted these individuals. Snowballing methods produced 95 potential AA dyads, of which 14.7% refused participation.

RDD methods identified, in initial screening, 877 potential dyads. Of these, 35% refused to be interviewed, 5.6% could not be reached due to technical phone problems, and 18% were subsequently determined to be ineligible based on study criteria. In sum, recruitment efforts resulted in 765 eligible dyads, 321 (42%) of which declined participation, resulting in a sample of 444 caregiver-CR dyads (58% participation rate) that was 55% EA and 45% AA. Only data provided by the caregivers will be used in the proposed analyses. It cannot be said that these caregivers represent the overall U.S. population but, rather, that this combination of recruitment methods produced a sample consistent with the purposes of this study.

Face-to-face structured interviews lasting between 1.5 and 2 hours, for which participants were paid $25, were conducted in respondents' homes by pairs of carefully trained interviewers. To prevent data contamination, caregivers and CRs were interviewed separately and simultaneously.

The study was approved by the Institutional Review Boards of the Universities of Alabama, Georgia, and Pittsburgh. The consent form for the study contained a sentence advising participants that suspected cases of abuse would be reported to the proper authorities. For reporting purposes, cases of suspected abuse were indicated if (a) the CR reported being physically or psychologically abused or neglected, (b) such treatment was reported and not perceived as a threat, but the interviewer suspected that the disclaimer was given under duress (e.g., because of a fear of caregiver retaliation), and/or (c) signs of abuse or neglect sufficient to indicate immediate likelihood of danger to the CR were observed by the interviewer. No reportable cases were observed, and no participants refused to be interviewed after receiving information informing them of an obligation to report suspected cases of abuse.

Measures

Mutual communal behavior. The 10-item MCBS (e.g., Williamson & Schulz, 1995; Williamson et al., 2001; Williamson, Shaffer, & Schulz, 1998) measured perceptions of quality of the interpersonal relationship between caregiver and CR prior to illness or disability onset in terms of the frequency of behavioral expressions of communal feelings between caregiver and CR before the caregiving relationship existed. Caregivers reported how often (1 = *never*, 4 = *always*) communal behavior was exhibited in their relationships (e.g., "If she/he was feeling bad, I tried to cheer her/him up," "She/he did things just to please me"). The MCBS has demonstrated good psychometric properties and is stable over time (e.g., Williamson & Schulz,

1995). For this investigation, Cronbach's alphas were .89 for the full sample, .86 for the AA sample, and .91 for the EA sample.

Caregiver resentment. Caregiver resentment is the sum of responses to a 17-item instrument adapted from previous research. Prior analyses have shown that combining seven items from the Caregiver Burden Scale (Zarit et al., 1980) with ten items from a resentment scale devised by Thompson and colleagues (1995) results in a measure of caregiver resentment that is psychometrically sound (Williamson et al., 2000, 2005). Caregivers indicated how often (1 = *never*, 5 = *almost always*) they felt resentful about such circumstances as not having enough time for themselves, having to give up plans for the future, or that their CRs were overly dependent or made unreasonable demands. Cronbach's alphas were good (full sample a = .93; AA sample a = .93; EA sample a = .94).

Care recipient controlling and manipulative behavior. Caregiver reports of CRCMB were assessed using a 7-item adaptation of the Steinmetz Control Scale (Steinmetz, 1988). Caregivers rated how often (0 = *never*, 4 = *always*) their CRs employed behavioral tactics "that people sometimes use in attempts to control things or get their own way" (e.g., "Care recipient pouts/withdraws to room," "Care recipient manipulates family members"). Reliability coefficients for FRILL2 were .85, .86, and .85 for full sample, AA sample, and EA sample, respectively.

Caregiver depressive symptoms. The 20-item CES-D (Radloff, 1977) assessed the frequency with which respondents had experienced depressive symptoms within the last week (e.g., "I was bothered by things that usually don't bother me," "I felt that everything I did was an effort"). Total scores ranged from 0 to 60, with higher scores indicating more depressive symptoms (full sample: a = .89; AA sample: a = .88; EA sample a = .89).

Preliminary Analyses

The issue of sample size in exploratory factory analysis (EFA) is not without controversy. Some experts (e.g., Comrey & Lee, 1992; Gorsuch, 1983) suggest that (a) the absolute number of cases is important or (b) the subject-to-variable ratio is important. In either event, however, recommendations vary. For example, Gorsuch (1983) proposes that a sample size of at least 100 whereas Comrey and Lee (1992) believe that 100 = poor, 200 = fair, 300 = good, 500 = very good, and 1,000 or more = excellent. In terms of subject/variable ratio, Hatcher (1994) recommends five subjects per variable (as long as there is a minimum of 100 subjects). For example, 200 subjects is the minimum needed for a 40-item scale (40 x 5 = 200). Others (e.g., Everitt, 1975; Kunce, Cook, & Miller, 1975) argue that the ratio should be 10:1.

For this investigation, the Caregiver Resentment Scale, with 17 items, required EFA. Since there were 298 subjects available for the EFA, Comrey and Lee (1992) would consider the sample good. In addition, the sample size was more than adequate to meet the more stringent 10:1 ratio recommended by Everitt (1975).

As with EFA, there is no universal agreement on sample size for CFA. Hatcher (1994) states that the minimally acceptable number of observations should be five observations per parameter to be estimated. Thus, we adopted a 5:1 ratio for this paper. For the 20-item four-factor CES-D, the number of parameters to be estimated was 46, thus requiring a minimum of 230 participants. The EA sample (247) exceeded the minimum requirement; however, the AA sample (187) did not, which is a limitation of the study. The CRCMB had 14 estimates, the CRS had 29 estimates, and the MCBS had 20 estimates, thus with the exception of the AA group with the CES-D, the sample sizes in both groups were sufficient to conduct a CFA on each scale.

Any cases with more than two missing values in a scale were discarded. For cases with two or fewer missing values in a scale, the missing values were replaced with the scale mean of the non-missing responses for that case. A correlation matrix was constructed to determine how the variables were related to one another.

Primary Analyses

Measurement equivalence. One goal of this research was to determine the extent to which the psychometric properties of the measurement scales in this study were equivalent for AA and EA caregivers.

Tests of configural equivalence were conducted to examine whether AA and EA caregivers had the same concepts of depressive symptoms, mutual communal behavior, controlling and manipulative behavior, and caregiver resentment. To verify whether scores on the instruments had the same meaning between groups, tests of metric invariance and scalar equivalence were utilized.

Configural equivalence of the Center for Epidemiologic Studies Depression Scale (CES-D). Data analyses were conducted using Amos 19™ (Arbuckle, 2010). To establish whether the four-factor model of the CES-D (depressed affect, positive affect, somatic complaints, interpersonal problems) was supported in this sample of AA and EA caregivers, CFAs were performed separately for each group. To assess model fit, we used the comparative fit index (CFI), the root-mean-square error of approximation (RMSEA), and the standardized root-mean-square residual (SRMR). The CFI ranges from 0 to 1 with larger values indicating a better model fit. Acceptable model fit was indicated by a CFI value close to .95 (Hu & Bentler, 1998). RMSEA takes into consideration lack of fit rather than goodness of fit. Values range from 0 to 1 with a smaller RMSEA value indicating better model fit. An RMSEA value close

to .06 showed good fit (Hu & Bentler, 1998). An SRMR value close to .08 indicated an adequate fit (Hu & Bentler, 1998). In addition, significance tests of factor loadings were examined in each model.

If the goodness of fit indices were not satisfactory in one or both models, the model was respecified according to modification indices provided by Amos™. If configural invariance was supported (i.e., each group has equivalent factors and pattern of factor loadings), multigroup CFAs were employed to determine if factor loadings were equivalent between the two groups.

Configural equivalence of the Mutual Communal Behavior Scale (MCBS) and the Care Recipient and Controlling and Manipulative Behavior Scale (CRCMB). The next step was to establish whether the one-factor model of the MCBS and the one factor model of the CRCMB were supported in this sample of AA and EA caregivers. CFAs were performed separately for each group using procedures described above.

Configural equivalence of the Caregiver Resentment Scale (CRS). An exploratory factor analysis was conducted for the CRS before completing CFAs. The EFA was conducted using caregivers from FRILL1 (N = 298).

Using principal axis extraction and promax rotation, the data was examined to ensure that (a) the determinant of the correlation matrix was more than .00001 since a determinant of zero means a solution cannot be obtained (Leech, Barrett, & Morgan, 2005), (b) the Bartlett's test of sphericity was significant ($p < .05$; Bartlett, 1950), and (c) the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (Kaiser, 1970) had a value of 0.6 or above.

After ensuring the factorability of the data, the factor structure was determined by examining the number of eigenvalues over 1 and by parallel analysis (PA) using Monte Carlo PCA for Parallel Analysis (Watkins, 2006). PA involves comparing the eigenvalues from a

randomly generated set of data (Watkins, 2006) to the eigenvalues from the study data. An eigenvalue from the study data that exceeded the corresponding value from the random data was retained. After determining the number of factors, the final step was to run the EFA, specifying the number of factors to be retained, with principal axis extraction and promax rotation (if applicable). An item was kept if it (a) had a factor loading of at least .40, (b) loaded cleanly onto one factor, and (c) made theoretical sense. If an item loaded on two or more factors, the item was assigned to the factor where the correlation was greatest as long the discrepancy between the loadings was at least .20. A factor was kept as long as a minimum of three items loaded on the factor. After EFA, the factor structure for the CRS was tested by performing separate CFAs for FRILL2 AA and EA caregivers using the CFA procedures described above.

Metric equivalence. After identifying a model that showed acceptable fit for each group (i.e., factor structure and pattern of factor loadings were the same) for each instrument, multi-group CFAs were used to determine whether factor loadings were invariant across AA and EA caregivers. Equivalence was supported when factor loadings (i.e., correlation coefficients between the items and the factors) were invariant between groups (Crockett et al., 2005; Vandenberg & Lance, 2000).

In Model 1, no equality constraints were specified (i.e., factor loadings were free to vary). In Model 2, factor loadings were constrained to be equal. To determine if the models were different from each other, we examined whether the difference in CFI values (ΔCFI) between Model 1 and Model 2 was more than .01. According to Cheung and Rensvold (2002), a value greater than .01 is indicative of a significant drop in model fit. A value less than .01 meant that the factor loadings were invariant between the groups.

In the event that ΔCFI was more than .01, partial invariance was tested by freeing the

factor loadings that were most different between the two groups (Vandenberg & Lance, 2000). This process (i.e., freeing the next most different factor loadings) was continued until the ΔCFI was less than .01. These procedures were completed with the CES-D, MCBS, CRS, and CRCMB.

Scalar equivalence. In Model 3, intercepts were constrained to be equal. The ΔCFI test determined whether there was a significant drop in model fit between Model 2 (constrained factor loadings model) and Model 3 (constrained intercepts model). If ΔCFI was less than .01, that meant that the intercepts were invariant between the groups. However, if ΔCFI was more than .01, that meant that the intercepts differed between the groups, and partial invariance should be tested by freeing the intercepts that are most discrepant between the groups. This process (i.e., freeing intercepts) was continued until the ΔCFI was less than .01. These procedures were completed with the CES-D, MCBS, CRS, and CRCMB.

Hypotheses testing. First, we tested whether resentment mediated the association between care recipient controlling and manipulative behavior and depressive symptoms. To test for mediation, Baron and Kenney (1986) suggested the following: (a) the predictor (CR controlling and manipulative behavior) must be related to the outcome (caregiver depressive symptoms), (b) the predictor must be related to the mediator (resentment), and (c) when both the predictor and the mediator are entered into the equation, the association between the mediator and the outcome must remain significant and the effect of the predictor on the outcome must decline or become nonsignificant. To judge the significance of the indirect effects, we used the bootstrapping method recommended by Preacher and Hayes (2008). Using Amos19™ (Arbuckle, 2010), two thousand samples were requested and a bias-corrected and accelerated confidence interval (CI) was created for the indirect effect. If the bootstrapped CI for indirect

effect did not include zero, the indirect effect was significant.

Second, if resentment mediated the association between CRCMB and depression, we examined whether mutual communal behavior moderated the mediation. As stated, there are multiple ways that a variable can moderate a mediation effect (Preacher et al., 2007). We expected that mutual communal behavior would moderate the association between the IV (CR controlling and manipulative behavior) and the mediator (resentment) which Preacher and colleagues designated as Model 2 (see Figure 4 above; see Preacher et al., 2007, p. 194). Therefore, we tested whether mutual communal behavior moderated the mediation effect using the Model 2 macro developed by Preacher and colleagues.

To test for moderation, we mean centered control variables, CRCMB, and MCBS and then regressed resentment onto CRCMB, MCBS, and the CRCMBxMCBS interaction. A significant interaction provided support for moderated mediation. If significant, the next step was to regress depressive symptoms onto resentment, CRCMB, MCBS, and the CRCMBxMCBS interaction. If the interaction was significant, there was moderated mediation, and we examined the strength of the indirect effects across different levels of mutual communal behavior. Put another way, we examined the strength of the mediated effect when MCBS was one SD below the mean, at the mean, and one SD above the mean. We ran the analyses, separately, in the total sample, the AA sample, and the EA sample.

Last, we tested whether the moderated mediation model differed according to race of the caregiver. Using multi-group analysis in AMOS, we examined which, if any, path coefficients differed between the groups.

CHAPTER 6

RESULTS

Demographic Characteristics

First Family Relationships in Late Life Project (FRILL1). Of the 310 participants that provided data in FRILL1, 298 were AA (*n* = 53) and EA (*n* = 244) caregivers. On average, they were 63 years old (*SD* = 14.5, range 20 – 87). Forty percent of the caregivers had some college or were college graduates, and 20% had earned some type of graduate degree. They had a median household income of $25,000 to $30,000 and had been providing care for 6.5 years (*SD* = 8). In terms of kinship, 45.3% were caring for a spouse, 39% were caring for a parent, and 15.7% were caring for a sibling, other relative, or friend; 77% of caregivers were women. On average, CRs were 78.1 years old (*SD* = 8.7).

