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# Stress and coping model for family caregivers of older adults

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**Stress and coping model for family caregivers of older adults**

by

**Anne Y. Branscum**

A dissertation submitted to the graduate faculty  
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Major: Human Development and Family Studies

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Ames, Iowa

2010

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**ABSTRACT**

This study was to evaluate the family caregiver experience using the ABC-X Model and data from the 2004 National Long-Term Care Survey in an effort to bridge the gap between caregiver research and practice. The impact of mediation is demonstrated through the progression of Model A, Model B, Model C, and Model D (Figures 1-4). Caregiver burdens of negative care receiver behavior, activities of daily living, and time spent caregiving will be used as predictor variables for caregiver stress. Caregiver stress is indicated by financial stress and emotional stress. It was hypothesized that the effect of caregiver stress on caregiver's perceived physical health and the effect of stress on life satisfaction would be mediated by coping behaviors and social support. However, mediation of these relationships was not supported.

The researcher also hypothesized that stress, coping behaviors, social support, physical health, and life satisfaction will differ based on characteristics of ethnicity, relationship to the care receiver, and gender. It was found that while model fit was similar for all subgroups, there were significant path coefficient differences indicating that overall, the caregiver experience has similar variables but that based on the caregiver's background characteristics, the caregiver experience is also unique. Implications are that programs should recognize these differences and address them in program evaluations and interventions with a focus on effective coping behaviors. It was recommended that future research continue to explore ways to bridge the gap between research and practice.



## INTRODUCTION

Due to advances in medical treatment, expanded longevity, and population growth, family caregiving is becoming a part of approximately 50 million American lives with continued increases expected over the next 40 years (National Family Caregiver's Association, 2009). Understanding the effects of caregiving for an older adult family member on the caregiver shapes the purpose of this study. However, as Proulx and Snyder (2009) state, many studies lack an evidenced-based foundation with limitations in generalizing outside of the specific study. The current empirical study extends research beyond the negative caregiver focus, which may limit findings and exclude possible research and intervention solutions (Ekwall & Hallberg, 2007). Further, the current study uses a theory that is applicable to research and practice so results may be used in both areas.

In part, the older adult population in the United States is changing due to the fact that the Baby Boomer generation, those born between the years 1946 and 1964, are entering older adulthood. It is estimated that by the year 2030, the older adult population will double to approximately 70-76 million as Baby Boomers begin to reach the age of 65 years. Eventually the age group of those 65 years and older will make up 20% of the population in the United States (Center for Disease Control and Prevention, 2007; Johnson, 1998). However, the changes are also due to the fact that there have been significant medical advances and as a result people are living longer. With these changes in aging trends, there will be an increasing need for more attention given to the older adult population which directly impacts family caregiving. Appropriate intervention and prevention programs are necessary to effectively and efficiently serve family caregivers and by extension, care receivers and their families.

In 1992, it was reported that approximately 42% of all 70-year olds were healthy and living independent lives and would live to be at least 85 years of age (O'Reilly). However, 75% of 85 year olds required at least some assistance (O'Reilly, 1992). In 2000, it was stated that the age group of 85 and older (i.e., the oldest old) had 3.7 million members and that it was expected to have a 3% increase per year (Del Campo, Del Campo, & DeLeon, 2000). As stated previously, these numbers are expected to experience a surge beginning as the Baby Boomers reach later adulthood. Contributing factors to the sudden increase include assistance with personal care, activities of daily living (ADLs), and/or nursing care. Therefore, family caregiving will continue to be an important role in assisting this growing population of older adults as they age.

The main purpose of this study is to better understand the caregiver and the caregiver's experience. As previously stated, prior family caregiving research lacks a theoretical framework specifically exploring family caregiving necessitating the development of a framework to direct future research (Mancini & Blieszner, 1989). In addition, this study provides a model based on theory and research to assist in bringing consistency and focus to the research area of family caregiving. This study also provides a model that can transition from research to practical implications.

Family caregiving offers many rewards, but also places unique challenges on caregivers in terms of psychological symptoms such as increased stress, anxiety, and depression. Caregivers also experience behavioral symptoms that affect physical health such as poor nutrition and decreased physical activity (Del Campo et al., 2000; National Center of Elder Abuse, 2002). Caring for an elderly family member demands a significant amount of energy from the caregiver placing them at risk for physical and mental health decline as a

result from the stress of caregiving (Haley et al., 2004; Proulx & Snyder, 2009). Previous research has indicated that negative effects of family caregiving can be decreased with social support and positive coping behaviors such as problem-focused strategies (e.g., reading about the disease process of the care receiver, Ekwall & Hallberg, 2007).

Although women tend to live longer, women tend to be less likely to remarry after widowhood or divorce than men. Because there are more female older adults, it is more likely for a care receiver to be a female older adult than a male older adult (Kinsella & He, 2009). The care receiver also tends to have fewer children than older adults that are not care receivers (Connidis, 2001). Older adults requiring family caregiving are also more likely to have a prior loss of a caregiver or partner and have lower income than older adults that do not require family caregiving (Chappell, 1992). This often translates to adult children caring for their mothers that are in need not only due to their physical condition but also financially (Connidis, 2001).

Previous research on the demographic variables of individuals who became caregivers yielded inconsistent results. Marks (1996) indicated that the demographic variables of gender, age, marital status, employment status, and education could be used to predict which participants were more likely to become family caregivers. However, in another study, it was found that gender, living proximity to care receiver, and unemployment status were predictors while family status such as being married or having children and level of education were not found to be predictors in this study (Pillemer & Sutor, 2006). There is a need for more consistent family caregiving research based on sound theoretical approaches. Although the proposed study does not address geographical proximity to care receiver or employment status, gender of the caregiver will be addressed.

The literature surrounding family caregiving may be inconsistent due to two types of caregiver burden as predictors: subjective and objective (Montgomery, Gonyea, & Hooyman, 1985). Objective caregiver burden refers to events and circumstances (e.g., time or money), whereas subjective caregiver burden refers to emotional reactions and attitudes (e.g., feelings of frustration or stress). Each of these burden types are unique, have different origins, and could yield very different results. While objective caregiver burden typically involves circumstances that are not going to be affected by treatment or intervention such as gender or ethnicity, subjective caregiver burden is more readily changeable. Caregivers with subjective caregiver burden may receive relief from service such as counseling, support groups, or respite care. Examples that might ease the burden on tasks include items such as handrails to assist the care receiver with bathing or assistive services to help reduce the amount of care provided by the caregiver such as with transportation. In a study of subjective and objective caregiver burden, multiple regressions were used to determine that time spent in caregiving and geographic constraints, such as having to live close to the care receiver to perform tasks on a daily basis, were found to contribute to the highest scores of objective caregiver burden (Montgomery et al., 1985). The main implication from this study is that individuals who are experiencing high levels of burden, regardless if the burden is objective or subjective, could benefit from respite services.

Caregiver burden refers to resources that are used and pressures created by the caregiver experience. The burdens are predictors of the amount of stress that a caregiver perceives to endure. It is assumed that if a caregiver has fewer caregiver burdens, the caregiver would also have less caregiver stress. As with any kind of chronic stress, caregiver stress has been found to be associated with a decrease in physical health and life satisfaction

(DiBartolo & Soeken, 2003; Pruchno, Kleban, Michaels, & Dempsey, 1990). However, the effects of stress on physical health and life satisfaction have been found to be mediated by coping and social support (House, Umberson, & Landis, 1988; McClendon, Smyth, & Neundorfer, 2004). In addition, the background of the caregiver (i.e., ethnicity, gender, or relationship to the care receiver) can influence the caregiver's experience. For example, it has been found that Caucasians reported higher levels of stress than African Americans (Hilgeman et al., 2009), women are more likely to report higher levels of stress than men (Koerner & Kenyon, 2007), and spouses are more likely to report higher levels of stress than adult children when it comes to caregiving (Kang, 2006).

### **Theoretical Approach**

Theories and frameworks from multiple perspectives, such as social exchange and attachment theory have been explored as a structure for understanding family caregiving (Antonucci, 1976; Mancini & Blieszner, 1989; Piercy, 1998). However, as Mancini and Blieszner (1989) state, “[With social exchange theory] it would seem that the intricacies of interdependence have yet to be captured.” Most of the past research in family caregiving has only addressed problems that arise during the course of the family caregiving, however, little research has addressed positive aspects or both positive and negative aspects of informal caregiving (Mancini & Blieszner, 1989). As Lundh (1999) reported, the caregiver situation includes not only the negative aspects of caregiving, such as burden, but also the positive aspects of caregiving, such as satisfaction. This means that more research is needed that uses more practical theories and includes both positive and negative caregiving experiences.

In 1949, Reuben Hill developed the ABC-X family stress model. The model has four main components: A (the stressor event), B (the resources or strengths), C (the perception of

or the meaning given to the stress), and X (the stress outcome). Originally, the model did not include coping behaviors as a resource, however, Hill and others have since included coping behaviors in the model because it is part of the systemic process of a crisis (Boss, 2002). The model proposed in this study is based on the ABC-X model. The variables placed in the structure of model are negative behavior of the care receiver, number of ADLs performed, and time spent caregiving (A), coping behaviors and social support (B), the perception or experiences of stress (i.e., financial hardship and emotional stress) (C), and the physical health of the caregiver and their life satisfaction (X). The ABC-X model was selected because it has the basic three components of stressors, mediators, and outcomes that are used in stress modeling (Boss, 2002). Another one of the reasons Hill's (1949) ABC-X model was selected for this study is that it was one of the first to use these components that are still used in stress and coping research. At times, research has been criticized for having a weak connection between empirical findings and practice application of findings (Hendricks, Applebaum, & Kunkel, 2010; Proulx & Snyder, 2009). Therefore, the ABC-X model was again the model of choice because of its versatility to be used in research but also making research results readily applicable to counseling situations as it is used to assess a family's perception and response to stress (Boss, 2002). In this study, the primary family caregiver is the subject of analysis. As Boss (2002) stated, to understand how the family processes stress, each member's experience must be known as the stress process can differ for each family member.

A progression series of the model will be used in this study to demonstrate the effects of mediation and to determine caregiver stress effects on caregiver physical health and life satisfaction. The model of interest will evaluate if coping behaviors and social support

mediate the relationship between stress and physical health and the relationship between stress and life satisfaction. The first step in Model A will address the caregiver burdens of negative behaviors of the care receiver (e.g., hitting others), the number of ADL tasks, and time spent caregiving on the outcome variables of physical health and life satisfaction (Figure 1). For Model B, these caregiver burdens are predictors of caregiver stress. Caregiver stress is assessed by financial and emotional stress (Figure 2). Model B will also evaluate the direct relationship between caregiver stress, physical health, and life satisfaction. Next in Model C, coping behaviors and social support will be evaluated to determine if there are indirect effects on the caregiver's perceived physical health and the caregiver's life satisfaction (Figure 3). The last model is Model D (Figure 4). Model C is nested in Model D. In addition, the paths from negative care receiver behaviors to physical health, from negative care receiver behaviors to life satisfaction, from ADL to physical health, from ADL to life satisfaction, from time to physical health, and from time to life satisfaction will be included. Then, this study will use the model of interest to explore the fit of the model given a number of background characteristics of the caregiver. For this study, background characteristics include ethnicity (i.e., Caucasian and African American), gender (i.e., male and female), and relationship to the caregiver (i.e., adult-child and spouse). SPSS and AMOS were used to evaluate all of the models in this study.