Second Family Relationships in Late Life (FRILL2). There were 187 AA and 247 EA caregivers in the FRILL2 sample. Similar to national estimates (e.g., National Alliance for Caregiving and the American Association of Retired Persons, 1997; Select Committee on Aging, 1987), 69.1% of caregivers were women. Mean caregiver age was 60.4 years (*SD* = 14.5, range 18 – 91), and CRs (55.6% female) were, on average, 75.5 (*SD* = 10.5) years of age. Slightly over half of the caregivers (53%) were spouses, and 33% were adult children of their CRs. Twenty-six percent of CRs had received a medical diagnosis of dementia or another disorder that causes memory problems (e.g., Alzheimer's disease, Parkinson's disease). Other common impairments characterizing CRs in this sample were primarily physical in nature, including heart conditions, diabetes, stroke-related problems, and cancer. Duration of care provision ranged from less than one year to 45 years (*M*= 6.7 years, *SD* = 7.5). Most (80.2%) had at least a high school

education. Median yearly household income, coded into 11 categories (1 = <$5,000 to 11 > $100,000) was 5.0 (i.e., $20,001-$30,000).

AA caregivers were younger (*M* = 54.8) than EA caregivers (*M* = 64.6), had less education, and less household income compared with EA caregivers. AA caregivers were more likely to be adult children whereas EA caregivers were more likely to be spouses. Almost 32% of AA caregivers reported that a child under the age of 18 resided in the home whereas only 4.9% of EA caregivers reported a child in the home.

As expected, AA caregivers reported less resentment compared to EA caregivers. Surprisingly, however, the scores on the MCBS were identical for AA and EA caregivers. Likewise, AA and EA CRs displayed virtually the same level of controlling and manipulative behavior. Although not significant, AA caregivers had more depressive symptoms than did EA caregivers, which is in contrast to the large body of research suggesting that AA caregivers experience less depressive symptoms.

Measurement Equivalence

Center for Epidemiologic Studies Depression Scale (CES-D) – Four-factor model.

The first step was to test, using single-group CFA, whether the proposed four-factor model (depressed affect, somatic symptoms, positive affect, and interpersonal problems; Radloff, 1977; see Figure 5) fit the data from each group. As shown in Table 1, the results from the CFAs suggested an acceptable fit between the proposed four-factor model and the observed data in each ethnoracial group.

The second step was to run a multi-group CFA. As can be seen in Table 1, the multi-group CFA (Model 1) was modestly well-fitting, indicating that the factorial structure of the construct was equal across groups (see Table 2 for the standardized and unstandardized factor loadings). Since configural invariance was supported, the next step was to constrain the factor loadings to be the same across the groups to test for metric invariance. The constrained factor loadings model (Model 2) showed an acceptable fit (see Table 1). The ΔCFI between Model 1 and Model 2 was smaller than .01, therefore, the factor loadings were equivalent between the groups (i.e., the scale had full metric equivalence; see Table 1). The final step was to constrain the intercepts (see Table 3 for intercepts) from the AA and EA groups to be the same to test for scalar equivalence. The fit of the data was mediocre for the intercepts model (Model 3; see Table 1). Furthermore, ΔCFI between Model 3 and Model 2 was larger than .01, suggesting that constraining the intercepts resulted in a significant decrease in the fit of Model 3 compared to Model 2 (see Table 1). We tested for partial scalar invariance by sequentially freeing the most discrepant intercepts until ΔCFI was smaller than .01. After freeing the intercepts of the "People were unfriendly" ($t = 4.4$), "Everything I did was effort" ($t = 4.2$), and "People dislike me" ($t = 3.8$) items, the ΔCFI was smaller than .01 (see Table 1). AAs had higher intercepts on all three items. The fit of the intercepts model after freeing those three items was adequate (see Table 1).

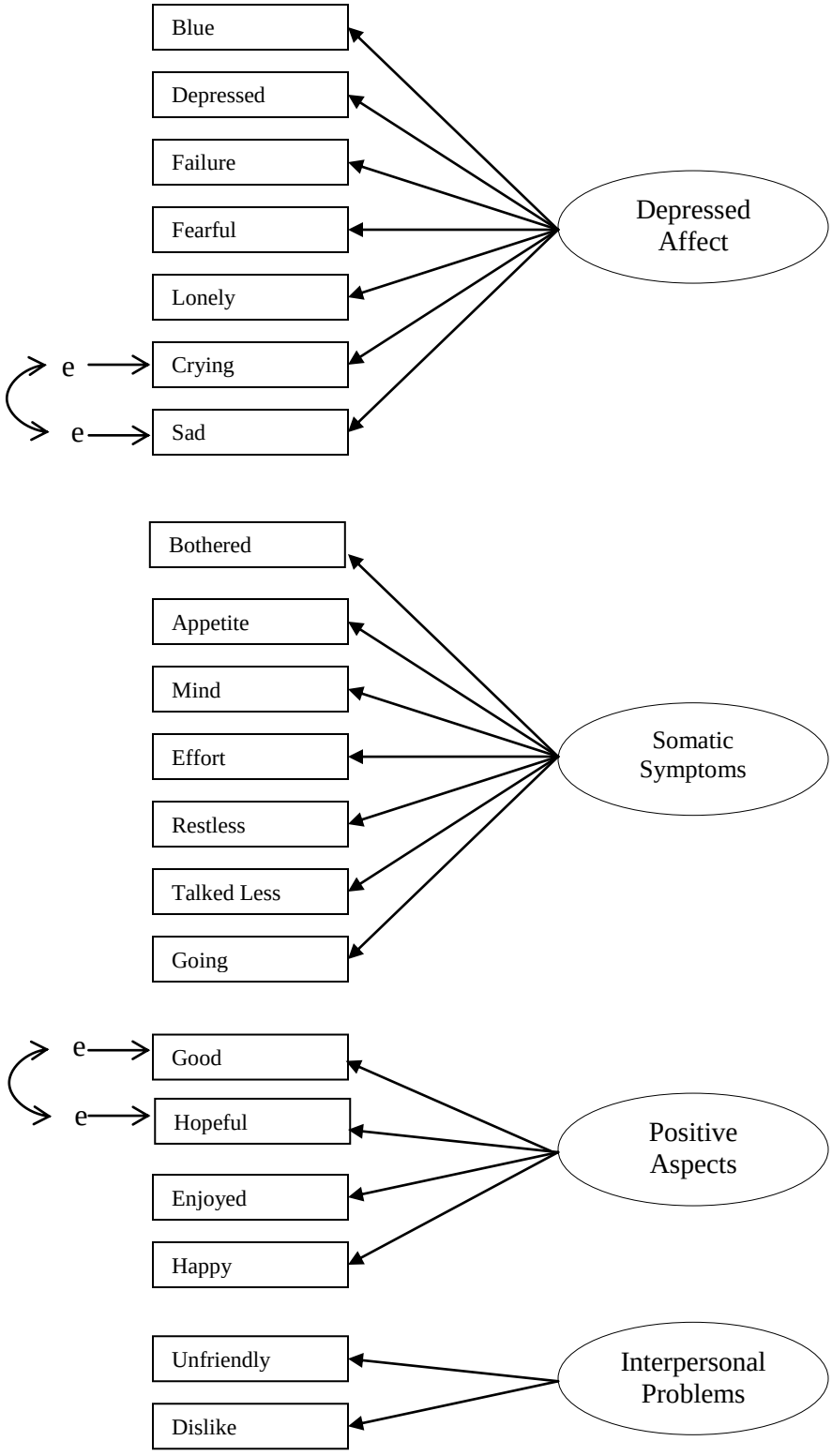

Figure 5. CES-D four-factor model for AA and EA caregivers.
Note. In the EA model and multi-group models, error terms for "I felt sad" and "I had crying spells" were correlated as were the terms for "I felt that I was just as good as other people" and "I felt hopeful about the future."

Table 1

Fit Indices for Four-Factor Center for Epidemiologic Studies Depression Scale (CES-D)

Model	CFI (ΔCFI)	RMSEA (90% CI)	SRMR	Comparison
AA Baseline	.93 (--)	.05 (.04-.07)	.05	--
EA Baseline^	.93 (--)	.05 (.04-.07)	.05	--
Model 1 (Configural)^ Full configural invariance	.936 (--)	.04 (.03-.04)	.05	--
Model 2 (Metric)^ Full metric invariance	.931 (.005)	.04 (.03-.04)	.06	Model 1 vs. Model 2
Model 3 (Scalar)^ Full scalar invariance not supported	.906 (.025)	.04 (.04-.05)	.06	Model 2 vs. Model 3
Model 3 (Scalar)^ Partial scalar invariance*	.921 (.01)	.04 (.03-.04)	.06	Model 2 vs. Model 3

Note. ^Error terms for "I felt sad" and "I had crying spells" were correlated as were the error terms for "I felt that I was just as good as other people" and "I felt hopeful about the future." *After freeing the intercepts of the "unfriendly," "effort," "dislike" items.

Table 2

Unstandardized and (Standardized) Solutions for Four-Factor CES-D in AA and EA Caregivers - Unconstrained Two-Group Model

Item	Factor 1		Factor 2		Factor 3		Factor 4	
	Depressed		Somatic		Positive		Interpersonal	
	AA	EA	AA	EA	AA	EA	AA	EA
Blue*****	1.13 (.75)	1.10 (.80)						
Depressed	1.28 (.82)	1.18 (.82)						
Failure	.86 (.69)	.54 (.55)						
Fearful	.74 (.59)	.65 (.52)						
Lonely	1.07 (.70)	.93 (.73)						
Crying	.68 (.53)	.64 (.58)						
Sad	**1.00 (.75)**	**1.00 (.75)**						
Bothered			1.00 (.66)	.66 (.47)				
Appetite			.88 (.58)	.58 (.46)				
Mind			1.23 (.70)	.73 (.43)				
Effort			1.07 (.50)	1.09 (.61)				
Restless*****			1.07 (.58)	1.08 (.54)				
Talked Less			.77 (.45)	.71 (.50)				
Going			**1.00 (.62)**	**1.00 (.59)**				
Good*****					.19 (.17)	.26 (.24)		
Hopeful					.39 (.27)	.65 (.49)		
Enjoyed					.49 (.49)	.86 (.81)		
Happy					**1.00 (.88)**	**1.00 (.83)**		
Unfriendly*****							.68 (.48)	.79 (.54)
Disliked							**1.00 (.88)**	**1.00 (.77)**

Note. Items in bold were fixed to 1.00 for model identifying purposes.[1] *****Items that were fixed to 1.00 in follow-up analysis.[2]

Table 3

Intercepts for CES-D Items in AA and EA Caregivers

Item	Factor 1		Factor 2		Factor 3		Factor 4	
	Depressed		Somatic		Positive		Interpersonal	
	AA	EA	AA	EA	AA	EA	AA	EA
Blue	.58	.55						
Depressed	.70	.70						
Failure	.36	.28						
Fearful	.42	.39						
Lonely	.57	.50						
Crying	.36	.28						
Sad	.54	.62						
Bothered			.64	.69				
Appetite			.56	.30				
Mind			.86	.86				
Effort			1.34	.87				
Restless			1.02	1.16				
Talked Less			.82	.53				
Going			.70	.74				
Good					.45	.41		
Hopeful					1.00	.77		
Enjoyed					.43	.42		
Happy					.71	.61		
Unfriendly							.46	.15
Disliked							.34	.13

Summary of four-factor Center for Epidemiologic Studies Depression Scale analyses.

The factors and pattern of factor loadings were equivalent in their respective baseline models. Moreover, the fit of the data for each baseline model as well as the unconstrained (Model 1) and constrained (Model 2) models was acceptable. The ΔCFI revealed that the decrease in fit between Model 1 and Model 2 was less than .01. Therefore, all factor loadings could be constrained to be equal between the two groups, and full metric equivalence was supported.

Full scalar equivalence was not realized. However, partial scalar equivalence was achieved after freeing three items ("unfriendly," "effort," "dislike"). According to Steenkamp and Baumgartner (1998), at least one item per latent construct must have equivalent factor loadings and intercepts in order to make valid cross-group comparisons. Recall that there are only two items in the interpersonal problems factor ("unfriendly" and "dislike). Because the intercepts from both interpersonal items needed to be freed in order to obtain partial scalar equivalence, this criterion was not met.

In summary, the analyses provided support for full configural and metric invariance. In terms of scalar invariance, the intercepts from both items in the interpersonal construct were not equivalent, thus, it was not appropriate to make comparisons between the groups using the 20-item CES-D. Therefore, the items from the interpersonal factor ("unfriendly" and "dislike") were removed and a new three-factor model (depressed affect, somatic symptoms, and positive affect) was tested for invariance. The "effort" item was retained because it was the only item, among seven items in the somatic symptoms factor, which was not equivalent.

Center for Epidemiologic Studies Depression Scale (CES-D) - Three-factor model.

The CFAs suggested an acceptable fit between the proposed three-factor model (see Figure 6) and the observed data in each ethnoracial group (see Table 4). As can be seen in Table 4, Model 1 (unconstrained) from multi-group CFA was modestly well-fitting, indicating that the three-factor structure was equal across groups (see Table 5 for unstandardized and standardized coefficients). Model 2 (constrained factor loadings) showed an acceptable fit. Moreover, ΔCFI between Model 1 and Model 2 was smaller than .01, suggesting that the factor loadings were the same across the groups (see Table 4). The fit indices for Model 3 (constrained intercepts) were acceptable (see Table 4). However, ΔCFI between Model 3 and Model 2 was larger than .01, suggesting that constraining the intercepts resulted in significant decreases in the fit of Model 3 compared to Model 2 (see Table 3 for intercepts). We tested for partial scalar invariance by sequentially freeing the most discrepant intercepts until ΔCFI was smaller than .01. After freeing "I felt that everything I did was effort" (t = 4.2) and "My appetite was poor" (t = 3.2), ΔCFI was smaller than .01 (see Table 4). AAs had higher intercepts on both items. The fit of the intercepts model after freeing the two items was adequate (see Table 4).