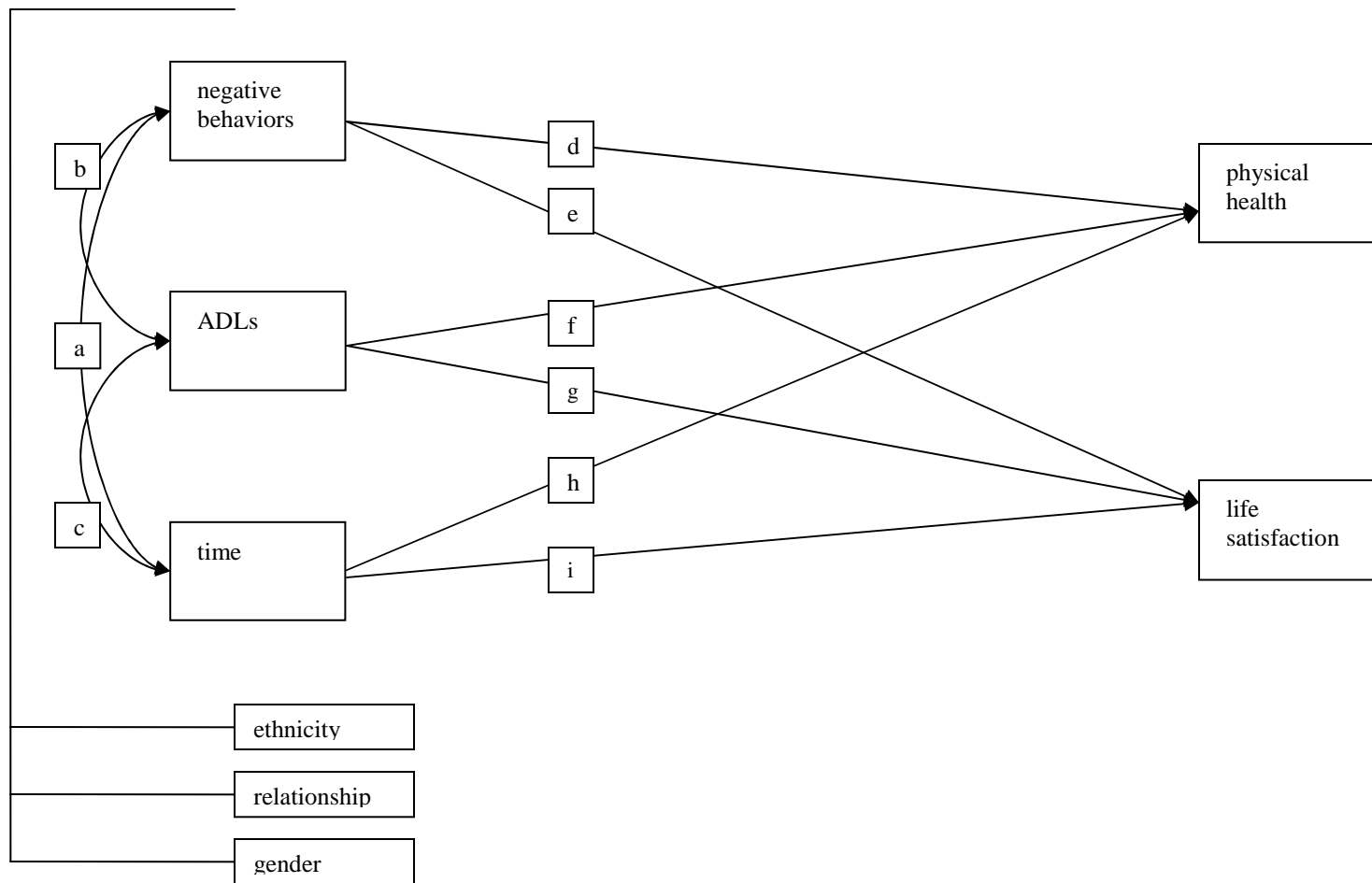


Figure 1. Model A.



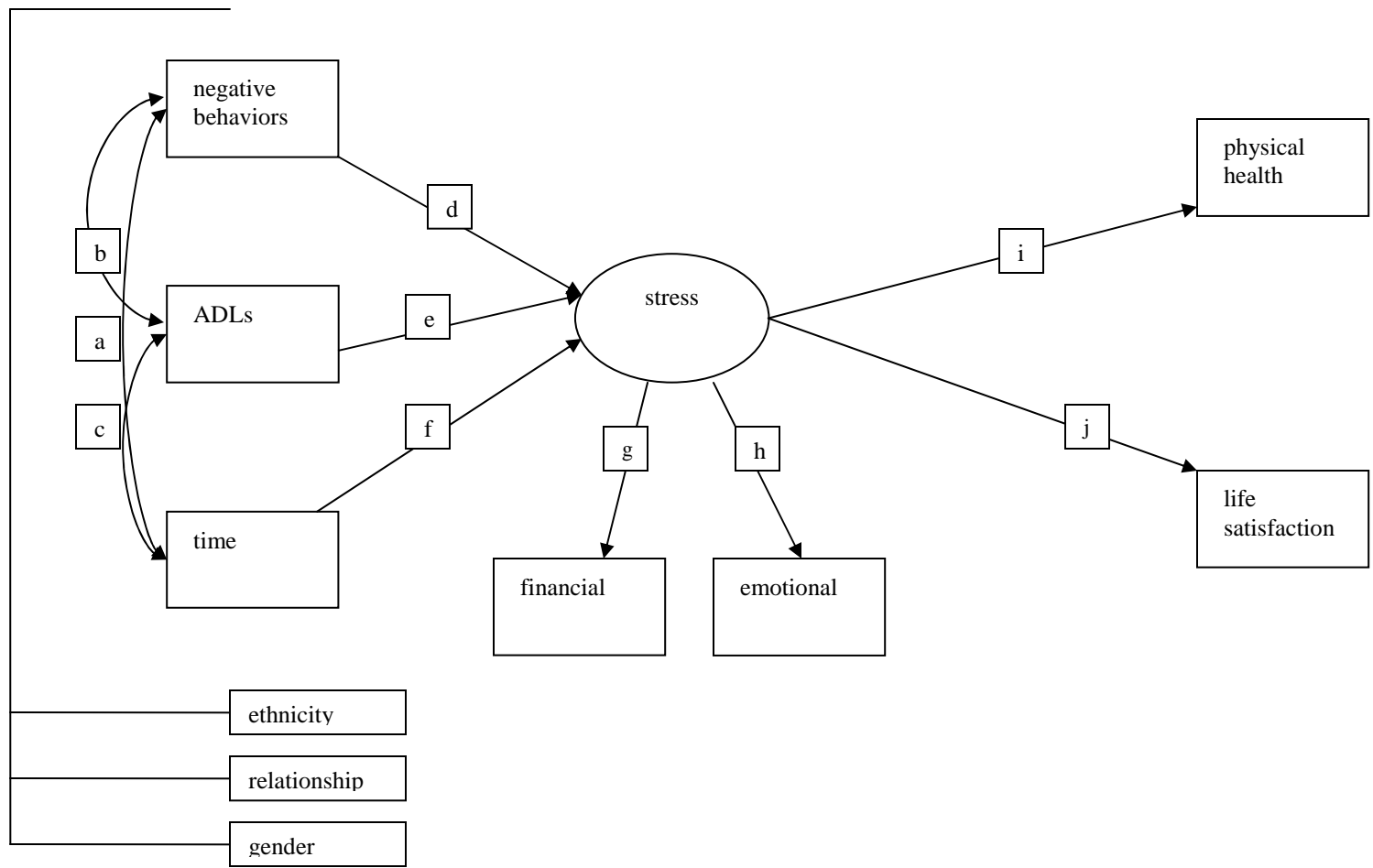


Figure 2. Model B.

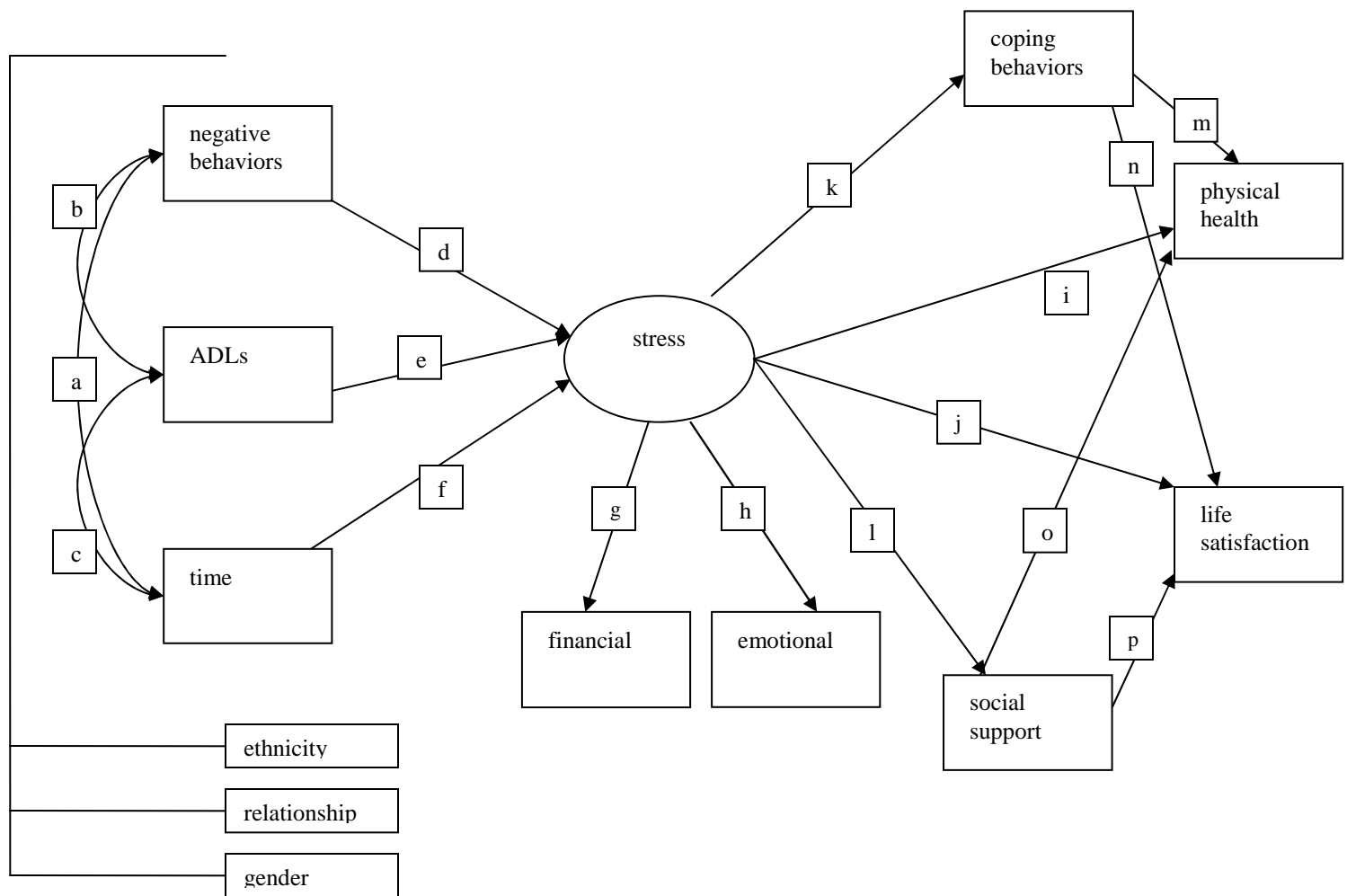


Figure 3. Model C.

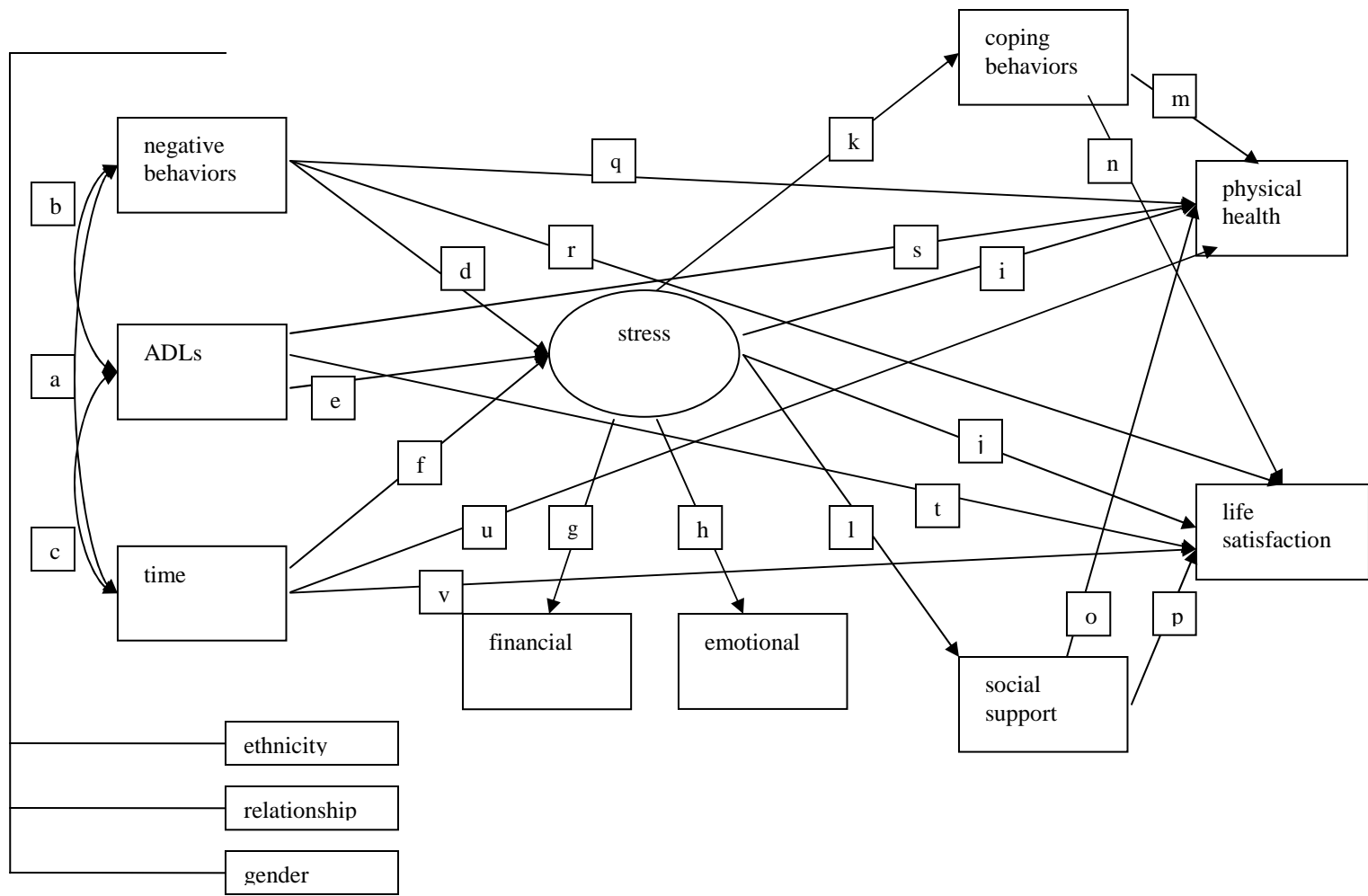


Figure 4. Model D.

## **LITERATURE REVIEW**

Embarking on the family caregiving experience leads to a variety of burdens not only for the care receiver, but for the caregivers as well. This can occur in the form of dealing with negative behaviors of the care receiver (e.g., destroying property), amount of ADLs that require assistance and time spent caregiving. The overall physical health and life satisfaction perceived by caregivers results from the relationships between stress and physical health and between stress and life satisfaction, mediated by coping behaviors and social support. Research supports that the significance of these variables will vary depending on the type of caregiver, such as ethnicity (i.e., Caucasian or African American), gender (i.e., male or female), and relationship (i.e., adult child or spouse) differences.

### **Ethnicity and Caregiving**

The knowledge from research about family caregiving and intervention incorporates awareness of diversity issues. The percentage of minorities in the elder adult population continues to grow and will reach approximately 25% of the total older adult population by 2030 (Kinsella & He, 2009). This indicates that there is an increased need for awareness and research on ethnicity and family caregiving issues. Much of the previous research has focused on only Caucasian female caregivers and has not provided information on the various groups of caregivers and the diversity of the groups including ethnic differences (Cantor, 1983; Dilworth-Anderson, Williams, & Gibson, 2002). To take into consideration the possible effects of ethnicity and the diverse intervention needs of the population of family caregivers, the variable of ethnicity within the current study aids in presenting a more complete picture of family caregiving.

As the elderly population is growing, it is also predicted that this demographic will have a changing ethnic profile. Currently, African American families and Hispanic American families have slightly higher rates of family caregiving than Caucasians (42%, 52%, and 41%, respectively) (Quadagno, 2005; National Center of Elder Abuse, 2002). This is in alignment with Connell and Gibson's (1997) finding that a sense of filial responsibility was higher for non-Caucasian families than for Caucasian families. This means that there will be an increasing need for more services to be available to and targeted for ethnic minority caregivers and care receivers (Eisdorfer et al., 2003; Knight, Kaskie, Shurgut, & Dave, 2006).

Previous research indicates size and function of the caregiver network varies with ethnicity. Although some research indicates that African Americans have the same number of people in their caregiver network (Burton et al., 1995), other results indicated that African Americans had less help within their caregiver networks than Caucasians (Norgard & Rodgers, 1997). However, most research consistently suggested that African Americans received less support even though the actual number of caregivers in an African American care receiver's support network was higher than that of Caucasian care receivers (Norgard & Rodgers, 1997). Caucasian care receivers were more likely to have spouses as caregivers than other ethnic groups while non-Caucasian care receivers were more likely to rely more on adult children or others outside of the immediate family (Norgard & Rodgers, 1997). Caucasian care receivers had also reported receiving higher amounts of assistance from family and formal support services than African American care receivers (Norgard & Rodgers, 1997). In an analysis of articles between 1980-2000 regarding ethnicity and family caregiving of non-institutionalized older adults, it was found that the majority of articles

suggested that Caucasian care receivers had less diversity in their social support networks than other ethnic groups (Dilworth-Anderson et al., 2002). For example, while Caucasians only tended to turn to family members for support or formal support services, non-Caucasians utilized other informal support in the community (e.g., neighbor or fellow congregation member) (Dilworth-Anderson et al., 2002). Although most non-Caucasian care receivers have reported a greater need for formal support services, it was found that non-Caucasian care receivers were not significantly utilizing formal support services as often as Caucasian care receivers (Dilworth-Anderson et al., 2002).

A qualitative research study using focus groups targeted African American caregivers ( $n=129$ ) between the ages of 58-89 years old and compared the differences between urban ( $n=72$ ) and rural ( $n=57$ ) caregiving (Mbanaso, Shavelson, & Ukawuilulu, 2006). The majority of the urban African American caregivers were not family members while the majority of the rural African American caregivers were family members. Mbanaso and colleagues (2006) noted that spirituality was used as a coping mechanism by many of both the urban and rural caregivers and that spirituality may be a unique coping strategy of African American caregivers. Rural African American caregivers were noted to be at a disadvantage due to poorer health, less respite services available, and more isolation both physically and emotionally compared to urban African American caregivers.

Hilgeman and colleagues (2009) tested if race was a moderator when evaluating stress in Caucasian and African American caregivers. Participants for this study were selected from the Resources for Enhancement of Caregiver's Health (REACH) II project. The results indicated there were significant differences between Caucasian and African American caregivers. Intrapsychic strain (i.e., negative emotions), such as depression, were

more likely found with Caucasians. Therefore, Caucasians were noted to be more likely to benefit from services that address how to cope with intrapsychic strains (Hilgeman et al., 2009). However, results from this study indicated that African American caregivers would more likely benefit from services that reduced role strain, such as respite services (Hilgeman et al., 2009).

Knight and Sayegh (2010) have developed a model exploring caregiver burden, physical health, cultural values, coping mechanisms, and social support (Knight & Sayegh, 2010). As suggested in previous research, this study also found that problem-focused coping (e.g., seeking advice) decreased depression and reduced caregiver strain while emotional-focused coping (e.g., compulsive eating) was not found to be helpful and predicted to even further decrease mental health outcomes (Knight & Sayegh, 2010). African American caregivers reported fewer burdens than Caucasian caregivers which may be linked to Caucasian caregivers' likelihood of caring for a spouse (Knight & Sayegh, 2010). As noted by Cantor (1983) spousal caregiving has been found to be a more burdensome caregiving circumstance than other relationship situations due to advanced age and physical health of the spousal caregiver.

Dilworth-Anderson and colleagues (2002) found that 5 of the 9 family caregiving and ethnicity studies between 1980-2000 reported higher caregiver burden for Caucasians than African Americans. Similar to these findings, it has been found that African American caregivers used more emotion-focused coping while the non-African American (i.e., White, Hispanic, & Asian/Pacific Islander) caregivers used more problem-focused coping (Knight, Silverstein, McCallum, & Fox, 2000). Knight and colleagues (2000) also found that caregivers with higher emotion-focused coping reported increased amounts of caregiver

stress. However, 4 of the 9 studies evaluated by Dilworth-Anderson and her colleagues (2002) found no significant difference in caregiver burden based on ethnicity. This again indicates inconsistencies within the literature of family caregiving. This may be due to low participation rates on non-Caucasian ethnic groups in studies (Dilworth-Anderson et al., 2002). This study will further explore the relationship between ethnicity and caregiver burden, stress, and coping with the intent to help clarify the current inconsistencies in the literature.

Due to differences between Caucasian caregivers and African American caregivers already found in literature, it is predicted that Caucasian caregivers will have more caregiver stress, but also more coping behaviors and more social support than African American caregivers (Hilgeman et al., 2009; Knight et al., 2000; Norgard & Rodgers, 1997). It is expected that although the direction of significance will be the same, the amount of the significance of the paths will be higher for Caucasian caregivers.

### **Adult Child and Spousal Caregivers**

Although spouses are the most common type of family caregiver, adult children also play a significant role in family caregiving. Adult children provide over one-third of the daily support to older adults (Aldous, 1994). Cantor (1983) found that adult child caregivers were more often female, married with children, working outside of the home, and had higher incomes than spousal caregivers. However, others have found that adult child caregivers were more likely to be an unmarried daughter who may or may not have children and/or a career (Hines, Jordan, & Farkas, 1996). Eighty percent of older adults over the age of 65 have contact with at least one child every week (Chappell, 1992). Parent-child co-residency occurs in 16% of older adults over the age of 60 (Connidis, 2001). Gender of the parent and



gender of the adult child caregiver have been found to influence the parent-child relationship. Overall, adult children have reported being closer to their mothers than fathers. Both daughters and mothers reported having the closest parent-child relationship (Connidis, 2001). Sons and fathers reported the most emotionally distant parent-child relationships (Rossi & Rossi, 1990). These results indicate that primarily daughters are caring for their mothers, which are the most common of adult child family caregiver arrangements (Connidis, 2001).

Adult child family caregivers may also have taken on the role for personal or more self-centered reasons other than the care of their parent. Some adult children may have taken on the role as primary caregiver with intentions of becoming closer to their parent even though they were not perceived as the parent's "favorite" child (Albert, 1990). They may have done this by taking an active interest in their parent's well-being or preparing his or her household prior to a need of active caregiving in hopes that they would become the primary caregiver. This also may have caused other siblings not to take as much of an active role in caregiving as they may feel they were not as needed (Albert, 1990). Other adult children have reported stepping into the caregiver role out of a sense of duty felt toward a parent (Walker, Pratt, Shin, & Jones, 1990). Burr and Mutchler (1999) found in a study of African American adult children caregivers ( $n=353$ ) and Caucasian adult children caregivers ( $n=1,180$ ) that African American adult children had stronger beliefs of filial responsibility. Further Burr and Mutchler (1999) found that African American adult children caregivers were significantly more likely to respond that they felt it was their filial responsibility to take a parent into their home and also to provide financial assistance to a parent who was in need. These findings are consistent with Connell & Gibson's (1997) research of ethnicity and sense of filial responsibility discussed previously.

According to Cantor (1983), spousal caregivers are at the highest risk for a negative caregiver experience compared to adult child caregivers because spousal caregivers have the least amount of household income and were most likely to have their own health problems due to their advanced age. Regarding physical health, 84% of spousal caregivers self-rated their health as fair to poor. More than half of the male spousal caregivers were caring for their wives in households with no other residents, making the caregiver more likely to be susceptible to isolation and stress (Cantor, 1983). Cantor stated that others outside the home may have viewed spousal caregiving as a necessary duty that is a part of marriage while family caregiving as an adult child may be viewed as making a sacrifice and going beyond what children are expected to do for a parent (1983). Others reported that because of the differences in these views between adult child and spousal caregivers, adult children caregivers often received more social support than spousal caregivers (Pearlin, Lieberman, Menaghan, & Mullan, 1981).

Cantor noted that both spousal caregivers and adult child caregivers were equally likely to report emotional strain (1983). This is consistent with Kang's (2006) more recent finding that adult children and spouses do not differ significantly in the amount of emotional strain reported. However, Kang (2006) also reported that this may indicate that adult child caregivers are able to cope with the caregiver experience better than spousal caregivers. Other factors that Cantor (1983) found to influence caregiver strain were the family perception of duty to family members, time spent caregiving, and type of caregiving. Results indicated that all family caregivers could benefit from emotional based interventions, while spousal caregivers were more likely to benefit from financial interventions than adult child caregivers. Caregivers that spent greater amounts of time performing caregiver duties such

as spouses or co-resident adult children would benefit more from respite services. Adult children would benefit the most from flexible work policies as adult children were more likely to work outside the home than spousal or other types of caregivers (Cantor, 1983). The proposed study will compare adult caregivers and spousal caregivers on stress and coping behaviors to gain clarification presented in previous research such as Kang's (2006) finding of how adult child and spousal caregivers do not differ significantly on emotional strain but adult child caregivers cope better.