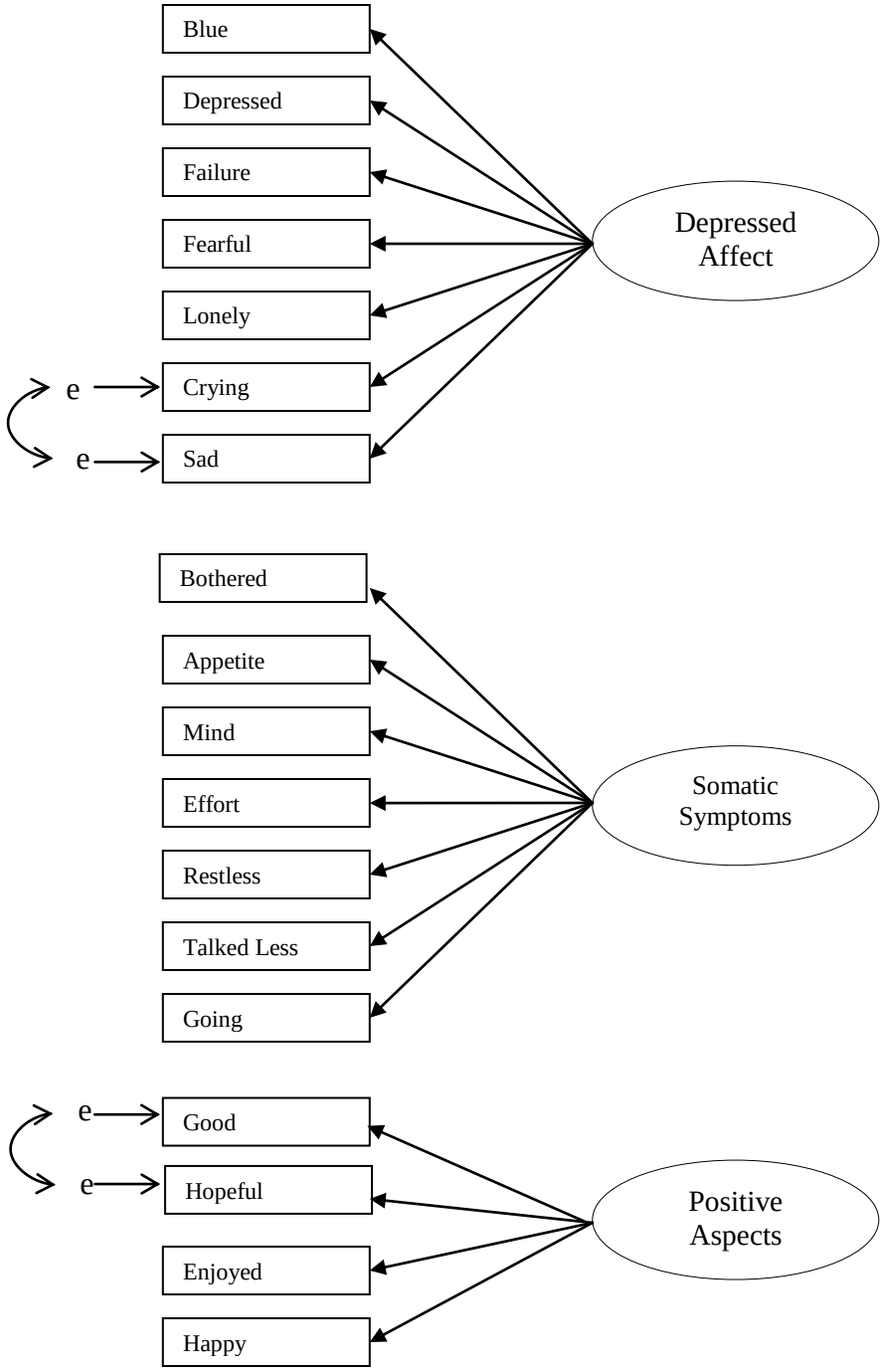

Figure 6. CES-D three-factor model for AA and EA caregivers.

Note. In the EA model and multi-group models, error terms for "I felt sad" and "I had crying spells" were correlated as were the error terms for "I felt that I was just as good as other people" and "I felt hopeful about the future."[1]

Table 4

Fit Indices for Three-Factor CES-D

Model	CFI (ΔCFI)	RMSEA (90% CI)	SRMR	Comparison
AA Baseline	.96 (--)	.04 (.03-.06)	.05	--
EA Baseline^	.94 (--)	.06 (.05-.07)	.05	--
Model 1^ Full configural invariance	.949 (--)	.03 (.03-.04)	.05	--
Model 2^ Full metric invariance	.943 (.006)	.04 (.03-.04)	.06	Model 1 vs. Model 2
Model 3^ Full scalar invariance not supported	.925 (.018)	.04 (.03-.05)	.06	Model 2 vs. Model 3
Model 3^ Partial scalar invariance*	.936 (.007)	.04 (.03-.04)	.06	Model 2 vs. Model 3

Note. ^Error terms for "I felt sad" and "I had crying spells" were correlated. *After freeing the intercepts of the "effort" and "appetite" items.

Table 5

Unstandardized and (Standardized) Solutions for Three-factor CES-D in AA and EA Caregivers - Unconstrained Two-Group Model

	Factor 1 Depressed		Factor 2 Somatic		Factor 3 Positive	
	AA	EA	AA	EA	AA	EA
Blue*****	1.11 (.73)	1.10 (.81)				
Depressed	1.30 (.83)	1.16 (.81)				
Failure	.85 (.69)	.52 (.53)				
Fearful	.74 (.59)	.65 (.52)				
Lonely	1.07 (.70)	.91 (.73)				
Crying	.69 (.54)	.63 (.58)				
Sad	**1.00 (.75)**	**1.00 (.76)**				
Bothered			1.03 (.66)	.66 (.47)		
Appetite			.92 (.60)	.58 (.46)		
Mind			1.26 (.70)	.73 (.43)		
Effort			1.09 (.50)	1.09 (.61)		
Restless*****			1.11 (.59)	1.08 (.54)		
Talked Less			.79 (.45)	.72 (.50)		
Going			**1.00 (.61)**	**1.00 (.59)**		
Good*****					.21 (.18)	.28 (.26)
Hopeful					.41 (.28)	.67 (.50)
Enjoyed					.52 (.50)	.86 (.81)
Happy					**1.00 (.86)**	**1.00 (.83)**

Note. Items in bold were fixed to 1.00 for model identifying purposes. *****Items that were fixed to 1.00 in follow-up analysis.

Summary of three-factor Center for Epidemiologic Studies Depression Scale analyses.

Full configural and metric equivalence was supported. Partial scalar equivalence was achieved by freeing two items ("effort," "appetite"). Cronbach's alphas for the 18-item CES-D were a = .88 for full sample, a = .88 for AA sample, and a = .89 for EA sample.

Because there was at least one item per latent construct that had equivalent factor loadings and intercepts, the 18-item CES-D was acceptable for making comparisons between AA and EA caregivers in this sample.

Mutual Communal Behavior Scale (MCBS). The CFAs suggested an acceptable fit between the proposed one-factor model (see Figure 7) and the observed data in each group (see Table 6). As shown in Table 6, Model 1 was modestly well-fitting, indicating that the one-factor structure was equal across groups (see Table 7 for unstandardized and standardized coefficients). Model 2 showed an acceptable fit. Moreover, ΔCFI between Model 1 and Model 2 was smaller than .01, suggesting that the factor loadings were the same across the groups (see Table 6). The fit indices for Model 3 were acceptable (see Table 6). The ΔCFI between Model 3 and Model 2 was smaller than .01, suggesting that the intercepts (see Table 8) were equal across groups.

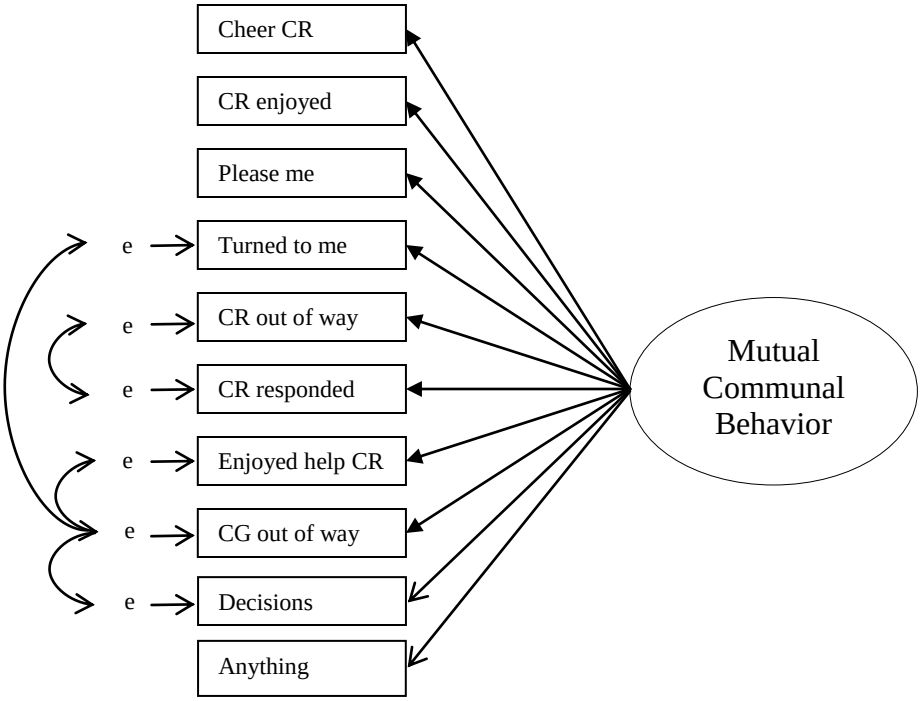

Figure 7. MCBS one-factor model for AA and EA caregivers.

Note. In AA model, error terms for "I went out of my way to help CR" and "Considered CR in making decisions" were correlated. In EA model, error terms for "I went out of my way to help CR" and "I enjoyed helping CR" were correlated as were "Considered CR in making decisions" and "I went out of my way to help CR" and "I went out of my way to help CR" and "He/she turned to me for help" and "She/he responded to my needs" and "She/he went out of her/his way to help me." In multi-group CFA, error terms for "I went out of my way to help CR" and "I enjoyed helping CR" were correlated as were "Considered CR in making decisions" and "I went out of my way to help CR."

Table 6

Fit Indices for One-Factor Mutual Communal Behavior Scale (MCBS)

Model	CFI (ΔCFI)	RMSEA (90% CI)	SRMR	Comparison
AA Baseline^	.92 (--)	.09 (.07-.14)	.06	--
EA Baseline*	.95 (--)	.10 (.08-.12)	.05	--
Model 1[+] Full configural invariance	.924 (--)	.07 (.06-.09)	.06	--
Model 2[+] Full metric invariance	.920 (.004)	.07 (.06-.08)	.07	Model 1 vs. Model 2
Model 3[+] Full scalar invariance	.918 (.002)	.07 (.06-.08)	.07	Model 2 vs. Model 3

Note. ^Error terms for "I went out of my way to help CR" and "Considered CR in making decisions" were correlated.
*Error terms for "I went out of my way to help CR" and "I enjoyed helping CR" were correlated as were "Considered CR in making decisions" and "I went out of my way to help CR" and "I went out of my way to help CR" and "He/she turned to me for help" and "She/he responded to my needs" and "She/he went out of her/his way to help me."
[+]Error terms for "I went out of my way to help CR" and "I enjoyed helping CR" were correlated as were "Considered CR in making decisions" and "I went out of my way to help CR."

Table 7

Unstandardized and (Standardized) Solutions for MCBS in AA and EA Caregivers – Unconstrained Two-Group Model

MCBS	Communal Behavior	
	AA	EA
1. If she/he was feeling bad, I tried to cheer her/him up.*****	.82 (.47)	.74 (.55)
2. She/he seemed to enjoy responding to my needs.	1.07 (.65)	1.16 (.81)
3. She/he did things just to please me.	1.22 (.62)	1.07 (.70)
4. When she/he had a need, she/he turned to me for help.	.91 (.48)	.79 (.54)
5. She/he went out of her/his way to help me.	1.52 (.81)	1.16 (.79)
6. She/he responded to my needs.	1.40 (.86)	1.15 (.82)
7. I enjoyed helping her/him.	.61 (.51)	.86 (.73)
8. I went out of my way to help her/him.	.82 (.50)	.75 (.61)
9. When making a decision, I considered CR's needs and feelings.	.73 (.50)	.71 (.59)
10. She/he would have done almost anything for me.	**1.00 (.69)**	**1.00 (.79)**

Note. Item in bold was fixed to 1.00 for model identifying purposes. *****Item that was fixed to 1.00 in follow-up analysis.

Table 8

Intercepts for MCBS Items in AA and EA Caregivers

MCBS Item	Communal Behavior	
	AA	EA
1. If she/he was feeling bad, I tried to cheer her/him up.	3.39	3.39
2. She/he seemed to enjoy responding to my needs.	3.33	3.30
3. She/he did things just to please me.	2.94	2.98
4. When she/he had a need, she/he turned to me for help.	3.02	3.15
5. She/he went out of her/his way to help me.	3.26	3.24
6. She/he responded to my needs.	3.33	3.27
7. I enjoyed helping her/him.	3.67	3.53
8. I went out of my way to help her/him.	3.48	3.36
9. When making a decision, I considered CR's needs and feelings.	3.52	3.51
10. She/he would have done almost anything for me.	3.62	3.56

Summary of Mutual Communal Behavior Scale analyses. Although the fit of the data was mediocre for all three models, there was strong support for full configural, metric, and scalar equivalence. The individual CFAs suggested that AA and EA caregivers conceptualized mutual communal behavior in the same way. Moreover, all ten of the factor loadings could be constrained to be equal. In other words, the strengths of the associations between factor loadings and the underlying construct of mutual communal behavior were the same for each group. Last, all ten intercepts were constrained to be equal between the two groups. In fact, the mean scores for the items were remarkably similar in both caregiving groups. Thus, the MCBS is a valid scale to measure any differences or similarities in communal behavior between AA and EA caregivers in this sample.

Exploratory factory analysis with Caregiver Resentment Scale (CRS). Before running CFAs on the CRS, an exploratory factor analysis (EFA) was conducted to (a) determine the factor structure and (b) identify the items that loaded onto those particular factors. The EFA was conducted with caregivers from FRILL1.