Although it is noted by Cantor (1983) and Kang (2006) that adult child caregivers and spousal caregivers do not differ on stress, research indicates evidence that physical health and social support is less for spousal caregivers than adult child caregivers (Kang, 2006; Pearlin et al., 1981). Therefore it is predicted that the path between stress and physical health, and the path between stress and social support will differ in significance and be higher for adult child caregivers than spousal caregivers as outlined in hypothesis 1b.

### **Men and Women Caregivers**

Research has indicated that women emotionally, financially, and socially experience caregiving differently than men. It has been found that women were more emotionally invested in caregiving and women had more variation in their perception of caregiver burden on a day-to-day basis (Koerner & Kenyon, 2007). Also, research indicates that women are in better physical health and maintained higher levels of socialization outside of caregiving (DiBartolo & Soeken, 2003). However, men were more satisfied with the role of caregiving than women (Broe et al., 1999; DiBartolo & Soeken, 2003; Ekwall & Hallberg, 2007). Ekwall and Hallberg (2007) noted that men were more likely to be experiencing caregiving for the first time compared to women and therefore, experienced more personal growth in the

role of family caregiver than women caregivers. This was consistent with findings from Collins and Jones (1997) who reported that men experience greater purpose in life through family caregiving than women. In addition, it appears men and women differed in coping with family caregiving. Pearlin and Aneshensel (1988) reported that women were more likely to verbally express depressed feelings where as men were more likely to use drinking as a coping behavior. However, DiBartolo and Soeken (2003) reported that there were no differences between male and female caregivers' coping strategies. Therefore, it is important that gender and coping behaviors in family caregiving are explored more fully.

Mui (1995) found that female spousal caregivers experienced more emotional and financial role strain than male spousal caregivers. In a study of family caregivers, Mui (1995) also found that female spousal caregivers have increased emotional strain, increased conflicts in personal and social life, and decreased respite support than male spousal caregivers. Male spousal caregivers were found to have poorer physical health than female spousal caregivers (Mui, 1995). This is consistent with more recent research also indicating that male caregivers have poorer physical health (Koerner & Kenyon, 2007). However, Mui (1995) found no predictors of physical strain for male spousal caregivers. Physical strain predictors of female spousal caregivers were being of Caucasian ethnicity, depressive symptoms and behavior problems of the care receivers. Mui (1995) found that predictors of financial strain for male spousal caregivers were lower demand of caregiving role and poorer perceived physical health. Predictors of financial strain for female spousal caregivers were being of Caucasian ethnicity, decreased income, and poor quality of caregiving relationship.

In a study of 978 caregivers comparing the costs and rewards of family caregiving, it was found that women caregivers sacrifice more (Raschick & Ingersoll-Dayton, 2004). Such

sacrifices include enduring more financial hardships to perform caregiving duties than men. Raschick and Ingersoll-Dayton (2004) also found that adult children received more rewards, such as praise from others for family caregiving than spouses who perform the same duties. This is consistent with Cantor's (1983) findings that adult children caregivers receive more support than spousal caregivers. Raschick and Ingersoll-Dayton (2004) reported that care receivers that were rated high in helpfulness were found to be more beneficial to caregivers who were spouses than adult children caregivers. Findings indicated that the caregivers' characteristics (e.g., gender) may make a difference in how others perceive their caregiving responsibilities (Raschick & Ingersoll-Dayton, 2004).

As previous research indicates, female caregivers have more stress, more social support and better physical health but less life satisfaction than male caregivers (DiBartolo & Soeken, 2003; Ekwall & Hallberg, 2007; Koerner & Kenyon, 2007; & Mui, 1995). Therefore, it is predicted that male and female caregivers will differ in significance of these paths as outlined in hypothesis 1c.

Dilworth-Anderson and colleagues (2002) stated that studies using path analysis should not only evaluate goodness of fit for the whole sample but for each ethnic or gender sub-grouping to determine if one ethnic or gender group skewed the results for the entire sample. The intent of this proposed study is to further explore that notion. The model will be used to compare Caucasian caregivers and African American caregivers (hypothesis 1a), spousal caregivers and adult child caregivers (hypothesis 1b), and male and female caregivers (hypothesis 1c).

### **Negative Care Receiver Behaviors**

As stated by Pearlin and Aneshensel (1978), people perceive and experience stress in a multitude of ways. At times, just like economic strain, caregiver emotional burden could lead to negative outcomes such as abuse. A study by Lee (2009) of 279 family caregivers, using Hill's (1949) ABC-X model as a framework, found a significant relationship between emotional burden and elder abuse. The ABC-X model utilized family stress theory concepts of stress leading to a crisis or an event and how the stress was mediated by resources and perception of the situation. The results of this study indicated that the increased stressors such as increased cognitive impairments of the care receiver increased caregiver burden and negative behaviors of the care receiver (Lee, 2009). Caregivers of care receivers with high levels of depression or behavioral disturbances were significantly more likely to report increased levels of subjective burden. Care receivers with higher levels of walking disturbances and sleep disruptions also had caregivers with higher levels of subjective burden (Donaldson, Tarrier, & Burns, 1998).

### **ADLs**

ADLs are used as indicators of how involved caregiving is for the caregiver. The more assistance the caregiver is providing with ADLs, the more intense caregiving is (Edward & Scheetz, 2002). ADLs can vary in skills required to complete tasks, such as helping the care receiver to get dressed to transportation (i.e., knowing how to drive and how to get to destination). There are several measures used to evaluate ADLs including the most popular scales of Lawton and Brody's IADL scale (1969) and Katz' ADL scale (1983). Many of these instruments measure basic physical ADLs (e.g., eating) and instrumental ADLs or IADLs (e.g., managing money). For this study, both ADLS and IADLS were used

and the total of ADLs that a caregiver assisted the care receiver with in the past week was added together for a total sum ranging from 0 to 16.

**ADLs and time.** Most studies use hours per week to measure the time spent caregiving. As noted previously, on average, family caregivers spend 6 to 10 hours per week caregiving but can range for 1 hour per week to 168 hours per week (Quadagno, 2005; National Center of Elder Abuse, 2002). Although not all ADLs require the same amount of time to perform, it is expected that the more ADLs that a caregiver performs, the more time was spent caregiving (Edwards & Scheetz, 2002). ADLs such as giving medication or injections may take a few minutes per week while other caregiving tasks such as transportation and grocery shopping may take several hours per week (Edwards & Scheetz, 2002). Further, it has been found that assisting in ADL tasks that require greater amounts of time were also perceived as more burdensome than those that require less time (Montgomery et al., 1985).

**ADLs and financial hardship.** In a spousal caregiving study by Edwards and Scheetz (2002), it was found that performing more ADLs was significantly correlated with increased financial burden. Caregivers in households that had less than \$25,000 in annual income performed more ADLs than caregivers in households that had \$25,000 or more in annual income. It was noted in this study that income may have decreased as the care receiver was less able to work and at the same time required more help with ADLs. Also, as the care receiver's impairments increased, the caregiver may have had to take more unpaid time off work to provide care. In addition, households that are higher in income and have less financial stress may be more able to afford formal social support services (e.g., home health aide) that would assist with ADLs.

**ADLs and emotional stress.** Beach and colleagues (2005) found that care receivers that needed more assistance with ADLs had caregivers that had significantly increased acts of frustration, such as verbal outbursts or harsh communication. They also found that there were significantly more caregiver acts of frustration among spousal caregivers compared to non-spousal caregivers. Some researchers suggested that the type of caregiving (i.e., which ADLs are performed) matters less than the amount of time actually spent providing the care (Pearlin, Pioli, & McLaughlin, 2001). However, not all ADLs are perceived by caregivers as having the same amount of burden associated with them. ADLs that require personal contact, such as toileting or bathing, are likely to be reported as more burdensome than those that do not require personal contact, such as cooking or cleaning (Montgomery et al., 1985).

### **Time**

Due to medical advances, more people are living longer causing some caregivers to care for more than one generation. Caregiving can be a lengthy process (Pearlin et al., 2001). Typically, caregiving lasts for 5 to 7 years with an average of 6 to 10 hours per week of direct care but can range up to 10 to 30 hours per week or even up to 24 hours, 7 days a week care (National Center of Elder Abuse, 2002; Quadagno, 2005). Caregiving can be challenging especially for those who have careers and other family members to attend to and provide care for.

**Time and financial hardship.** Pearlin and colleagues (2001) emphasized the importance of the amount of time spent caregiving in their study of 124 adult children providing care to a parent. The increased amount of time spent in caregiving depended on a lower number of roles in one's life, having a lower financial status, and reduction of hours of work at a job. As stated previously, adult child caregivers were found to be more likely to



take time off work to provide caregiving than spousal caregivers (Cantor, 1983). In addition, family caregiving can result in a loss of income or delayed job advancement (e.g., promotions) (Ranchor, 1998).

**Time and emotional stress.** As stated previously, female caregivers are more likely to spend more time in caregiving, however, they are also more likely to express stress due to the caregiving experience (Koerner & Kenyon, 2007). Research indicated that those that provide more hours of care are more likely to report increased emotional stress (Jenkins, Kabeto, & Langa, 2009). For this study, the amount of time that a caregiver provides care in a week is used as an predictor of stress. However, longitudinal data will be used to determine if stress of the caregiver changes over time.

### **Stress**

**Financial hardship.** It has been reported that 25% of families in the United States have participated in family caregiving for elder family members within the past 12 months (Kinsella & He, 2009). For most of that time, families were the primary caregivers for their elderly members. Eighty to ninety percent of the eldercare in the United States was provided by the family with 22.4 million people participating in caregiving, or approximately one-fourth of the households (Brody, 1995; Ranchor, 1998, Robertson, Zarit, Duncan, Rovine, & Femina, 2007). Out of pocket costs may include such necessities as medical bills, transportation, food, & housing (McGuire, Anderson, Talley, & Crew, 2007). McGuire and colleagues (2007) noted that the cost of family caregiving in 2004 was estimated at \$306 billion and that it was expected to be higher in future years.

As stated previously, financial burden often accompanies family caregiving resulting in increased absenteeism, decreased job performance, lost wages, and delayed promotions

experienced by family caregivers when compared to non-caregivers (Ranchor, 1998).

Rachick and Ingersoll-Dayton (2004) reported that women's employment allowed for more flexibility than men's employment for time needed for caregiving. However, other studies indicated that daughters had fewer resources, had more work interruptions due to caregiving, and gave more intensive support, such as socioemotional and household support, than sons and therefore experienced more caregiver stress (Kramer & Kipnis, 1995; Mui, 1995).

Ethnicity has also been found to affect financial burden in family caregiving. Researchers found that African American caregivers that had increased income also reported significantly more caregiver difficulties than their Caucasian counterparts that had increased income (Lawton, Rajagopal, Brody, & Kleban, 1992).

**Financial hardship and social support.** George and Gwyther (1986) found that overall caregivers ( $M=9.09$ ) rated their financial status to be higher than non-caregivers ( $M=6.47$ ). However, it was reported that caregivers that had reported higher financial burden also reported a higher need for social support. In addition, it was noted that of the caregivers, spousal caregivers reported the most financial burden. This is consistent with Cantor's (1983) finding that spousal caregivers reported less income and more financial concerns than other caregivers. Research needs to determine if caregivers with financial burden need more social support or if spousal caregivers specifically need both more financial relief and social support than other caregivers.

**Emotional stress.** Many who have taken on the caregiver role for a family member were unprepared. Caregivers may have experienced stress and have increased anxiety, depression, irritability, sleeplessness, and fatigue as they took on this new role (Hepburn, Lewis, Sherman, & Tornature, 2003). Caregiver stress has been known to carry over into

relationships with spouses, children, work colleagues, and even with the very family member for whom they were providing care. This could lead to added feelings of guilt and confusion as the family caregiver tried to find a way to balance their time and energy among multiple responsibilities (Del Campo et al., 2000).

**Emotional stress and coping.** In a longitudinal study of spousal caregivers ( $n=69$ ), it was predicted burden from caregiving may decrease due to social support and coping behaviors (Vitaliano, Russo, Young, Teri, & Maiuro, 1991). Caregivers with the highest burden also had higher levels of anxiety, anger, and physical health problems. Increased caregiver ADL tasks and decreased caregiver resources (e.g., social support) significantly predicted higher levels of caregiver burden. Vitaliano and colleagues (1991) found caregivers to be more stressed in the beginning of the caregiver experience and adapt to caregiving over time, requiring fewer coping behaviors and social support to maintain physical health and satisfaction. However, they also noted that as the duration of caregiving lengthens, caregiving duties may increase as the care receiver's impairments increased with the disease process. Therefore, more coping behaviors and social support resources may be needed to maintain caregiver's physical health and satisfaction.

Previous research has found that women report being more emotionally involved in the caregiver experience than men (Koerner & Kenyon, 2007; Pearlin et al., 1981). Donaldson and colleagues (1998) also found that female caregivers ( $n=70$ ) reported higher levels of subjective burden and distress when compared to male caregivers. In addition to women being significantly more likely to report higher levels of emotional burden than men, it has also been found that women are more likely to use emotion-focused coping strategies (e.g., acceptance) compared to men as well (Papstavrou, Kalokerinou, Papacostas, Tsangari,

& Sourtzi, 2007). As DiMattei and colleagues (2008) found caregivers that used more problem-focused coping strategies (e.g., seeking caregiving strategies from others) had less stress than caregivers that only utilized emotional-focused coping methods.

**Emotional stress and social support.** As previously discussed, most family caregivers are unprepared and often experience stress when acquiring their new responsibilities. In a study of 43 family member caregivers, it was found that the majority of new caregivers were not educated on caregiving issues prior to the beginning of caring for their elderly family member (Piercy & Chapman, 2001). Piercy and Chapman (2001) reported that most family caregivers had made the decision to become caregivers based on family rules or expectations, religious beliefs, or a combination of these factors. Piercy and Chapman (2001) found that one of the predictors of the individual's ability to cope with the new role of family caregiver appeared to be the openness of the family, such as being able to express thoughts and feelings with other family members. It was suggested that families would benefit from public and private educational seminars providing information on topics such as how to care for their elderly family members, respite care, adult day services, and home health care.

For some, caregiving also has physical effects, such as poor nutrition and decrease in physical activity (Del Campo, et al., 2000; National Center of Elder Abuse, 2002). In a study of 234 primary caregivers, care receiver problem behaviors of dementia patients and caregiver stress overload were used to determine health outcomes of the caregivers (Son et al., 2007). Health outcomes included the self-reported health of the caregiver, caregiver health behaviors, and caregiver use of health services. As the care receiver problem behaviors increased, the caregiver's self-reported health decreased, caregiver's undesirable

health behaviors increased, and the use of health care services increased. Son and colleagues (2007) found that there was an indirect relationship between care receiver behavior problems and caregiver health outcomes as the relationship was mediated through caregiver feelings of overload. In their mediation model, the direct path between care receiver problem behavior and health outcomes was no longer significant.

**Emotional stress and life satisfaction.** Borg and Hallberg (2006) found that non-caregivers ( $n=1258$ ) and caregivers that assisted a care receiver less than three times a week ( $n=392$ ) had significantly higher life satisfaction than caregivers that assisted a care receiver four or more times a week ( $n=151$ ). Borg and Hallberg (2006) also found that male caregivers had higher life satisfaction than female caregivers. This is consistent with other research findings that male caregivers find caregiving more rewarding (Broe et al., 1999; DiBartolo and Soeken, 2003; Ekwall & Hallberg, 2007). In addition, other researchers found that caregivers with more feelings of isolation and emotional stress also had lower life satisfaction (Matthews, Baker, & Spillers, 2004).

### **Coping Behaviors**

Folkman and Lazarus (1980) followed 100 participants for one year to determine coping strategy trends in 1,332 stressful events of daily living. In 1,305 (98%) of the coping situations, both problem-focused and emotional-focused coping strategies were used, while in 2% of the coping situations, only problem-focused coping strategies or emotional-focused coping strategies were used. The main purpose in this investigation was to determine if participants were consistent in coping strategies utilized or if the coping strategies employed were determined by the situation of the stressful event. Folkman and Lazarus (1980) found that the circumstances of the situation and how the participant interpreted the meaning of the

stressful encounter were more influential in determining the coping strategies used than the gender or age of the participant. The results of this study indicated that coping strategies were complex and were dependent not only upon the situation but also upon the individual's perception of the event (Folkman & Lazarus, 1980). In addition, Folkman and Lazarus (1980) found that problem-focused and emotion-focused strategies can be used for the same stressful event.

**Coping and physical health.** As discussed earlier, it has been found that caregiving stress can have a negative effect on health behaviors (e.g., poorer eating habits and decreased time for physical activity) (Del Campo et al., 2000; National Center of Elder Abuse, 2002). However, there are inconsistent results in the family caregiving literature between coping and physical health (DiBartolo & Soeken, 2003; McConaghy & Caltabiano, 2005). In a study of family caregiving, coping and well-being, McConaghy and Caltabiano (2005) did not find a significant relationship between caregiver coping and physical health. George and Gwyther (1986) found that caregivers were more likely to participate in coping activities such as taking psychotropic medications than non-caregivers but there were no significant differences in the amount of doctor visits in the past 6 months or self-rated health between caregivers and non-caregivers. In addition, Haley and colleagues (2004) found that Caucasian family caregivers were significantly more likely to take psychotropic medications than African-American caregivers.

However, other research found that caregivers that practiced more health coping behaviors such as exercising on a regular basis and eating nutritious foods also rated themselves higher on health compared to caregivers that practiced less healthy coping behaviors (Matthews et al., 2004). Research on coping behaviors in family caregiving

indicate that there is a difference in positive coping methods (e.g., exercising) and negative coping methods (e.g., wishful thinking), however, there are inconsistencies on whether these coping behaviors have long-term physical health results (Del Campo et al., 2000; Matthews, 2004). Due to these inconsistencies further evaluation between coping behaviors and physical health are needed. In this study, this will be examined not only in the cross-sectional data, but in the longitudinal data as well.

**Coping and life satisfaction.** In a study of 171 caregivers (Ekwall, Sivberg, & Hallberg, 2006), it was found that caregivers that scored higher on the quality of life scale were also the caregivers who utilized self-sustaining positive coping strategies (e.g., maintaining outside interest or hobbies), where, as the participants that reported lower quality of life also were more likely to report negative coping strategies (e.g., ignoring the problem). It was reported that caregivers having a higher quality of life were more likely to use self-empowering techniques while caregivers with a lower quality of life were more likely to use escaping coping techniques (Ekwall et al., 2006).

In a study of 46 caregivers, burnout and coping behaviors of caregivers were evaluated (Almberg, Grafstrom, & Winblad, 1997). Almberg and colleagues (1997) found that caregivers that experienced burnout were more likely to use coping strategies that were emotion-focused or avoidant coping (e.g., working) while caregivers that did not experience burnout were more likely to utilize problem-focused coping strategies (e.g., confronting the problem). The findings of this study suggested that mental health professionals serving caregivers should help with acceptance and teach problem-focused coping strategies. Other research noted that emotion-focused coping was useful as long as problem-focused coping was also being utilized and that there was a balance (Knussen et al., 2008).

## **Social Support**

Pearlin and Aneshensel (1986) noted that social support is getting feedback from others and at times, confirmation. Most research supports the notion that increased social support decreased the effects of stress on physical health (House et al., 1988). Research indicated that social relationships may not only be fulfilling the need for emotional belonging, which may be their main effect, but also may help in handling stress (Berkman & Breslow, 1983; House et al., 1988). For example, social relationships reinforce healthy behaviors as physically and mentally healthy people were more able to establish and maintain healthy social relationships (Berkman & Breslow, 1983).

A primary caregiver is defined as a single caregiver performing the majority of caregiver duties and being primarily responsible for making decisions regarding care. A family caregiver network is multiple caregivers providing care and making decisions regarding the care receiver. In a qualitative study of 31 families, it was found that the primary caregiving system continued to be the most widely used among families (Keith, 1995). Other categories of caregiving network systems that were found by Keith (1995) were a partnership system, when there were two caregivers collaborating in care, and team caregiver networking systems. All sibling dyads with at least one female sibling reported a primary family caregiver as the used family caregiving system while the one sibling pair in the study consisting of two brothers reported a partnership caregiving system. The families in this study focused on Caucasian adult child caregivers of widowed or divorced mothers. It was noted that gender and family size may have played a role in the types of caregiver networks as females are more likely to be caregivers and more likely to be caregivers for mothers (Connidis, 2001; Keith, 1995).



As stated previously, adult child caregivers and male caregivers receive more support from others becoming caregivers than spousal caregivers and female caregivers (Cantor, 1983; Pearlin et al., 2001). However, research needs to distinguish between social support and social network. House and colleagues (1988) stated that social support and social network should also be used as dependent variables because there may be biological and psychological reasons social support and social networks were already in place prior to need of caregiving. House and colleagues (1988) further stated that perceived quality of the social relationship or the functional content was what social support should actually measure; however, very few studies used this. Most studies used network size and frequency of contact as an indicated variable for social support. Finally, they also noted that social support typically referred to the positive aspects of social relationships and did not address relationships that were high in conflict or were demanding, such as family caregiving relationships.

**Social support and physical health.** Gallant and Connell (1998) analyzed how caregivers stress can lead to adverse health behaviors using path analysis. Their results suggested that individuals may become depressed, increase negative coping behaviors, have less time for health behaviors performed previously, and have less time for social networking due to caregiving (Gallant & Connell, 1998). Previous research indicated that women spend more time caregiving than men and report higher levels of stress from caregiving; however, women also placed more emotional significance on their role of caregiver than men (Koerner & Kenyon, 2007; Pearlin et al., 2001). Gallant and Connell (1998) found that for both male and female spousal caregivers higher objective burden (e.g., time spent caregiving) and lower social support were predicted by higher perceived subjective burden (e.g., emotional stress),

more depressive symptoms, and increased negative health behaviors (e.g., eating less nutritious foods) of caregivers. Objective caregiver burden did have a significant effect for health behaviors such as sleep or preparing nutritious meals. These findings support the notion that caregiver burdens such as time spent caregiving may leave less time for positive health behaviors. Although weak, there was also a positive relationship between increased social support and positive health behavior changes in this study (Gallant & Connell, 1998). It was suggested that social support in caregiving should be explored further including types and amount of actual support received and satisfaction with social support.

**Social support and life satisfaction.** The amount of time spent in caregiving can vary significantly (National Center of Elder Abuse, 2002; Quadagno, 2005). This may represent time spent away from other obligations or leisure activities (Stoller, 1983). The level of well-being experienced by the caregivers was higher when they were involved in fewer hours of informal care and reported as having social support available (Chappell & Reid, 2002). For the present study, the quality of social support will be evaluated.

### **Caregiver Health**

As stated previously, 84% of caregivers rated their own health fair or poor. Also, a caregiver's health may already be in decline prior to caregiving due to advanced age such as with spousal caregivers. However, it has been also reported in some studies that caregivers reported poorer health than non-caregivers while others reported no significant physical health differences (Cantor, 1983; DiBartolo & Soeken, 2003; McConaghy & Caltabiano, 2005). More research on long-term effects of caregiving are needed to clarify these discrepancies.

Older adult spousal caregiving is stressful and caregiving affects physical and mental health (Pruchno et al., 1990). Spousal caregivers often experience higher levels of depression, lower levels of life satisfaction, higher rates of diabetes, arthritis, and more ulcers than older adult spouses that are not caregivers. Depression can lead to poorer physical health as health habits change, such as eating and sleeping patterns (Pruchno et al., 1990). Using structural equation modeling, Pruchno and colleagues (1990) found that a decrease in physical health of the caregiver did not significantly predict a decrease in depression; however, increased depression significantly predicted a decrease in physical health. In addition, Matthews and colleagues (2004) found that higher physical self-rated health was significantly correlated with life satisfaction.

### **Life Satisfaction**

Although most of the research on caregiving focuses on the negative aspects, there are positive aspects to caregiving for an elderly family member. There can be great satisfaction in caring for a loved one (Quadagno, 2005). Some of these positive aspects of family caregiving include having a closer relationship between the adult-child caregiver and adult-parent care receiver, personal growth, and being able to reciprocate care given to the adult child when they were young (Piercy & Chapman, 2001).