Four caregivers were excluded because they were missing more than two items from the scale (N = 294). Thirty-four of the 294 cases had two or fewer missing values in the scale, thus the missing values were replaced with the scale mean of the non-missing responses for that case. Cronbach's alpha was .94. The KMO index was .94, the Bartlett's Test of Sphericity was p = .000, and the determinant was 3.722 E-005 (0.00003722). Thus, it was appropriate to proceed with the analysis. The parallel analysis indicated a one-factor solution whereas the Kaiser-Guttman indicated a three-factor solution (see Table 9).

Table 9

Parallel Analysis and Eigenvalues for Caregiver Resentment Scale (CRS)

	Monte Carlo PCA for Parallel Analysis Random Eigenvalues	CRS Initial Eigenvalues
1.	1.44	8.54
2.	1.35	1.24
3.	1.28	1.09

Note. For the first factor, the eigenvalue was 8.54, which was larger than the random eigenvalue of 1.44. However, the second eigenvalue of 1.24 was smaller than the second random eigenvalue of 1.35. Thus, according to the PA, only one factor should be retained. The Kaiser-Guttman rule states that only factors with eigenvalues greater than 1.0 should be considered. The first three factors had values greater than 1.0.

Both models were tested to find the model that accounted for the most variance *and* made theoretical sense. The one-factor model accounted for 47.18% of the variance. All 17 items loaded onto the factor with loadings greater than .60 (see Table 10).

Table 10

CRS Factor Loadings for One-Factor Model

How difficult it is to go anyplace	.78
I feel trapped by my caregiving responsibilities	.77
Feeling unappreciated	.73
Having your needs come second	.72
Not having enough time for yourself	.71
Having to give up plans for future	.71
I resent the time and effort I spend taking care of him/her	.70
I resent having to take on CR's responsibilities in addition to my own	.70
CR is overly dependent	.69
A change in CR's personality	.67
Having to care for an invalid	.67
Not having the same social life as before	.66
CR makes requests of me that are over and above what he/she needs	.65
Feeling responsible for CR's well-being	.65
CR expects me to take care of him/her as if I were the only person he/she could depend on	.62
How much longer things take to do	.61
CR doesn't appreciate what I do for him/her as much as he/she should	.61

The three-factor model accounted for 56.42% of the variance. A review of the pattern matrix revealed that one item, "Feeling responsible for CRs well-being," did not load onto any the factors and "Having to care for an invalid" cross-loaded onto Factors 1 and 3 (see Table 11). The item, "A change in CRs personality," combined with items in Factor 1 that seemed to tap into a construct related to loss of time/social activities (e.g., of social life, of time, future plans). Thus, the item did not fit well with that factor. Another item, "Having your needs come second," combined with items that seemed to measure unreasonable CR behavior and the caregiver feeling unappreciated. The remaining 13 items loaded cleanly onto their respective factors with loadings greater than .50; therefore, we reran the EFA with those 13 items.

Table 11

CRS Pattern Matrix for 17-item Three-Factor Model

	Factor 1	Factor 2	Factor 3
Not having the same social life as before	.85	--	--
How difficult it is to go anyplace	.78	--	--
Having to give up plans for the future	.71	--	--
How much longer things take to do	.58	--	--
A change in CRs personality	**.56**	**--**	**--**
Having enough time for yourself	.51	--	--
Feeling responsible for CRs well-being	**--**	**--**	**--**
CR doesn't appreciate what I do for him/her as much as he/she should	--	.81	--
Feeling unappreciated	--	.77	--
CR makes requests of me that are over and above what he/she needs	--	.72	--
CR is overly dependent	--	.58	--
CR expects me to take care of him/her as if I were the only person	--	.56	--
Having your needs come second	**--**	**.53**	**--**
I resent the time and effort I spend taking care of him/her	--	--	.94
I resent having to take on CR's responsibilities in addition to my own	--	--	.76
I feel trapped by my caregiving responsibilities	--	--	.60
Having to care for an invalid	**.41**	**--**	**.48**

Note. Boldface items were eliminated in subsequent analyses.

For the 13-item model, the KMO index was .92, the Bartlett's Test of Sphericity was $p = .000$, and the determinant was .001. The model accounted for 59.02% of the variance. The first factor accounted for a substantial portion of the variance (48.54%) whereas the second and third factors explained 5.40% and 5.08% of the variance, respectively. Factor 1 had five items with loadings that were $\geq .53$ and assessed resentment over loss of time, future plans, and social activities. Accordingly, this factor was labeled "Caregiver (CG) Personal Loss." Factor 2 had five items with loadings that were $\geq .59$ and assessed CR dependency and the caregiver feeling unappreciated. This factor was labeled "CR is Demanding." Factor 3 had three items with loadings that were $\geq .58$ and assessed resentment feelings toward caregiving duties. This factor was labeled "CG Entrapment." The 13-item pattern matrix is shown in Table 12. Since the three-factor model accounted for a larger percentage of the variance, made theoretical sense, and all of the items loaded cleanly with loadings that were greater than .40, CFAs were conducted on the 13-item, three-factor model with FRILL2 caregivers.

Table 12

CRS Pattern Matrix for 13-item Three-Factor Model

	CG Personal Loss	CR is Demanding	CG Entrapment
Not having the same social life as before	.87	--	--
Having to give up plans for the future	.75	--	--
How difficult it is to go anyplace	.73	--	--
How much longer things take to do	.53	--	--
Not having enough time for yourself	.53	--	--
CR doesn't appreciate what I do for him/her as much as he/she should	--	.80	--
CR makes requests of me that are over and above what he/she needs	--	.75	--
Feeling unappreciated	--	.73	--
CR is overly dependent	--	.60	--
CR expects me to take care of him/her as if I were the only person	--	.59	--
I resent the time and effort I spend taking care of him/her	--	--	.95
I resent having to take on CR's responsibilities in addition to my own	--	--	.77
I feel trapped by my caregiving responsibilities	--	--	.58

Caregiver Resentment Scale (CRS). The CFAs suggested an acceptable fit between the proposed model (see Figure 8) and the observed data in each ethnoracial group (see Table 13). As can be seen in Table 13, Model 1 was modestly well-fitting, indicating that the factorial structure of the construct was equal across groups (see Table 14 for standardized and unstandardized factor loadings). Since configural invariance was supported, the next step was to constrain the factor loadings to be the same across the groups to test for metric invariance. Model 2 showed an acceptable fit (see Table 13). The ΔCFI was smaller than .01; therefore, the factor loadings were equivalent between the groups (i.e., the scale had full metric equivalence). The final step was to constrain the intercepts (see Table 15 for intercepts) from the AA and EA groups to be the same to test for scalar equivalence. The fit indices for Model 3 were acceptable (see Table 13). The ΔCFI between Model 3 and Model 2 was smaller than .01, suggesting that the intercepts were equal across AA and EA caregivers.

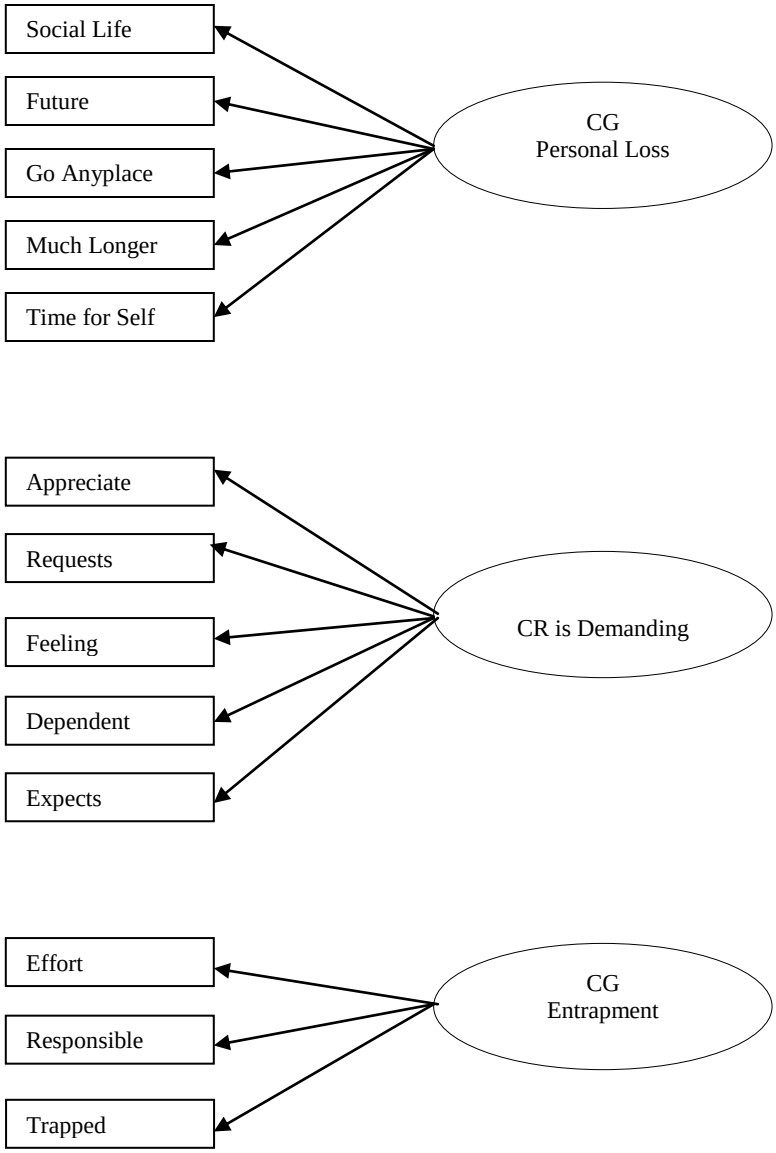

Figure 8. CRS three-factor model for AA and EA caregivers.

Table 13

Fit Indices for Three-Factor CRS

Model	CFI (ΔCFI)	RMSEA (90% CI)	SRMR	Comparison
AA Baseline	.92 (--)	.09 (.07-.14)	.06	--
EA Baseline	.94 (--)	.08 (.08-.12)	.05	--
Model 1 Full configural invariance	.934 (--)	.06 (.05-.07)	.06	--
Model 2 Full metric invariance	.934 (.000)	.06 (.05-.07)	.06	Model 1 vs. Model 2
Model 3 Full scalar invariance	.927 (.007)	.06 (.05-.07)	.06	Model 2 vs. Model 3

Table 14

Unstandardized and (Standardized) Solutions for CRS Items in AA and EA Caregivers – Unconstrained Two-Group Model

	CG Personal Loss		CR is Demanding		CG Entrapment	
	AA	EA	AA	EA	AA	EA
Not having the same social life*****	1.23 (.84)	1.38 (.80)				
Give up plans for the future	1.21 (.87)	1.38 (.82)				
How difficult it is to go anyplace	1.05 (.74)	1.40 (.81)				
How much longer things take to do	1.07 (.77)	1.06 (.66)				
Having enough time for yourself	**1.00 (.74)**	**1.00 (.69)**				
CR doesn't appreciate what I do*****			.73 (.69)	.78 (.72)		
CR makes unreasonable requests			.69 (.73)	.72 (.71)		
Feeling unappreciated			.75 (.72)	.69 (.65)		
CR is overly dependent			.90 (.77)	.96 (.70)		
CR expects me to take care of him/her			**1.00 (.70)**	**1.00 (.65)**		
I resent the time and effort*****					.60 (.62)	.76 (.80)
I resent having to take on CR's responsibilities					.80 (.64)	.82 (.83)
I feel trapped by my caregiving responsibilities					**1.00 (.77)**	**1.00 (.83)**

Note. Items in bold were fixed to 1.00 for model identifying purposes. *****Items that were fixed to 1.00 in follow-up analysis.

Table 15

Intercepts for CRS Items in AA and EA Caregivers

	CG Personal Loss		CR is Demanding		CG Entrapment	
	AA	EA	AA	EA	AA	EA
Not having the same social life	1.98	2.21				
Give up plans for the future	1.87	2.07				
How difficult it is to go anyplace	1.90	2.33				
How much longer things take to do	1.94	2.28				
Having enough time for yourself	1.99	2.24				
CR doesn't appreciate what I do			1.79	1.74		
CR makes unreasonable requests			1.67	1.71		
Feeling unappreciated			1.96	2.02		
CR is overly dependent			2.04	2.19		
CR expects me to take care of him/her			2.46	2.38		
I resent the time and effort					1.30	1.54
I resent having to take on CR's responsibilities					1.49	1.62
I feel trapped by my caregiving responsibilities					1.56	1.91

Summary of Caregiver Resentment Scale analyses. The individual CFAs suggested that resentment had the same meaning for both AA and EA caregivers. In terms of metric equivalence, ΔCFI revealed that factor loadings were equivalent between the groups. Thus, AA and EA caregivers responded to the CRS items in the same way (at least in terms of the strengths of the items with their respective latent constructs). The ΔCFI supported full scalar equivalence. Cronbach's alphas for the revised 13-item scale were good (full sample a = .92; AA sample a = .91; EA sample a = .92). The CRS was an acceptable measure to assess differences and similarities between AA and EA caregivers on this construct.

Care Recipient Controlling and Manipulative Behavior (CRCMB). The CFAs suggested an acceptable fit between the proposed model (see Figure 9) and the observed data in each ethnoracial group (see Table 16). As can be seen in Table 16, Model 1 was modestly well-fitting, indicating that the factorial structure of the construct was equal across groups (see Table 17 for standardized and unstandardized factor loadings). Because configural invariance was supported, the next step was to constrain the factor loadings to be the same across the groups to test for metric invariance. Model 2 showed an acceptable fit (see Table 16). The ΔCFI was smaller than .01, therefore, the factor loadings were equivalent between the groups (i.e., the scale had full metric equivalence). The final step was to constrain the intercepts (see Table 18 for intercepts) from the AA and EA groups to be the same to test for scalar equivalence. The fit indices for Model 3 were acceptable (see Table 16). The ΔCFI between Model 3 and Model 2 was smaller than .01, suggesting that the intercepts were equal across AA and EA caregivers.