The caregiver burdens of negative behaviors of the care receiver, number of ADL tasks required, and time spent caregiving are used in this study as predictors of overall caregiver stress. Previous literature indicated inconclusive results for number of ADL tasks performed and financial stress. The proposed study will attempt to clarify those inconsistencies. However, for the burdens of care receiver behaviors, time spent caregiving, and emotional stress, most of the literature was clear that these variables were significant for

all caregivers and should be included in studies of family caregiving. Therefore, these variables have also been selected for the proposed study. Research indicated that caregivers that were more stressed were less likely to participate in health habits, such as eating nutritional food and exercising but there are inconsistent results if there is an effect on physical health outcomes. Further, studies suggested that caregivers that were more stressed have lower life satisfaction. However, other findings imply that these negative outcomes from caregiver stress could be mediated by coping behaviors and social support. For this proposed study, path analysis will be used to determine the significance of the relationship between caregiver stress and perceived physical health and the relationship between caregiver stress and life satisfaction. The variables of coping behaviors and social support will be evaluated to determine if these relationships are indirectly influenced.

## METHOD

Previous sections introduced the topic of family caregiving for an older adult and findings in literature. This section is to state the hypotheses and to introduce the methods of the current study. This section will also provide an overview of the participants, instruments, and procedure of this study.

### Hypotheses

1. Consistent with previous literature, it is predicted that the effect of increased caregiver stress on poorer caregiver physical health (i.e., indicated by a higher physical health score on the physical health item) and the effect of increased caregiver stress on decreased life satisfaction will be significantly mediated through coping behaviors and social support. This will be evaluated by using the 2004 Supplemental Caregiver Survey dataset and Models A, B, C, and D.
- 2a. The research literature indicates that Caucasian caregivers have significantly lower financial hardship, higher emotional stress, more coping behaviors, higher social support (i.e., a higher score indicates more support), lower life satisfaction (i.e., a lower score indicates less satisfaction), and better physical health than African American caregivers. Therefore, it is predicted the path coefficients and the goodness of fit will differ significantly between Caucasian and African American caregivers. However, both Caucasian and African American caregivers are predicted to have positive path coefficients from stress to physical health (a higher score indicates poorer physical health), from stress to coping behaviors, from stress to social support, from coping behaviors to life satisfaction, and from social support to life satisfaction. The path coefficients from stress to life satisfaction, from coping behaviors to

- physical health (a lower score indicates better physical health), and from social support to physical health are predicted to be significant but negative.
- 2b. The research literature indicates that adult-child caregivers have less number of ADLs for the caregiver to perform, fewer hours spent caregiving, lower financial hardship, lower emotional stress, more coping behaviors, higher levels of social support, better physical health, and higher life satisfaction than spousal caregivers. Therefore, it is predicted that the path coefficients of the model and the goodness of fit will differ significantly between adult child caregivers and spousal caregivers. It is predicted that for adult child caregivers and spousal caregivers the path coefficients from stress to physical health (a higher score indicates poorer physical health), from stress to coping behaviors, from stress to social support, from coping behaviors to life satisfaction, and from social support to life satisfaction will be significant and positive. The predicted inverse path coefficients are from stress to life satisfaction, from coping behaviors to physical health (a lower score indicates better physical health), and from social support to physical health.
- 2c. The research literature indicates that male caregivers have less financial hardship, less emotional stress, less coping behaviors, less social support, poorer physical health, and higher life satisfaction than female caregivers. Therefore, the level of significance of the path coefficients of the model and the goodness of fit will differ significantly between male caregivers and female caregivers. The predicted positive path coefficients for male and female caregivers are from stress to physical health (a higher score indicates poorer physical health), from stress to coping behaviors, from stress to social support, from coping behaviors to life satisfaction, and from social

support to life satisfaction. The predicted inverse path coefficients are from stress to life satisfaction, from coping behaviors to physical health (a lower score indicates better physical health), and from social support to physical health.

## **Method**

**Participants.** The participants of the National Long-Term Care Survey (NLTC) were asked to nominate a primary caregiver to participate in the Supplemental Caregiver Survey in 1989, 1999, and 2004. In 1989, the Supplemental Caregiver Survey was completed by 99 participants, in 1999 there were 1,076 participants, and in 2004 there were 1,923 participants. The 2004 Supplemental Caregiver Survey (National Long-Term Care Survey, 2009) was used in this study. The NLTC Caregiver Supplemental Survey only retained participants with a 95% or above response rate. Therefore, most items were filled with proper responses. However, for the items that had missing data or a response of “don’t know” or “refuse”, the series means were calculated and used for that item.

Of the 1,923 participants in the 2004 Supplemental Caregiver Survey, there were 654 men and 1,269 women (Table 1). The majority of the participants were Caucasian ( $n=1,664$ ) and 179 of the participants were African American. Due to the low number of participants for each category, the ethnic groups identified as Hawaiian ( $n=108$ ), Asian ( $n=43$ ) American Indian/Alaskan Native ( $n=22$ ), Other ( $n=23$ ), don’t know ( $n=2$ ), and refused ( $n=6$ ) were not used in this study. The caregiver relationship variable consisted of 622 spouse/spouse equivalent participants, 644 daughters, and 286 sons caring for an adult parent. The ages of the participants for this wave of data were not given in the codebook. This researcher requested additional information to calculate the range and mean of the ages, however, no response was received. Of the participants 1,317 reported to be currently married with 192

divorced, 145 widowed, and 203 never married, 29 separated, 18 living with a partner, and 19 refused to answer or did not know.

Table 1

*2004 NLTC Supplemental Caregiver Survey Demographics*

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|                          | <u>2004 (n=1923)</u> |          |
|--------------------------|----------------------|----------|
|                          | <u>N</u>             | <u>%</u> |
| Male                     | 654                  | 34%      |
| Female                   | 1,269                | 66%      |
| Caucasian                | 1,664                | 87%      |
| African American         | 179                  | 9%       |
| Other                    | 80                   | 4%       |
| Spouse                   | 622                  | 32%      |
| Adult Child              | 930                  | 48%      |
| Other                    | 371                  | 19%      |
| Marital Status           |                      |          |
| Married                  | 1,317                | 68%      |
| Widowed                  | 145                  | 8%       |
| Divorced                 | 192                  | 10%      |
| Separated                | 29                   | 2%       |
| Never married            | 203                  | 11%      |
| Partnered                | 18                   | 1%       |
| Did not answer           | 19                   | 1%       |
| Income in past 12 months |                      |          |
| Under \$14999            | 73                   | 4%       |
| \$24999 or less          | 68                   | 4%       |
| \$39999 or less          | 80                   | 4%       |
| \$59999 or less          | 86                   | 4%       |
| \$79999 or less          | 64                   | 3%       |
| \$80000 or more          | 70                   | 4%       |
| Did not answer           | 1482                 | 77%      |



*Table 1 continued*

|                                  | 2004 (n=1923) |           |       |
|----------------------------------|---------------|-----------|-------|
|                                  | N             | %         |       |
| <b>Education</b>                 |               |           |       |
| Less than 1 <sup>st</sup> grade  | 5             | <1%       |       |
| 8 <sup>th</sup> grade or less    | 153           | 8%        |       |
| Some high school                 | 222           | 12%       |       |
| Completed high school or GED     | 612           | 32%       |       |
| Some college                     | 519           | 27%       |       |
| Bachelor's degree                | 234           | 12%       |       |
| Graduate school or more          | 138           | 7%        |       |
| Did not answer                   | 40            | <1%       |       |
| Currently working                | 652           | 34%       |       |
| Lives with care receiver         | 302           | 16%       |       |
|                                  | <i>M</i>      | <i>SD</i> | range |
| Average work hours per week      | 36.71         | 12.95     | 1-80  |
| Average Age                      | #             | ---       | ---   |
| <b><u>Manifest Variables</u></b> |               |           |       |
| Negative care receiver behaviors | 19.28         | 5.12      | 11-32 |
| ADLs                             | 6.36          | 4.22      | 0-16  |
| Time spent caregiving            | 24.71         | 34.73     | 1-168 |
| Financial stress                 | 1.61          | 1.11      | 1-5   |
| Emotional Stress                 | 2.15          | 1.32      | 1-5   |
| Coping Behaviors                 | 19.28         | 5.62      | 11-32 |
| Social Support                   | 25.33         | 5.01      | 8-32  |
| Physical Health                  | 2.07          | .83       | 1-4   |
| Life Satisfaction                | 8.57          | 1.83      | 2-10  |
| # Not given in the dataset       |               |           |       |

**Instruments.** As stated, secondary data from 2004 NLTCs was used for this study. The NLTCs was funded by the National Institute on Aging and Duke University with the purpose of gathering data on older adults aged 65 years and older. The NLTCs was

distributed by the United States Census Bureau. The first year of data collection for the NLTCs was 1982 with follow-up waves of data collection in 1984, 1989, 1994, 1999, and 2004. The data for the 2004 NLTCs Caregiver Supplemental Survey was collected from November 2004 to March 2005. The 1989, 1999, and 2004 NLTCs Supplemental Caregiver Survey was performed with the purpose of collecting information for policy research on caregivers in the workforce and to evaluate participation in benefit programs provided by the government (e.g., social security and food stamps) (Doty & Marton, 2006). Further it is noted that the NLTCs did not use standardized scales to evaluate variables including ADLs, coping behaviors, social support, physical health, or life satisfaction. These items were developed by the Duke University Center of Demographic Studies (Manton, Corder, & Stallard, 1993). Previous studies using this dataset were evaluated by this researcher. It is noted that the majority of these studies focused on paid work of the caregiver and conflicts with paid work potentially caused by caregiving.

The 2004 Supplemental Caregiver Surveys included approximately 375 questions; however, some questions were skipped depending on responses given by participants. Surveys were administered over the phone and through in-person interviews. The survey examined “basic demographics, relationship to sample member, amount and kinds of help provided, information on care provided by others, caregiver’s living situation, caregiver’s working situation, caregiver’s health and functional status, and caregiver’s income and assets” (National Long-Term Care Survey, 2009).

The reliabilities of each of the variables with 2 or more items were calculated. A Cronbach’s alpha of .70 or greater is generally accepted for internal consistency. All

variables in this study with 2 or more items were found to have acceptable internal consistency.

**Procedure.** Permission to use the NLTC dataset was requested by this researcher from the Inter-University Consortium for Political and Social Research on September 1, 2009 and granted on September 18, 2009. It is also noted that Institutional Review Board approval and acceptance of the proposal for this study by the Program of Study committee was obtained.

First, a progression of models (Figures 1-4) will be used to illustrate mediation. Next, the model of interest will be used to evaluate the 2004 Supplemental Caregiver Survey to establish significant paths and goodness of fit of the model. Further, the research questions addressing ethnicity (i.e., Caucasian and African American), relationship with care receiver (i.e., adult child and spousal), and gender (i.e., male and female) will be compared to determine if there are significant path differences and model fit for each of these groups as outlined in the hypotheses.

The variables of the path models were selected based on variables that have been found to be significant in caregiver stress and coping in literature that were presented in the literature review. As stated previously, the paths of the models were selected based on Hill's ABC-X theory and following the basic concepts of stressors, mediators, and outcomes with the meaning of the significance of the caregiver situation given to the caregiver. A list of the variables used can be viewed in the Appendix.

For this study, the Baron and Kenny (1986) method of evaluating mediators and moderators was used in evaluating all of the hypotheses in this study. This method required that there was a direct path between stress and physical health and a direct path between

stress and life satisfaction established before the indirect paths of stress-coping-physical health, stress-coping-life satisfaction, stress-social support-physical health, and stress-social support-life satisfaction. Baron and Kenny's (1986) moderator to the mediator was also used in evaluating all of the hypotheses as each sub group was evaluated separately using the model.

Negative behaviors of the care receiver ( $\alpha=.82$ ) for this study were listed as *keep you up at night, repeat questions/stories, try to dress the wrong way, have a bowel or bladder accident, hide belongings and forget about them, cry easily, act depressed or downhearted, cling to you or follow you around, become restless or agitated, become irritable or angry, swear or use foul language, become suspicious/believe someone is going to harm (him/her), threaten people, show sexual behavior/interest at the wrong time or place, and destroy or damage property*. Each of the behaviors were assessed by the question, "In the past week, on how many days did you personally have to deal with the following behavior of [the care receiver's name]? How many days did (he/she) ..." The participants were to select one of the following for each of the negative care receiver behaviors, (1) No days, (2) 1-2 days, (3) 3-4 days, (4) 5 or more days, (-8) don't know, (-9) refused.

*Getting in or out of bed, dressing, bathing, toileting, eating, giving medications, preparing meals, helping with bill paying, making telephone calls, doing dishes, laundry, shopping, running errands, help with walking, and help with transportation* are the ADLs ( $\alpha=.87$ ) that are assessed in the proposed study. Each of the ADL tasks were assessed by the question, "In the past week, did you help [care receiver's name] with the following task(s)?" It is noted that assisting with medications, giving medications and assisting with shots and/or injections were combined as one item. Also, assisting with getting on or off the toilet,

helping with a bed pan, catheter, or colostomy bag, and cleaning up after bladder or bowel accidents were also counted as one item labeled as “assisting with toileting”. Time spent caregiving was determined by the single survey item of, “On average, about how many hours do you spend helping [care receiver’s name] in a typical week?”

Stress was measured by a composite score of financial hardship and emotional stress. The financial hardship variable was scored using the single survey item, “Using the scale from 1 to 5, where 1 is no hardship at all and 5 is a great deal of hardship, how much of a financial hardship would you say that caring for [the care receiver’s name] is for you?” The emotional stress variable was determined by the single survey item, “Using the same from 1 to 5, where 1 is not at all stressful and 5 is very stressful, how emotionally stressful would you say that caring for [the care receiver’s name] is for you?”

The coping behaviors ( $\alpha=.87$ ) assessed in this study included 11 items. They were spending praying/meditating, talking with friends or relatives, spending time of exercise or hobbies, reading, getting help from counselor or other professional, time alone, eating, taking medications to calm yourself, drinking some alcohol, smoking, and watching television. It was stated prior to asking about coping behaviors within the survey, “Here are some things that some people do when they are under stress from caregiving. How often do you do them?” The participants were to select one of the following for each of the coping behaviors, (1) never, (2) once in a while, (3) fairly often, (4) very often, (-8) don’t know, (-9) refused.

The Supplemental Caregiver Survey had 8 social support items ( $\alpha=.99$ ). The social support items were preceded with the statement, “Let’s turn now to the help and support you get from your friends and relatives. Thinking about your friends and family, other than [care receiver’s name]. Please indicate the extent to which you agree or disagree with the

following statements”. The statements were rated on a Likert-scale with (1) strongly agree, (2) disagree, (3) agree, (4), strongly agree, (-8) don't know, and (-9) refused as answer choices. It is noted that due to the negative wording of the first item and inconsistency of the wording with the other 7 items, this item was reversed scored. Selected items of the social support statements were, “There are people in your life who make you feel good about yourself.” and “You have at least one friend or relative you can really confide in.”

The outcome variables are physical health and life satisfaction. Physical health is assessed with the single item, “Compared to other people your age, would you say your health, in general, is excellent, good, fair, or poor?” The participants were to select one of the following for physical health, (1) excellent, (2) good, (3) fair, (4) poor, (-8) don't know, (-9) refused. Life satisfaction ( $\alpha=.78$ ) was assessed with two items, “Providing help to [care receiver's name] has made me feel good about myself” and “Providing help to [care receiver's name] has enabled me to appreciate life more”. The participants were to select one of the following for each of the life satisfaction items, (1) disagree a lot, (2) disagree, (3) neutral, (4) agree, (5) agree a lot, (-8) don't know, (-9) refused.

## RESULTS

This section starts with the results of the evaluation of Models A, B, C & D to demonstrate the significance of mediation using the 2004 NLTCS Caregiver Survey Supplemental Form data. Next, this chapter will address the comparison of the variables of ethnicity (i.e., Caucasian and African American caregivers), relationship to care receiver (i.e., adult child and spousal caregivers), and gender (i.e., male and female caregivers) as outlined in hypotheses 2a, 2b, and 2c.

Demographic characteristics of the 2004 participants can be found in Table 1. Preliminary analysis of the 2004 dataset included correlations of the variables in the study (Table 2). Confirmatory Factor Analysis (CFA) was performed in AMOS separately for the coping behavior items and the social support items to assess construct validity. See Table 3 for CFA results.

To illustrate the significance of mediation, the 2004 NLTCS Caregiver Survey Supplemental Form was analyzed with each of the four models. Model A (Figure 1) had direct effects between the predictor variables (i.e., negative care receiver behaviors, ADLs, and time spent caregiving) and the outcome variables (i.e., physical health and life satisfaction). There were no mediation variables in this model. Model B (Figure 2) had the stress variable added so that the predictor variables affect stress and stress had direct paths to physical health and life satisfaction; there are no direct paths from the predictor variables to the outcome variables. Model B did not have the mediating variables of coping behaviors or social support. Next, Model C (Figure 3) represented the effect of the predictor variables effect on stress. Stress then had direct paths to physical health and life satisfaction. Model C also included the mediating variables of coping behaviors and social support in the

Table 2

2004 Means, Standard Deviations, and Correlations

| Variables                | M     | SD    | Correlations |        |        |        |        |        |       |       |        |        |       |        |        |    |  |  |
|--------------------------|-------|-------|--------------|--------|--------|--------|--------|--------|-------|-------|--------|--------|-------|--------|--------|----|--|--|
|                          |       |       | 1            | 2      | 3      | 4      | 5      | 6      | 7     | 8     | 9      | 10     | 11    | 12     | 13     | 14 |  |  |
| 1. Gender                | 1.66  | .47   | --           |        |        |        |        |        |       |       |        |        |       |        |        |    |  |  |
| 2. Caucasian             | .87   | .34   | .09**        | --     |        |        |        |        |       |       |        |        |       |        |        |    |  |  |
| 3. African American      | .09   | .29   | -.08**       | -.81** | --     |        |        |        |       |       |        |        |       |        |        |    |  |  |
| 4. Spouses               | .32   | .47   | .13**        | .10**  | -.11** | --     |        |        |       |       |        |        |       |        |        |    |  |  |
| 5. Adult Children        | .48   | .50   | -.08**       | -.03   | .06*   | -.67** | --     |        |       |       |        |        |       |        |        |    |  |  |
| 6. Negative CR Behaviors | 19.28 | 5.62  | -.09**       | -.05*  | .05*   | -.02   | .07**  | --     |       |       |        |        |       |        |        |    |  |  |
| 7. Number of ADLs        | 6.36  | 4.22  | -.09**       | -.10** | .08**  | .06**  | .01    | .44**  | --    |       |        |        |       |        |        |    |  |  |
| 8. Time spent caregiving | 24.71 | 34.73 | -.03         | -.06** | .05*   | .11**  | -.06** | .33**  | .55** | --    |        |        |       |        |        |    |  |  |
| 9. Financial Burden      | 1.61  | 1.11  | .01          | -.05*  | .03    | .07**  | -.01   | .37**  | .32** | .20** | --     |        |       |        |        |    |  |  |
| 10. Emotional Stress     | 2.15  | 1.32  | -.11**       | .02    | -.04   | -.04   | .11**  | .56**  | .38** | .25** | .50**  | --     |       |        |        |    |  |  |
| 11. Total Coping         | 19.28 | 5.62  | -.15**       | .00    | .03    | -.11** | .12**  | .18**  | .14** | .06** | .04    | .15**  | --    |        |        |    |  |  |
| 12. Total Social Support | 25.33 | 5.01  | -.07**       | .04    | -.02   | -.06*  | .03    | -.03   | .00   | -.03  | -.10** | -.07** | .10** | --     |        |    |  |  |
| 13. Physical Health      | 2.07  | .82   | .02          | -.06** | .08**  | -.10** | -.04   | .19**  | .10** | .10** | .18**  | .19**  | .01   | -.09** | --     |    |  |  |
| 14. Life Satisfaction    | 8.57  | 1.83  | .00          | .00    | .01    | -.10** | .04    | -.08** | .02   | .02   | -.05** | -.12** | .13** | .15**  | -.06** | -- |  |  |

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).



Table 3

*Confirmatory Factor Analysis Results*Coping Behaviors


---

|   |     |
|---|-----|
| Spending time alone                           | .71 |
| Eat   | .80 |
| Take medications                              | .69 |
| Drink alcohol                                 | .65 |
| Prayer/meditation                             | .89 |
| Talk with friends or relatives                | .89 |
| Spend time on exercise or hobbies             | .83 |
| Smoke   | .69 |
| Watch tv                                      | .87 |
| Read  | .86 |
| Get help from counselor or other professional | .62 |

Social Support

|  |     |
|--|-----|
| No one understands                                   | .71 |
| People let you know they care                        | .88 |
| Friend or relative opinion you have confidence in    | .88 |
| Someone you can trust                                | .88 |
| People help keep your spirits up                     | .88 |
| People make you feel good about yourself             | .88 |
| Friend or relative you can confide in                | .88 |
| Someone you want to be with when down or discouraged | .87 |

---

relationships between stress and physical health and the relationship between stress and life satisfaction through coping behaviors and social support. Model C is nested in Model D (Figure 4). In addition, the paths from negative care receiver behaviors to physical health, from negative care receiver behaviors to life satisfaction, from ADL to physical health, from ADL to life satisfaction, from time to physical health, and from time to life satisfaction are evaluated in Model D.

For each model, model fit was assessed by the value of the chi-square and its significance level (.05 or less), the goodness of fit index (*GFI*), the adjusted goodness of fit index (*AGFI*), the comparative fit index (*CFI*), the root mean square error of approximation (*RMSEA*) and the standardized root mean square residual (*sRMR*). The researcher considered a model as having a good fit if the chi-square was non-significant, *GFI*, *AGFI*, and *CFI* were .9 or higher, the *RMSEA* was .05 or less (.08 was noted as moderately acceptable) and the *sRMR* was .05 or less (Kline, 1998). However, it is noted that the chi-square is dependent on sample size, the larger the sample size the more likely it is the chi-square will be significant; furthermore, sample sizes in this study varied. Therefore, the researcher relied on the other fit indices used in this study more than the chi-square results (Kline, 1998). Further, the path coefficients of Model C were compared between the different groups starting with the 1999 and 2004 datasets, then the comparison groups (i.e., ethnicity, relationship type, and gender), and the longitudinal datasets. To test significant differences between the two groups, the datasets were stacked in AMOS to give a base chi-square for both datasets. Then each path was constrained to be equal for both groups, one at a time to find the chi-square difference. Significance was considered established if the difference between the base chi-square and the restricted chi-square was greater than 3.64.

There are 6 basic assumptions when conducting path analysis (Asher, 1983). First, it is assumed that the relationships among the variables are linear. The second assumption in path analysis is that residual terms are not correlated with additional variables beyond the variable they are an error term for. However, as in the present study, error terms can be correlated with other error terms. The error term for coping behaviors is correlated with the error term for social support. Also the error term for physical health is correlated with the error term for life satisfaction. The next assumption is that endogenous variables are uncorrelated with disturbance terms so that the model demonstrates possible causation as predicted by theoretical underpinnings but does not prove causation (Asher, 1983).

The fourth assumption is that there is low multicollinearity among the variables. The fifth assumption of path analysis is that the paths of the model are not under identified as this makes paths appear to be significant when they are not and tends to make residual terms high. The last assumption concerns sample size. According to Kline (1998) it is optimal to have at least 20 participants per 1 parameter, however, 10 participants per 1 parameter is acceptable and going lower than 5 participants per 1 parameter will cause the parameter to no longer be statistically efficient. It is noted that each model run had at least 10 participants per parameter except in Model C for the African American group ( $n=179$ ). Therefore, this model was conducted in 2 separate parts. The first part concerned the relationships between predictors of stress and stress. The second part of the model was stress, coping behaviors, social support, physical health, and life satisfaction.