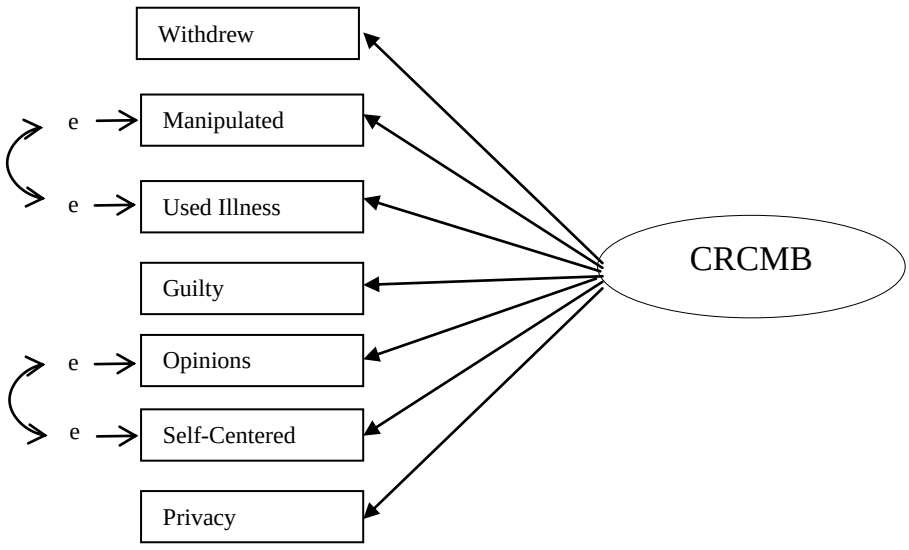

Figure 9. CRCMB one-factor model for AA and EA caregivers.

Note. In AA model, error terms for "Was self-centered" and "Didn't respect your opinions" were correlated. In EA model, error terms for "Used his/her illness to gain control" and "Manipulated family members" were correlated.

Table 16

Fit Indices for One-Factor Care Recipient Controlling and Manipulative Behavior (CRCMB) Scale

Model	CFI (ΔCFI)	RMSEA (90% CI)	SRMR	Comparison
AA Baseline^	.98 (--)	.07 (.01-.11)	.03	--
EA Baseline*	.96 (--)	.09 (.05-.12)	.04	--
Model 1 Full configural invariance	.928 (--)	.08 (.07-.10)	.06	--
Model 2 Full metric invariance	.923 (.005)	.08 (.06-.09)	.06	Model 1 vs. Model 2
Model 3 Full scalar invariance	.920 (.003)	.07 (.06-.09)	.06	Model 2 vs. Model 3

Note. ^Error terms for "Was self-centered" and "Didn't respect your opinions" were correlated.
*Error terms for "Used his/her illness to gain control" and "Manipulated family members" were correlated.

Table 17

Unstandardized and (Standardized) Solutions for CRCMB Items in AA and EA Caregivers – Unconstrained Two-Group Model

CRCMB Item	CRCMB	
	AA	EA
Pouted or withdrew to his/her room*	1.05 (.63)	1.05 (.61)
Manipulated family members	.78 (.59)	.82 (.60)
Used his/her illness to gain control	.63 (.58)	.97 (.71)
Tried to make you feel guilty	1.32 (.81)	1.42 (.77)
Didn't respect your opinions	1.29 (.77)	1.26 (.66)
Was self-centered	1.28 (.81)	1.59 (.71)
Invaded Privacy	**1.00 (.64)**	**1.00 (.65)**

Note. Items in bold were fixed to 1.00 for model identifying purposes. *****Items that were fixed to 1.00 in follow-up analysis.

Table 18

Intercepts for CRCMB Items in AA and EA Caregivers

CRCMB Item	CRCMB	
	AA	EA
Pouted or withdrawn to his/her room	.71	.60
Manipulated family members	.32	.28
Used his/her illness to gain control	.26	.31
Tried to make you feel guilty, acted like a martyr	.62	.58
Didn't respect your opinions	.78	.79
Was self-centered (e.g., thought only about him/herself)	.62	.79
Invaded your privacy	.45	.41

Summary of Care Recipient Controlling and Manipulative Behavior analyses. The individual CFAs suggested that AA and EA caregivers conceptualized CR controlling and manipulative behavior in the same way. Moreover, all factor loadings and intercepts could be constrained to be equal, which is strong evidence for metric and scalar equivalence. Thus, the CRCMB is a valid scale for making meaningful comparisons between AA and EA caregivers on this construct.

Overall Summary of Measurement Equivalence

The CRCMB scale, 13-item CRS, 18-item CES-D, and MCBS had configural invariance. Put another way, AA and EA caregivers conceptualized care recipient controlling and manipulative behavior, resentment, depressive symptoms, and mutual communal behavior in the same way. Furthermore, there was strong evidence for full metric equivalence (i.e., equivalent factor loadings) for the 18-item CES-D, MCBS, 13-item CRS, and CRCMB scale. In terms of scalar equivalence (i.e., equivalent intercepts), the CRCMB, CRS, and MCBS had full scalar equivalence whereas the CES-D had partial scalar equivalence. Overall, the reliability coefficients, goodness-of-fit indices, and equivalency outcomes suggested that the instruments were acceptable to make comparisons between the AA and EA caregivers in this sample.

Bivariate Correlations

Zero order correlations determined associations between caregiver demographic variables (e.g., age, gender, education, kinship) and CR age and dementia status and all study variables (see Table 19). To adjust for Type I error, we considered only correlations at $p = .01$ or better to be meaningful. In terms of demographics, caregiver age and household income were associated with the dependent variable (DV; CES-D, i.e., depressive symptoms), whereas caregiver education and gender, and CR dementia status and age, were associated with the mediator (CRS, i.e.,

resentment). We controlled for these variables in subsequent analyses.

The associations between the study variables were in the expected directions. That is, more CR controlling and manipulative behavior was associated with more resentment (mediator) and depressive symptoms (DV) and higher levels of resentment were related to higher levels of depressive symptoms. Higher levels of mutual communal behavior (moderator) were associated with less CRCMB, resentment, and depressive symptoms.

Table 19

Correlations among variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. CG Age	___	-.60***	.10	.04	.18***	.14**	.34***	.25***	-.38***	-.03	.09	.14**	-.21***	-.11	-.05
2. Kinship		___	-.08	.07	.40***	-.21***	-.24***	.17***	.28***	.13**	-.04	-.08	.13	.14**	.09
3. Years Caregiving?			___	-.08	-.03	.01	-.09	-.08	.01	-.04	-.04	.09	-.02	-.05	-.02
4. CR Dementia?				___	.17***	-.15**	.05	-.03	.00	.11	.10	.01	.10	.14**	.23***
5. CR Age					___	-.17***	.06	.21***	-.06	.20***	.07	.04	-.01	.10	.14**
6. CG Sex						___	.02	-.14**	-.11	-.06	.04	.10	-.09	-.13**	-.18***
7. CG Race							___	.09	-.31***	.17***	.20***	-.03	-.07	.00	.10
8. CG Martial Status								___	-.12	-.04	-.01	-.02	-.02	.10	.08
9. Children under 18?									___	-.04	-.07	-.06	.04	.02	-.03
10. Education										___	.44***	-.14**	-.09	.14**	.16**
11. Income											___	-.06	-.19***	-.09	-.05
12. MCBS												___	-.17***	-.39***	-.36**
13. CES-D+													___	.40***	.54***
14. CRCMB														___	.67***
15. CRS^															___

Note. *** $p = .000$; ** $p < .01$. ^ = 13-item CRS; + = 18-item CES-D. Kinship 1 = Spouse, 2 = Other relative; Dementia 0 = No, 1 = Yes; CG Sex 1 = Female, 2 = Male; CG Race 1 = AA, 2 = EA; CG Marital Status 1 = Married or Living as Married, 2 = Not married; Education 1 = < high school, 2 = high school, 3 = some college/trade school, 4 = college grad/grad school; Income 1 = < $30,000, 2 = $30,001-$70,000, 3 = $70,001 - $100,000, 4 = > $100,000. CG = Caregiver; CR = Care Recipient; MCBS = Mutual Communal Behavior Scale; CES-D = Center for Epidemiological Scale – Depression; CRCMB = Care Recipient Controlling and Manipulative Behavior; CRS = Caregiver Resentment Scale.

Confounding Variables

Among AA caregivers, 61% were an adult child or other relative whereas only 36% of EA caregivers were an adult child or other relative. Studies that compare AA samples comprised mostly of adult children or other relatives to EA samples comprised mostly of spouses may produce results that do not reflect true ethnoracial differences. Findings from such samples may be more reflective of differences in kinship than of differences between races.

Spousal caregivers may be more vulnerable to psychological distress because they have less available social support (Pinquart & Sorensen, 2003), are more likely to have age-associated illnesses and disabilities (Schneider, Murray, Banerjee, & Mann, 1999), and report higher burden (Pinquart & Sorensen, 2003). For example, females who provided 36 or more hours of care per week to a disabled spouse were almost six times more likely than noncaregivers to report symptoms of depression (Cannuscio et al., 2002). In contrast, caregivers who provided the same level of weekly care to a sick parent were only twice as likely as noncaregivers to report depressive symptoms.

A two-factor multivariate analysis of variance (MANOVA) was conducted to investigate the possibility of an interaction between race and kinship on depressive symptoms, communal behavior, resentment, and controlling and manipulative behavior. A review of the correlation matrix (Table 19) revealed that the correlation coefficients between the dependent variables were neither too high nor too low (i.e., they were between .3 and .7; Maxwell, 2001). Box's Test of Equality of Covariance Matrices was significant ($p = .000$). Moreover, Levene's Test of Equality of Error Variances was significant for MCBS and CRCMB. However, MANOVA is robust to these violations if sample sizes are roughly equal (i.e., the *N* of the largest group is no more than 1.5 times the *N* of the smallest group; Leech, Barrett, & Morgan, 2004). In the current sample, the

groups met this criterion (187 AA and 247 EA for race; 230 spousal and 204 other relative for kinship).

The interaction between race and kinship on the combination of the dependent variables was not significant, Wilk's $\Lambda = .99$, F (4, 427) = 1.01, $p = .36$. The main effects for kinship, Wilk's $\Lambda = .98$, F (4, 427) = 2.6, $p = .03$ and race, Wilk's $\Lambda = .96$, F (4, 427) = 4.9, $p = .001$ were significant. Follow-up ANOVAs (see Table 20) indicated that kinship was related to three of the variables (resentment, depressive symptoms, and controlling and manipulative behavior) and race was related only to resentment. In terms of kinship, spouses reported less depressive symptoms, resentment, and CRCMB compared to other relatives. In terms of race, AAs reported less resentment. Means and standard deviations (SD) are shown in Table 21. The nonsignificant interaction between race and kin, however, demonstrated that the association between race and the outcome variables did not differ as a function of kinship.

Table 20

Effects of Race and Kinship on MCBS, CES-D, CRS, and CRCMB

Independent Variable	Dependent Variable	df	*F*	*p*
Kinship	MCBS	1	2.98	.09
	CES-D	1	4.87	.03
	CRS	1	5.08	.03
	CRCMB	1	8.95	.003
Race	MCBS	1	.96	.33
	CES-D	1	1.94	.17
	CRS	1	6.99	.008
	CRCMB	1	.59	.44
KinxRace	MCBS	1	1.76	.19
	CES-D	1	1.55	.21
	CRS	1	2.32	.13
	CRCMB	1	.15	.70

Table 21

Means and Standard Deviations for MCBS, CES-D, CRS, and CRCMB as a Function of Race and Kinship

		MCBS		CES-D		CRS		CRCMB	
Group	*n*	Mean	(*sd*)	Mean	(*sd*)	Mean	(*sd*)	Mean	(*sd*)
Spouses									
AA	73	33.71	(5.84)	12.29	(10.60)	30.60	(13.75)	2.99	(3.74)
EA	157	33.91	(5.45)	9.73	(8.67)	32.15	(13.49)	3.17	(4.18)
Other Relative									
AA	114	33.48	(5.13)	13.22	(10.02)	31.61	(13.55)	4.23	(5.65)
EA	90	32.16	(6.72)	13.07	(10.18)	37.34	(14.55)	4.78	(5.24)

Moderated Mediation

First, we tested whether resentment mediated the association between CRCMB and depression. Second, we examined whether mutual communal behavior moderated the mediation effect. We ran the analyses, separately, in the total sample, the AA sample, and the EA sample. In all analyses, we controlled for household income, caregiver age, caregiver education, caregiver sex, CR dementia status, and CR age. CRCMB, MCBS, and control variables were mean centered for moderation analyses.

Total sample. All conditions for establishing mediation were met. As shown in Figure 10, resentment fully mediated the association between CRCMB and depressive symptoms. More specifically, higher levels of CRCMB predicted more depressive symptoms largely to the extent that increases in CRCMB led to increased caregiver resentment. The test of the indirect effect of CRCMB on depressive symptoms through resentment was significant.

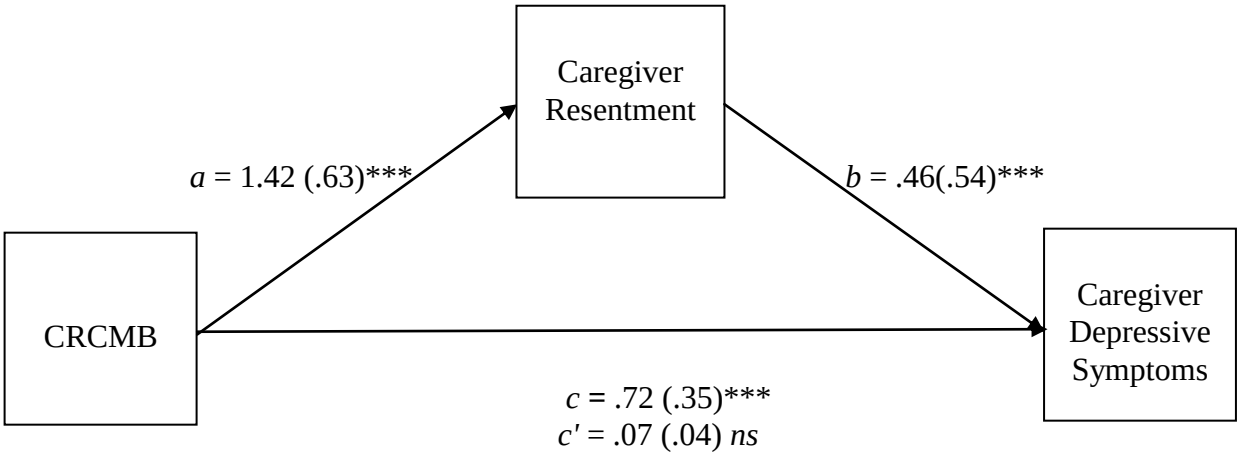

Figure 10. Mediating effects of resentment on the association between CRCMB and depressive symptoms in the total sample.

Note. CRCMB = care recipient controlling and manipulative behavior. *** $p = .000$.

Next, I examined whether mutual communal behavior moderated the mediation (see Table 22). CRCMBxMCBS was significant when resentment was the criterion. Thus, MCBS moderated the relation of resentment with CRCMB, indicating support for moderated mediation.

Table 22

Moderating Effects of MCBS in the Total Sample

	Resentment		Depression	
Predictors	*b*	*t*	*b*	*t*
CRS			.46	9.74***
CRCMB	1.41	15.43***	.13	1.20
MCBS	-.29	-04.04**	.04	.62
CRCMBxMCBS	.04	03.49**	.01	1.19

Note. CRS = resentment; CRCMB = care recipient controlling and manipulative behavior; MCBS = mutual communal behavior. *** $p = .000$. ** $p < .01$.

To illustrate the nature of the interaction, prediction lines for MCBS at low (one SD below mean), medium (sample mean) and high (one SD above mean) levels are shown in Figure 11 (Jose 2008). The association between CRCMB and CRS was strongest when MCBS was high and weakest when MCBS was low. The simple slopes were 1.6 for high, 1.4 for medium, and 1.2 for low, and all slopes were significant at $p < .01$. When CRCMB was low, caregivers in relationships historically characterized by less frequent mutual communal behavior reported more resentment ($M = 21.3$) compared with those caregivers in highly communal relationships ($M = 15.6$). When CRCMB was high, the strength of the communal relationship had very little effect on resentment.

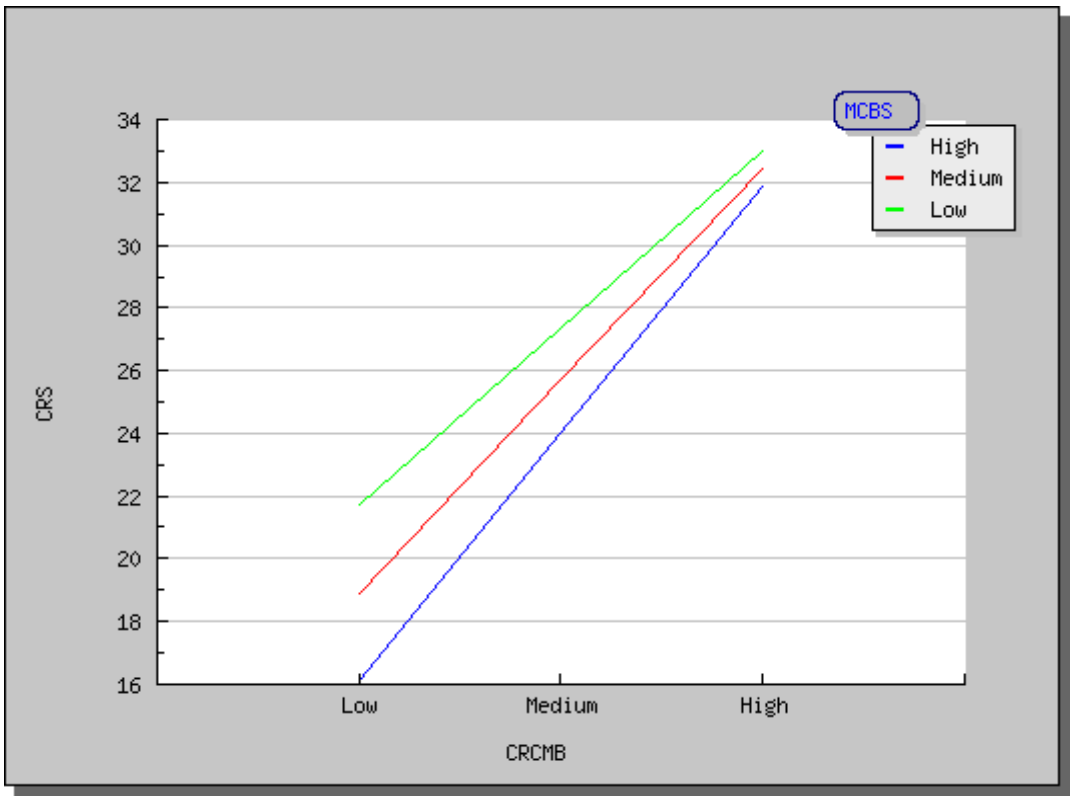

Figure 11. Effects of MCBS on the relation between CRCMB and CRS in the total sample.

Note. CRS = resentment; CRCMB = care recipient controlling and manipulative behavior; MCBS = mutual communal behavior.

The CRCMBXMCBS interaction was not significant when depression was the criterion and resentment was included in the model (see Table 22). Thus, mutual communal behavior did not moderate the mediated effect in the total sample. In other words, mutual communal behavior did not influence the indirect effect of CRCMB on depressive symptoms through resentment.

AA sample. All conditions for establishing mediation were met. Resentment fully mediated the association between CRCMB and depressive symptoms among AA caregivers (see Figure 12). The indirect effect was significant.

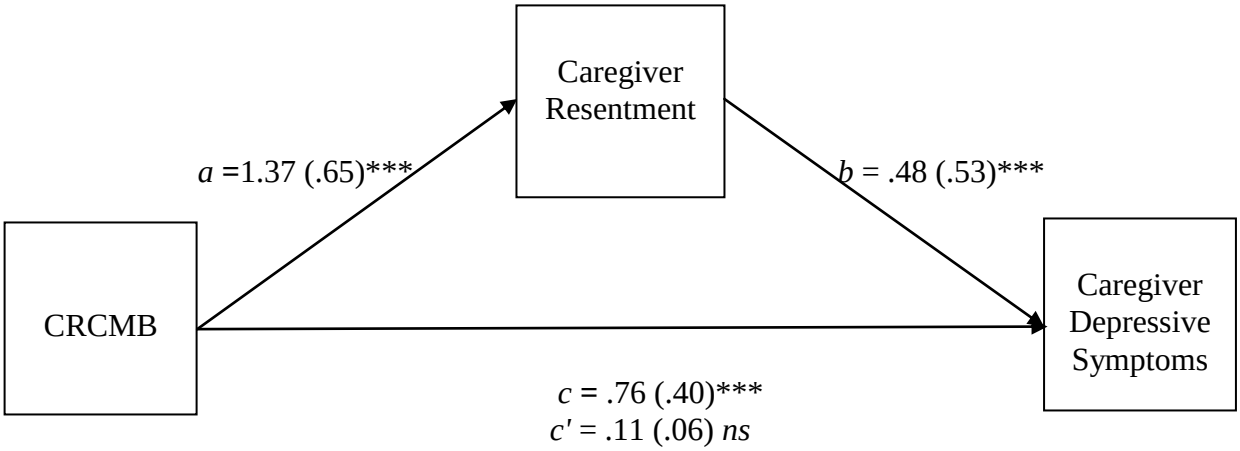

Figure 12. Mediating effects of resentment on the association between CRCMB and depressive symptoms in the AA sample.

Note. CRCMB = care recipient controlling and manipulative behavior. *** p = .000.

Mutual communal behavior did not moderate the relation of CRCMB with caregiver resentment since the interaction was not significant (b = 00.03, t(177) = 01.34, p = .18). Because the interaction effect was not significant, there was no need for further analyses with AA caregivers.

EA sample. All conditions for establishing mediation were met. As shown in Figure 13, resentment fully mediated the association between CRCMB and depressive symptoms. The test of the indirect effect of CRCMB on depressive symptoms through resentment was significant.

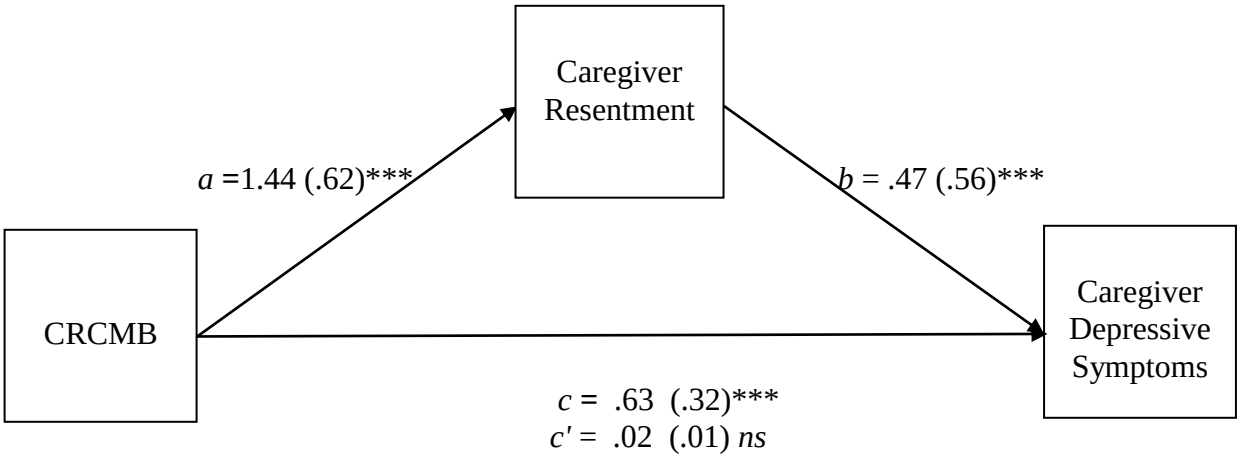

Figure 13. Mediating effects of resentment on the association between CRCMB and depressive symptoms in the EA sample.

Note. CRCMB = care recipient controlling and manipulative behavior. *** p = .000.

The results of moderation analyses are shown in Table 23. MCBS moderated the relation of caregiver resentment with CRCMB.

Table 23

Moderating Effects of MCBS in the EA Sample

	Resentment		Depression	
Predictors	*b*	*t*	*b*	*t*
CRS			.47	7.24***
CRCMB	1.55	11.52***	.07	.43
MCBS	-.24	-2.57*	.04	.37
CRCMBxMCBS	.06	3.99**	.01	.38

Note. CRS = resentment; CRCMB = care recipient controlling and manipulative behavior; MCBS = mutual communal behavior. *** $p = .000$. ** $p < .01$. * $p < .05$

As shown in Figure 14, the association between CRCMB and resentment (i.e., CRS scores) was strongest when MCBS was high and weakest when MCBS was low. The values for the simple slopes were 1.9 for high, 1.6 for medium, and 1.2 for low and all slopes were significant at $p < .01$. When CRCMB was low, EA caregivers in relationships with less frequent mutual communal behavior reported more resentment ($M = 23$) compared with those caregivers in highly communal relationships ($M = 16.7$). When CRCMB was high, mutual communal behavior had no effect on resentment among EA caregivers.

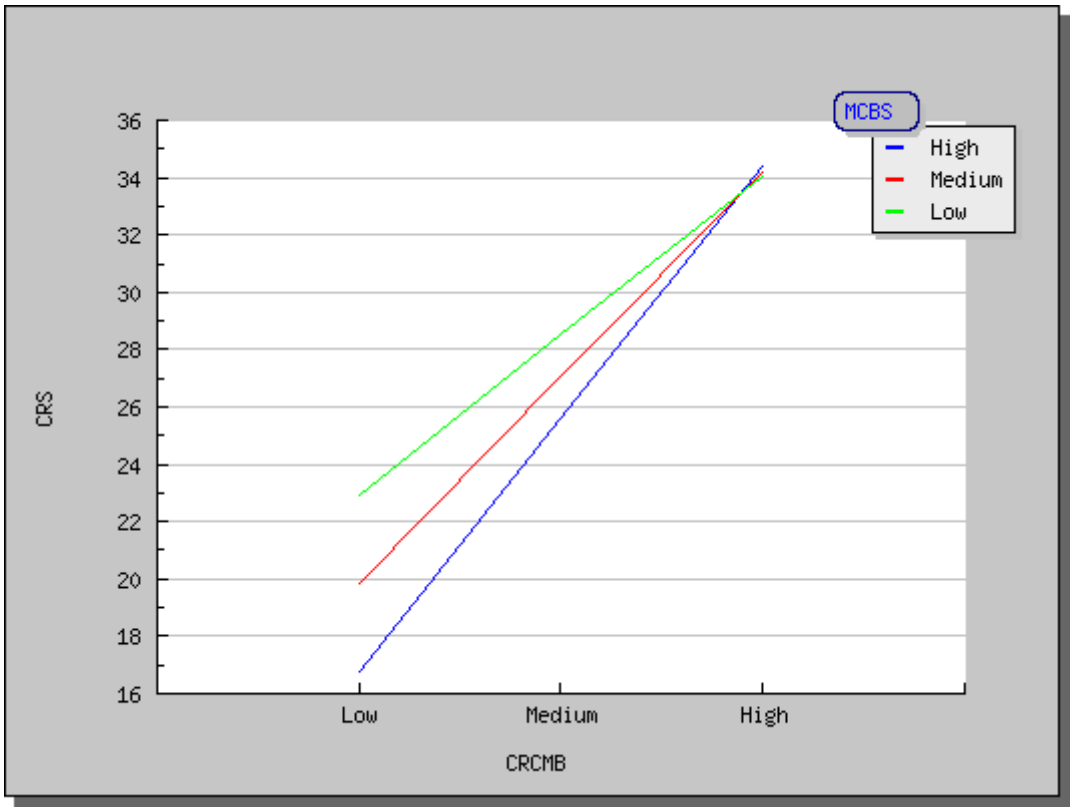

Figure 14. Effects of MCBS on the association between CRCMB and CRS in the EA sample.

Note. CRS = resentment; CRCMB = care recipient controlling and manipulative behavior; MCBS = mutual communal behavior.

The next step was to test the interaction effect when resentment was entered into the model. The interaction effect was not significant. Thus, mutual communal behavior did not moderate the mediation effect in the EA sample (see Table 23).

The final step was to test whether the moderated mediation differed according to race of the caregiver. However, since mutual communal behavior did not moderate the association between CRCMB and resentment in the AA model or the mediated effect in the EA model, we only tested whether race moderated the mediated effect.

The *a*, *b*, and *c*' paths in the AA model (see Figure 12) did not differ from the *a, b, and c'* paths in the EA model (see Figure 13). For example, path *a* =1.37 from AA model was not different from path *a* =1.44 from EA model. The z-tests for differences between paths a, b, and *c*' coefficients from the multi-group model were all less than |1.96|. Thus, *p*-values were greater than .05 for all three paths. In addition, the ΔCFI between the AA and EA models was smaller than .01, suggesting that the models were not different from each other. Total effects, direct effects, and indirect effects for total sample, AA sample, and EA sample are shown in Table 24.

Table 24

Total Effects, Direct Effects, and Indirect Effects for Total Sample, AA Sample, and EA Sample

Analysis	Total Effect CRCMB on CES-D	Direct Effect CRCMB on CES-D	Indirect Effect	Mediation
Total Sample	.72	.07	.65	Full
AA Sample	.76	.11	.65	Full
EA Sample	.70	.02	.68	Full

CHAPTER 7

DISCUSSION

Very rarely do caregiving researchers assess the equivalency of their measurement instruments when making cross-group comparisons. Therefore, there is concern that measurement artifacts may produce inaccurate interpretations of differences between ethnoracial groups. One goal of this research was to investigate the cross-ethnic equivalence of the four primary instruments used in this study.

Conceptual equivalence ensures that a concept or construct has the same meaning for two or more groups and is supported when measurement items demonstrate an equivalent number of factors and pattern of factor loadings among different subgroups (Crockett et al., 2005; Vandenburg & Lance, 2000). Metric equivalence suggests that an assessment procedure measures a concept equally well among different groups and is supported when the magnitudes of the factor loadings are invariant across groups (Crockett et al., 2005; Vandenberg & Lance, 2000). Scalar equivalence means that a given score on a scale has the same meaning between different groups. When, in addition to equal factor loadings, the intercepts of the indicators in the measurement model are equal between groups, scalar equivalence is supported.

Center for Epidemiological Scale – Depression (CES-D). Results from the baseline CFAs supported the original four-factor structure of the 20-item CES-D (Radloff, 1977) among AA and EA caregivers, indicating that both groups conceptualized depressive symptoms the same way. Moreover the CES-D scale had full metric equivalence. However, scalar equivalence was supported only after freeing three items ("People were unfriendly," "Everything I did was an effort," and "People dislike me). AAs had higher intercepts on all three items.

On one hand, intercept differences may reflect systematic response bias (Vandenberg & Lance, 2000). On the other hand, variant intercepts may reflect response threshold differences based on known group differences (Vandenberg & Lance, 2000). For example, the "effort" item is a somatic symptom of depression, and previous research suggests that AAs are more likely to report somatic symptoms (e.g., disruptions in sleep, appetite) than mood or cognitive symptoms (see Das, Olfson, McCurtis, & Weissman, 2006, for a review).

Disconcertingly, both items from the interpersonal construct ("unfriendly" and "dislike") needed to be freed in order to achieve partial scalar equivalence, leaving the interpersonal factor without any indicators. AAs were more likely to report that people were unfriendly and that people disliked them. Other researchers have reported measurement bias attributable to race for the two interpersonal questions (Boutin-Foster, 2008; Cole et al., 2000; Yang & Jones, 2007). Cole and colleagues suggested that, for AAs, the items were tapping into perceptions of racism instead of depression.

We revised the model, eliminating the "dislike," and "unfriendly items." Subsequent analyses revealed full configural and metric equivalence and partial scalar equivalence for the 18-item CES-D. Although AAs had higher intercepts on a few of the somatic symptoms items, the scores reflected expected group differences. Since there was at least one indicator per latent construct with equivalent factor loadings and intercepts, the 18-item, three-factor CES-D was valid for comparing depressive symptoms between AA and EA caregivers in this sample.

Care Recipient Controlling and Manipulative Behavior Scale (CRCMB), Mutual Communal Behavior Scale (MCSB), and Caregiver Resentment Scale (CRS). AA and EA caregivers conceptualized CR controlling and manipulative behavior, mutual communal behavior, and caregiver resentment in the same ways. Moreover, the factor loadings on the scales were the

same between the two groups, providing strong evidence that AA and EA caregivers interpreted the individual items similarly. The ΔCFI revealed no differences between the groups on item intercepts. Thus, there was support for full scalar equivalence on all three scales.

Our results yielded evidence that AA and EA caregivers conceptualized care recipient controlling and manipulative behavior, resentment, depressive symptoms, and mutual communal behavior in the same way. In addition, all four scales (CRCMB, MCBS, CES-D, and CRS) had equivalent factor loadings between the groups, providing support for metric equivalence. In terms of scalar equivalence (i.e., equivalent intercepts), the CRCMB, MCBS, and CRS had full scalar equivalence whereas the CES-D had partial scalar equivalence. Overall, the reliability coefficients, goodness-of-fit indices, and equivalency outcomes suggested that the instruments were useful for making comparisons between the AA and EA caregivers in this sample.

The second goal of this research was to examine the variables associated with caregiver depressive symptoms and whether there were differences between African American and European American caregivers. More specifically, the aims of this research were to determine whether: (a) resentment mediated the relation between care recipient controlling and manipulative behavior and depressive symptoms, (b) this mediation effect would vary according to the pre-illness communal strength of the caregiver-CR relationship, and (c) the moderated mediation effect would vary according to the race of the caregiver.

The results of these analyses suggest that, as expected, higher levels of care recipient controlling and manipulative behavior (CRCMB) may forecast more caregiver depressive symptoms and caregiver resentment. Furthermore, resentment mediated the association between CRCMB and caregiver depressive symptoms. More specifically, CRCMB predicted more caregiver depression largely to the extent that more CRCMB led to more caregiver resentment.

We did not find support for the hypothesis that the mediated effect would vary according to the strength of the communal relationship between the caregiver and CR; nor did we find differences between AA and EA caregivers in mutual communal behavior.

We were interested in this line of research since caregiving researchers, thus far, have not been successful in explaining the reasons why AAs perceive caregiving as less burdensome or more rewarding than did their EA counterparts. A few researchers (e.g., Kim et al., 2007; Dilworth et al., 2000) have examined the effect of culture, specifically, traditional values and familism, and found that it does not adequately explain AA caregivers more positive appraisals of caregiving. In response to this lack of empirical support, particularly with familism, Knight and Sayegh (2010) revised the sociocultural stress and coping model to indicate that cultural values do not influence caregiving outcomes through caregiving appraisals of burden (see Figure 1). Before abandoning culture, however, we wanted to test whether past mutual communal behavior would moderate the strength of the mediated relation between CR controlling and manipulative behavior with depressive symptoms via resentment. More specifically, we wanted to investigate the role resentment would play in explaining the association between CRCMB and depressive symptoms for caregivers with fewer displays of communal behavior compared to those with more frequent displays of communal behavior.

Although, as stated, the MCBS is not a cultural measure, the underlying premise of the theory of communal relationships is that, through the process of socialization, people develop norms about helping family members (Clark & Jordan, 2002; Shaffer & Williamson, 2006; Williamson & Schulz, 1995). For example, in Korean society, the cultural norm is for aging parents to live with their eldest son's family (Youn, Knight, Jeong, & Benton, 1999). In AA culture, the norm is to place great emphasis on community well-being and little emphasis on the

individual (Nobles, 1991).

Following the considerable literature suggesting that AAs are more likely to be enculturated with collectivistic values (e.g., Boykin et al., 1997; Jagers & Mock, 1995; Nobles, 1991), we expected that AA caregivers would have stronger mutual communal relationships with their CRs than EA caregivers. Therefore, we expected that resentment would play a smaller role in explaining the association between CRCMB and depressive symptoms among AA caregivers compared with EA caregivers.

Not surprising, and consistent with the sociocultural stress and coping model for caregivers, our results suggested care recipient controlling and manipulative behavior led to more resentment, which, in turn, led to more depressive symptoms. Surprisingly, however, the strength of the mediated effect did not change at different levels of mutual communal behavior. We expected that resentment would do a better job of explaining the relation between CRCMB and depression for low MCBS caregivers compared to high MCBS caregivers. Prior research suggests that caregivers in relationships historically characterized as low in mutual communal behavior report more burden which, in turn, predicts greater depressive symptomatology (Williamson & Schulz, 1995). In fact, in the current research, AA and EA caregivers with poor communal relationships reported more resentment than did those with stronger relationships. Nonetheless, mutual communal behavior did not change the strength of the mediated effect.

These results were unexpected for a number of reasons. First, Williamson and colleagues (2005) reported that caregivers resent distressing CR behavior when they attribute the behavior to the person rather than the illness situation. We expected that caregivers in relationships characterized as highly communal would attribute CR controlling and manipulative behavior to the person's illness and not the person's internal disposition and, therefore, experience less

resentment in response to these types of behavior. We have no way of knowing if high MCBS caregivers in the current sample made such attributions. However, it makes sense that caregivers who are in relationships where the partners historically tried to cheer each other up or enjoyed responding to each other's needs would be less likely to attribute CR distressing behavior to their partner's disposition. Second, Williamson and colleagues (1998) found that intimacy/loss of affection was a strong predictor of activity restriction, which in turn, was a strong predictor of depressed affect. They wrote:

> … the theory of communal relationships led us to anticipate meaningful individual differences in caregiver affective reactions to activity restriction. That is, caregivers in relationships historically high in mutual communal behavior were expected to focus on restrictions in intimate and affectional activities and to experience depressed affect over this loss. (p 14)

Similarly, we expected that caregivers in relationships historically high in mutual communal behavior would focus on feelings of loss, sadness, or grief when their CRs were manipulative and controlling. Therefore, we expected resentment to play a small; or nonexistent role, in explaining the association between CRCMB and depressive symptoms in this group. Perhaps, however, that is too much to expect, even in historically highly communal relationships. When it comes to manipulative, controlling, or self-centered behavior, even the most saintly caregiver may be hard-pressed to suppress resentful feelings.

Although our hypothesis that the indirect effect would depend on mutual communal behavior was not supported, the results of these analyses indicated that mutual communal behavior moderated the association between care recipient controlling and manipulative behavior and resentment. When CRCMB was low, caregivers in relationships historically characterized by less

frequent mutual communal behavior reported more resentment compared with those caregivers in highly communal relationships. However, when CRCMB was high, the strength of the communal relationship had very little effect on resentment. In other words, a strong pre-illness communal relationship served as a buffer against resentful feelings when care recipients engaged in smaller amounts of controlling and manipulative behavior but that was not the case when CRCMB was high. That finding illustrates that the communal bond between the caregiver and care recipient does not protect the caregiver from all negative outcomes, including feeling resentful when their care recipients engage in high levels of manipulative and controlling behavior.

Similarities and Differences between AA and EA Caregivers

As expected, AA caregivers reported less resentment than did EA caregivers. According to the revised sociocultural and coping model, lower levels of resentment could be explained by lower levels of care recipient controlling and manipulative behavior (CRCMB; Knight & Sayegh, 2010). However, AA and EA caregivers reported identical levels of CRCMB and the association between CRCMB and resentment was virtually the same in both groups. In addition, although AA caregivers reported less resentment, the role that resentment played in explaining the association between CRCMB and depressive symptoms was about the same in AA and EA caregivers. That is, race did not moderate the mediation effect.

Contrary to our prediction, the communal strength of the caregiver-CR relationship had no effect on whether resentment mediated the effect of CRCMB on depression in the AA model or the EA model. Interestingly, however, mutual communal behavior did moderate the relation between CRCMB and resentment in the EA group but not the AA group. Recall that when CRCMB was low, EA caregivers in relationships with less frequent mutual communal behavior reported more resentment compared with those EA caregivers in highly communal relationships.

When CRCMB was high, mutual communal behavior did not influence resentment scores. Thus, past mutual communal behavior protected EA caregivers against resentful feelings, at least when CRCMB was low. This finding was similar to other research (Lawton et al., 1992; Long-Foley et al., 2002) that found that culture appeared to aid EA caregivers' appraisals of caregiving more so than it did with AA caregivers. Lawton and colleagues reported that EA caregivers with strong traditional attitudes tended to report greater caregiver satisfaction and Long Foley and colleagues found that EA caregivers with more traditional beliefs reported more caregiving rewards. Thus, it appears that culture (indexed as traditional values and mutual communal behavior) is associated with better caregiving outcomes for EA caregivers.

With the exception of resentment, AA and EA caregivers had remarkably similar CES-D, CRCMB, and MCBS scores. First, the groups did not differ significantly in depressive symptoms. However, AA caregivers reported *slightly* higher depressive symptoms than EA caregivers. This result was unexpected since a considerable literature suggests that AA caregivers fare better psychologically than do caregivers from other racial groups (see Pinquart & Sorensen, 2005, for a meta-analysis). Several factors may have contributed to this finding. The AA caregivers in this sample reported poorer physical health and fewer financial resources than did their EA counterparts. Previous research suggests that poor health (e.g., Dilworth-Anderson et al., 1999) and lower socioeconomic status (Lorant et al., 2003) are related to more depressive symptoms. In addition, since almost 32% of AA caregivers in this sample reported that a child under the age of 18 resided in the home (compared to 4.9% for EA caregivers), they may have experienced more role strain due to competing demands for their time.

Second, as stated, caregiver reports of CRCMB did not differ between the groups. Interestingly, however, spousal caregivers (AA and EA) reported less CR controlling and

manipulative behavior than did nonspousal caregivers (see Table 21). Whether care recipients actually engaged in more controlling and manipulative behavior with nonspousal caregivers or whether nonspousal caregivers simply perceived more CRCMB is unknown. Nonetheless, the dynamics between nonspousal caregivers and their CRs are worth exploring.

Third, AA and EA caregivers did not differ in mutual communal behavior. In fact, as with CRCMB, the scores were almost identical. Since the MCBS is not a direct measure of culture, it may have failed to capture cultural differences that actually exist. Alternatively, different degrees of acculturation may have affected caregiver responses to the MCBS. Some AA caregivers may be moving away from collectivistic values and toward mainstream American individualistic values, aligning their scores on these types of measures more evenly with EA caregivers.

Although caregiving researchers have largely stopped using the "ethnicity as culture" approach (e.g., assuming that AAs are more communal without testing to see if they are, in fact, more communal), many still employ pan-cultural approaches by ignoring variations within ethnoracial groups. It would be interesting to test if AA caregivers who maintain strong ethnic identification endorse stronger communal values. Several empirical studies have documented links between ethnic identity and collectivism (Gaines et al., 1997; Parham & Williams, 1993; Plummer, 1996; Taylor & Rogers, 1993) and familism (Gaines et al., 1997). To our knowledge, no caregiving study has utilized a measure of ethnic identity in order to capture the different degrees to which people identify with their ethnoracial heritage.

Last, the effect of culture on behavior may change depending on context (Chiu et al., 2000). For example, cultures that are individualistic in one context (e.g., work, academics, sports) may be collectivistic in another (e.g., family obligations). EA caregivers in this sample may have more collectivistic values in the caregiving context, aligning their scores more evenly with AA

caregivers. Perhaps there are no different value orientations between AA and EA caregivers when it comes to taking care of family.

Of note, Kim and colleagues (2007) reported no relation between race and familism; however, there was one between low education and familism. Similarly, there was no association between race and MCBS in this study but there was a small, negative correlation between MCBS and education (see Table 19). That is, lower education was related to higher levels of mutual communal behavior. Education, therefore, may be a better variable to explain collectivistic/communal values than is race.

Limitations

There were several limitations to this study. First, geographical differences may have affected outcomes. For example, southern states tend to be more collectivistic and this may have affected results. In addition, the sample population was somewhat skewed towards the lower end of the socioeconomic strata (both in economic and educational terms) and may not represent issues pertinent to caregivers in higher socioeconomic groups. Third, the analysis was cross-sectional. Longitudinal data would allow the examination of the factor structures of the four scales across time for AA and EA caregivers as well as any changes in depressive symptoms or resentful feelings

Recommendations for Future Research

Borrowing from the sociocultural stress and coping model (see Figure 1), we suggest the following conceptual framework (see Figure 15) to guide future comparative caregiving research.

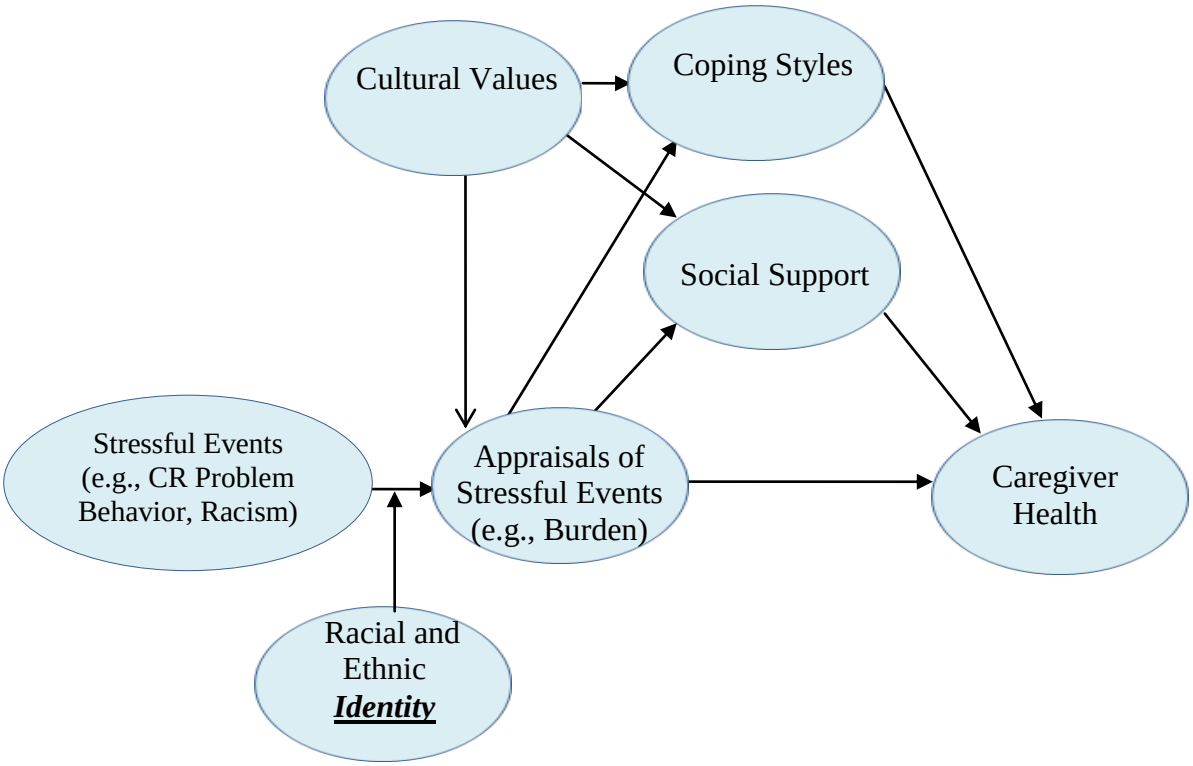

Figure 15. Adapted sociocultural stress and coping model for caregivers.

This model posits that the negative effects of stress on caregiver health are mediated by appraisals of stress, coping styles, and social support. Furthermore, cultural values (e.g., communal behavior) operate through influences on social support, coping styles, and caregiver appraisals of stress. The model hypothesizes that the relation between stress and health may change at different levels of racial and ethnic identity. For example, caregivers with less attachment to their ethnoracial group may report a stronger association between stress and depressive symptoms. As another example, appraisals of burden might mediate the association between stress and health among caregivers with strong ethnoracial identity but not for those with weak identity. Last, racial/ethnic identification may interact with culture. For example, AA caregivers that strongly identify with their African heritage may endorse strong communal

behavior.

An emerging literature suggests that racial and ethnic identities are important factors underlying health status (e.g., Pieterse & Carter, 2010). For example, AAs with strong ethnic identity report less severe sickle cell pain episodes (Bediako, Lavender, & Yashin, 2007), more awareness of risk factors associated with diabetes (Brezo, Royal, Ampy, & Headings, 2006), and lower depressive symptoms (Mandara, Gaylord-Harden, Richards, & Ragsdale, 2009).

In one sense, the caregiving literature has become increasingly more sophisticated in terms of assessing whether ethnoracial groups endorse certain cultural variables. Gone are the days of using phenotype as a predictor of behavior. In another sense, however, there has been very little effort to explore how closely aligned ethnic minority groups are to their respective ethnic identities. Recognizing the complexity of racial and ethnic identity may enlighten the mechanisms behind differential health outcomes.

Another variable that is missing and worth exploring in the caregiving literature relates to racism and discrimination. In AAs, exposure to discrimination is associated with hypertension and cardiovascular reactivity (Guyll, Matthews & Bromberger, 2001), cigarette smoking (Landrine & Klonoff, 2000), and alcohol use (Yen, Ragland, Greiner & Fisher, 1999). In terms of mental health, perceptions of discrimination negatively affect well-being (e.g., Williams, Yu, Jackson, & Anderson, 1997), self-esteem (e.g., Fisher, Wallace, & Fenton, 2000), and mental health (Kessler, Mickelson, & Williams, 1999).

Researchers should examine the association between caregiver health and everyday exposure to racism. Given the need to understand better the psychological and social determinants of health among AA caregivers, including their experiences with racism as a source of stress in caregiver theoretical models would be beneficial.

Finally, we suggest a more emic approach to measuring collectivistic values among AA caregivers. Emic approaches focus on understanding behavior from the perspective of the people within that culture (Gudykunst, 1997). Currently, caregiving researchers primarily use the etic approach to study collectivistic values among caregivers with diverse backgrounds. That is, they assume that the nature of collectivistic values is universal and that the instruments used to measure it should be the same. According to Schwartz and colleagues (2010), familism is a prevailing cultural value among Hispanic people, filial piety is a closely held cultural value among Asian people, and communalism is an important value orientation among individuals from the African diaspora. Thus, measures of familism and filial piety (as well as traditional values and mutual communal behavior) may not be capturing the essence of AA collectivistic values, attitudes, and beliefs. Therefore, it may be more appropriate to utilize an instrument specifically designed to assess African-centered collectivistic values. For example, Boykin and colleagues (1997) developed the Communalism Scale, which was designed specifically to "provide a foundation for the systematic study of the Afrocultural expression of communalism" (Boykin et al., 1997, p. 415). A limitation of the emic approach is that it does not allow for cross-cultural comparisons. However, emic approaches are "a necessary step prior to any valid cross-cultural analysis" (Chávez & Canino, 2005, p. 9).

Conclusions

As expected, AA caregivers reported less resentment than did EA caregivers. However, the answer as to why AA caregivers appraise caregiving differently than do EA caregivers remains elusive, as mutual communal behavior did not appear to influence AA caregiver resentment. It would be interesting to find out if cultural influences moderate or mediate caregiving appraisals among AA caregivers when they are measured with an instrument designed to capture African-

centric communal values.

Unexpected, was that AA caregivers reported slightly higher levels of depressive symptoms. This finding has important implications. In an attempt to obtain as representative a sample as possible, project staff from FRILL2 utilized age-targeted random digit dialing in the areas including and surrounding the data collection sites. Similarly, another study that utilized comparable methods to recruit AA and EA caregivers (Knight, Flynn Longmire, Dave, Kim, & David, 2007) found that AA caregivers did not report lower depressive symptomatology than did EA caregivers. In contrast, studies that recruited AA caregivers from churches and medical settings (e.g., Family Caregiver Research Project; Resources for Enhancing Alzheimer's Caregiver Health Study) found that AA caregivers reported less depressive symptoms. The findings from FRILL2 suggest that AA caregivers randomly selected from the general population may have different characteristics than do AA caregivers recruited from churches and medical settings. For example, there is ample evidence that well-being is higher among those who attend religious services (see Koenig & Larson, 2001, for a review). Thus, caregiving researchers should pay special attention to recruiting methods and their implications on caregiving outcomes.

Finally, to our knowledge, this is the first study in the caregiving literature that assessed the measurement equivalence of all instruments before testing a theoretical model. The findings from this research suggest that the instruments used in the caregiving literature, even if they are well-established (e.g., CES-D), may not be equivalent across various ethnoracial groups. Thus, caregiving investigators must be careful when making comparisons between ethnoracial groups without evidence of measurement equivalence.

FOOTNOTES

1. To standardize the latent factors, one indicator per factor was set to 1.00 when testing for metric invariance.

2. A second set of analyses was ran using a different indicator to standardize each latent factor. In all cases, the results were substantially the same.

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APPENDIX

Mutual Communal Behavior Scale

The following statements have to do with the type of interactions you had with (care recipient) BEFORE he/she became ill. For each statement, please indicate which response you feel most accurately describes how you and (care recipient) interacted BEFORE his/her illness began.

1. Never
2. Sometimes
3. Often
4. Always

1. If she/he was feeling bad, I tried to cheer her/him up.
2. She/he seemed to enjoy responding to my needs.
3. She/he did things just to please me.
4. When she/he had a need, she/he turned to me for help.
5. She/he went out of her/his way to help me.
6. She/he responded to my needs.
7. I enjoyed helping her/him.
8. I went out of my way to help her/him.
9. When making a decision, I considered her/his needs and feelings.
10. She/he would have done almost anything for me.

Caregiver Resentment Scale

The following statements describe situations that people sometimes resent when caring for someone who is ill. After I read each statement, please tell me how often you feel resentful of these situations.

1. Never 2. Rarely 3. Sometimes 4. Often 5. Almost always

(Thompson et al., 1995)

1. Not having enough time for yourself
2. Feeling unappreciated
3. Having your needs come second
4. Not having the same social life as before
5. Having to give up plans for the future
6. How much longer things take to do
7. Any change in (care recipient's) personality
8. How difficult it is to go anyplace
9. Having to care for someone who has health problems
10. Feeling responsible for (care recipient's) well being

Using the same responses, tell me how often YOU have the following feelings.

(Zarit et al., 1980)

11. (Care recipient) is overly dependent.
12. (Care recipient) makes requests of me that are over and above what he/she needs.
13. (Care recipient) expects me to take care of him/her as if I were the only person he/she could depend on.
14. I resent the time and effort I spend taking care of him/her.
15. (Care recipient) doesn't appreciate what I do for him/her as much as he/she should.
16. I feel trapped by my caregiving responsibilities.
17. I resent having to take on (care recipient's) responsibilities in addition to my own.

Care Recipient Controlling and Manipulative Behavior

(adapted from Steinmetz Control Scale, 1988)

Next, I am going to ask you some questions about behavior that people sometimes use in attempts to control things or get their own way. In the last MONTH, how often has (care recipient) behaved in each of these ways?

0. Never 1. Almost never 2. Sometimes 3. Almost always 4. Always

1. Pouted or withdrawn to his/her room
2. Manipulated family members (caused trouble between family members for his/her own purposes)
3. Used his/her illness to gain control
4. Tried to make you feel guilty, acted like a martyr
5. Didn't respect your opinions
6. Was self-centered (e.g., thought only about him/herself)
7. Invaded your privacy

Center for Epidemiologic Studies Depression Scale

Now I'd like to ask some questions about how you've felt more recently. Please indicate the response for each statement, describing about how often you have felt that way during the past WEEK.

0. Rarely or none of the time (less than 1 day)
1. Some or a little of the time (1-2 days)
2. Occasionally or a moderate amount of the time (3-4 days)
3. Most or almost all the time (5-7 days)

1. I was bothered by things that usually don't bother me.
2. I did not feel like eating; my appetite was poor.
3. I felt that I could not shake off the blues even with help from my family or friends.
4. I felt that I was just as good as other people.
5. I had trouble keeping my mind on what I was doing.
6. I felt depressed.
7. I felt that everything I did was an effort.
8. I felt hopeful about the future.
9. I thought my life had been a failure.
10. I felt fearful.
11. My sleep was restless.
12. I was happy.
13. I talked less than usual.
14. I felt lonely.
15. People were unfriendly.
16. I enjoyed life.
17. I had crying spells.
18. I felt sad.
19. I felt that people dislike me.
20. I could not get "going."