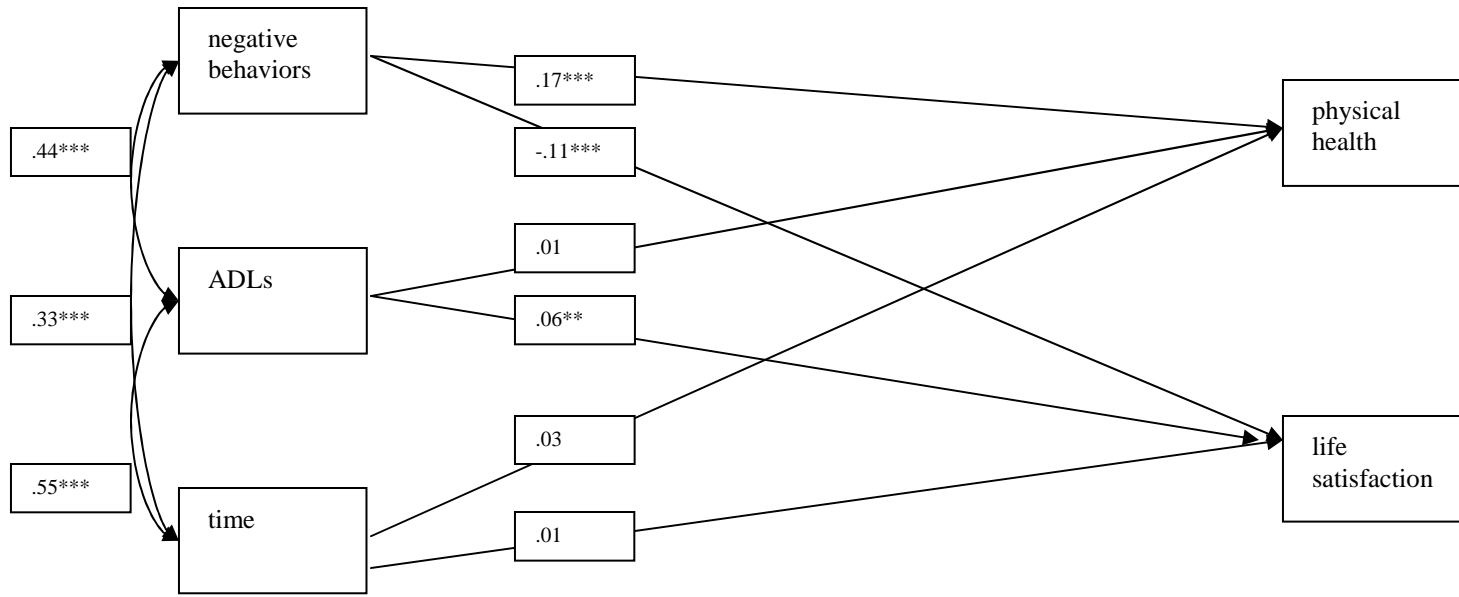
### **Hypothesis 1**

**All participants in 2004 dataset.** As noted in the evaluation of Model A (Figure 5) the chi-square was found to be significant and the fit indices were all within the acceptable

limits. The squared multiple correlations were physical health =.04 and life satisfaction =.01. The correlations between the variables of negative care receiver behavior, ADL, and time were all found to be significant. The paths that were found to be significant were from negative care receiver behavior to physical health, from negative care receiver behavior to life satisfaction, and from ADL to life satisfaction. The results of Model A indicated that an increase in negative care receiver behaviors resulted in perceived poorer physical health and lower life satisfaction. Also, an increase in the number of ADLs performed resulted in higher life satisfaction. The non-significant paths of Model A were from ADL to physical health, from time to physical health, and from time to life satisfaction.

In Model B (Figure 6), the chi-square was found to be significant and all of the fit indices were in acceptable good ranges. The squared multiple correlations were stress =.48, emotional stress =.69, financial stress =.35, physical health =.06, and life satisfaction =.01. The correlations between the variables of negative care receiver behavior, ADL, and time were all found to be significant. The factor loadings of financial stress and emotional stress were both found to be significant. The paths that were found to be significant were from negative care receiver behavior to stress, from ADL to stress, from stress to physical health, and from stress to life satisfaction. The results of Model B indicated that an increase in negative care receiver behaviors and an increase in the number of ADLs performed increased stress. An increase in stress resulted in perceived poorer physical health and lower life satisfaction. The one path that was not significant for Model B was from time to stress.

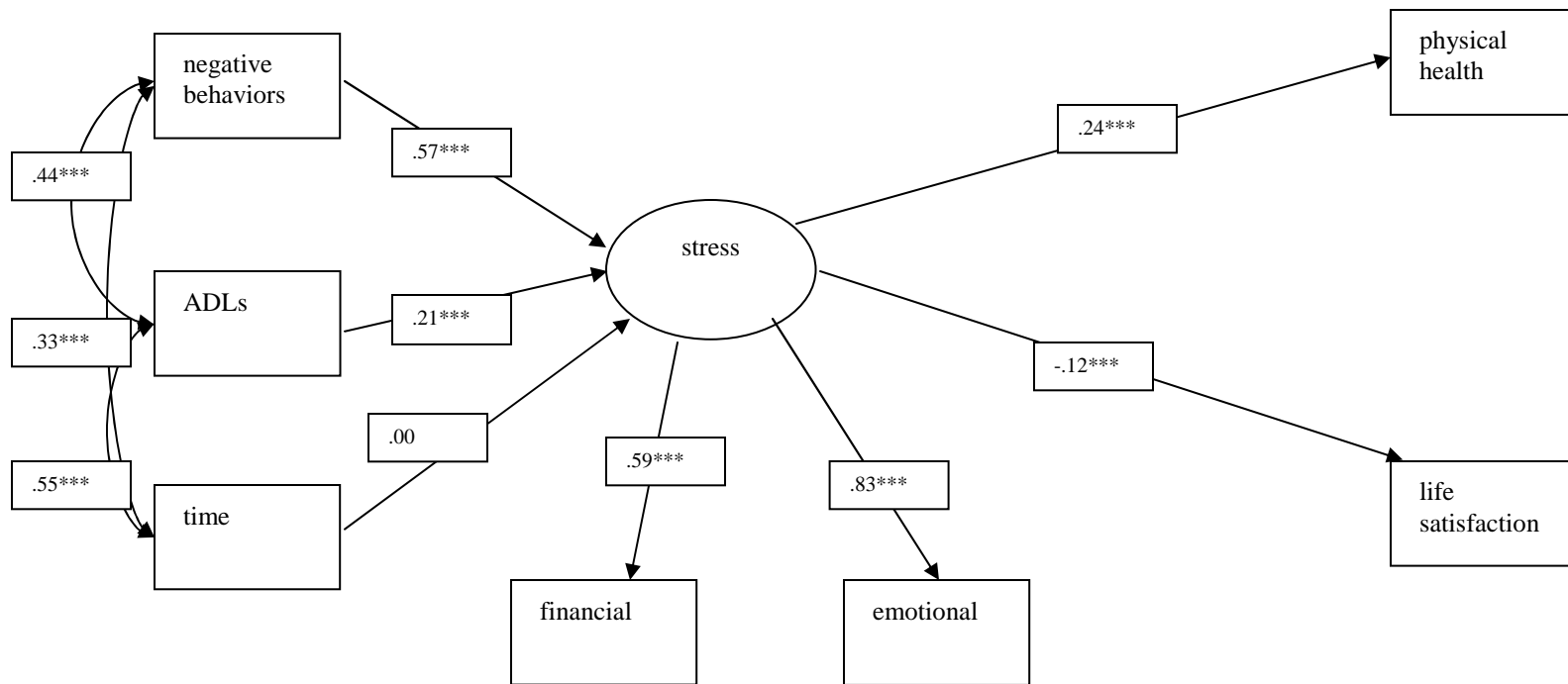
In Model C (Figure 7) the chi-square was found to be significant. All of the fit indices were within acceptable range. The squared multiple correlations were stress =.50, emotional stress =.67, financial stress =.34, coping behaviors =.13, social support =.01, ADL



$\chi^2=4.89, df=1, p<.027, GFI=1.00, AGFI=.99, CFI=.99, RMSEA=.05, sRMR=.01$

Figure 5. Model A with coefficients

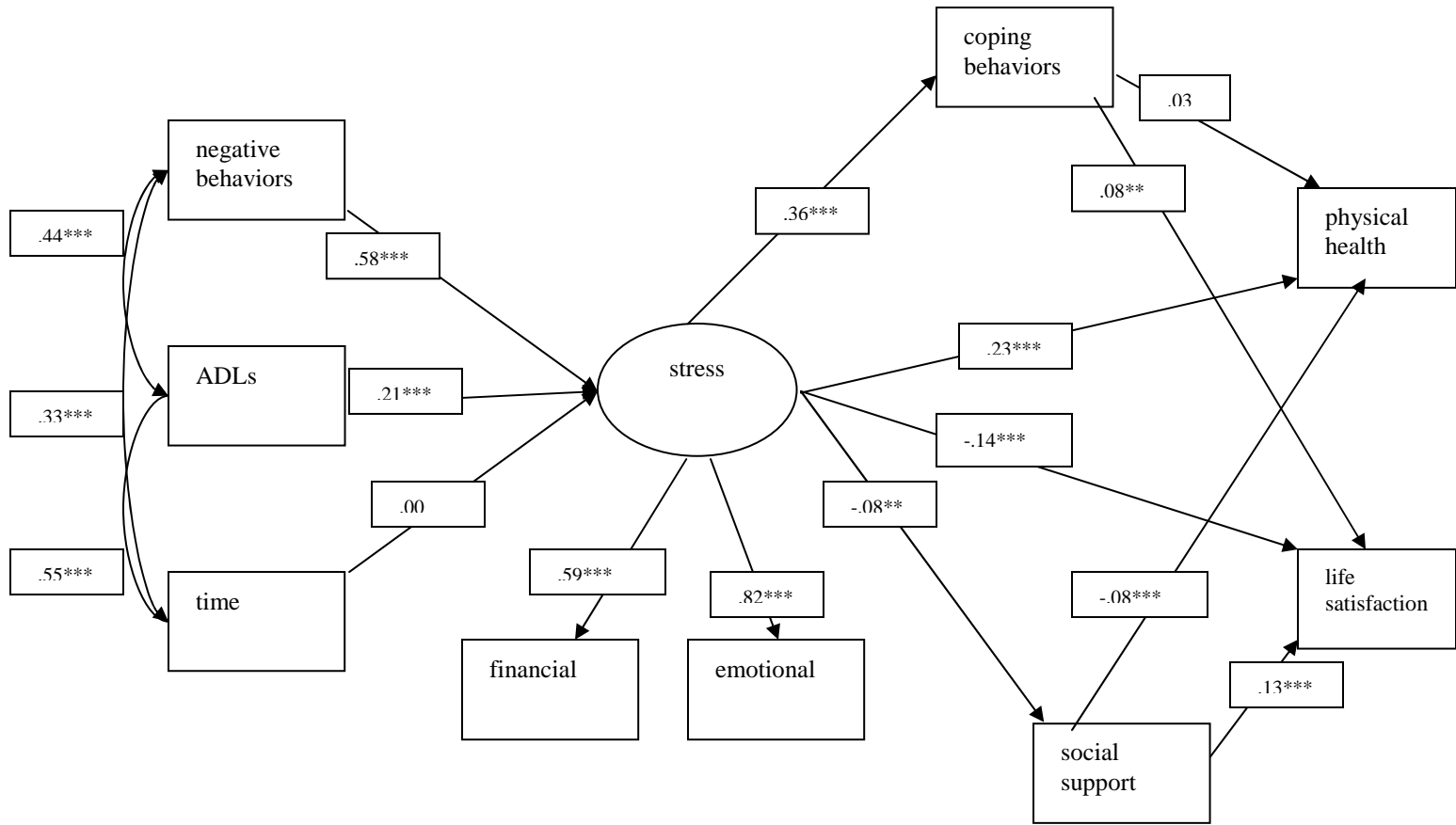
Note: \*\*\* Correlation is significant at the 0.001 level (2-tailed), \*\* Correlation is significant at the 0.01 level (2-tailed), \* Correlation is significant at the 0.05 level (2-tailed).



$\chi^2=45.12$ ,  $df=10$ ,  $p<.000$ ,  $GFI=.99$ ,  $AGFI=.98$ ,  $CFI=.99$ ,  $RMSEA=.04$ ,  $sRMR=.02$

Figure 6. Model B with coefficients.

Note: \*\*\* Correlation is significant at the 0.001 level (2-tailed), \*\* Correlation is significant at the 0.01 level (2-tailed), \* Correlation is significant at the 0.05 level (2-tailed).



$\chi^2=77.54, df=18, p<.000, GFI=.99, AGFI=.98, CFI=.98, RMSEA=.04, sRMR=.02$

Figure 7. Model C with coefficients.

Note: \*\*\* Correlation is significant at the 0.001 level (2-tailed), \*\* Correlation is significant at the 0.01 level (2-tailed), \* Correlation is significant at the 0.05 level (2-tailed).

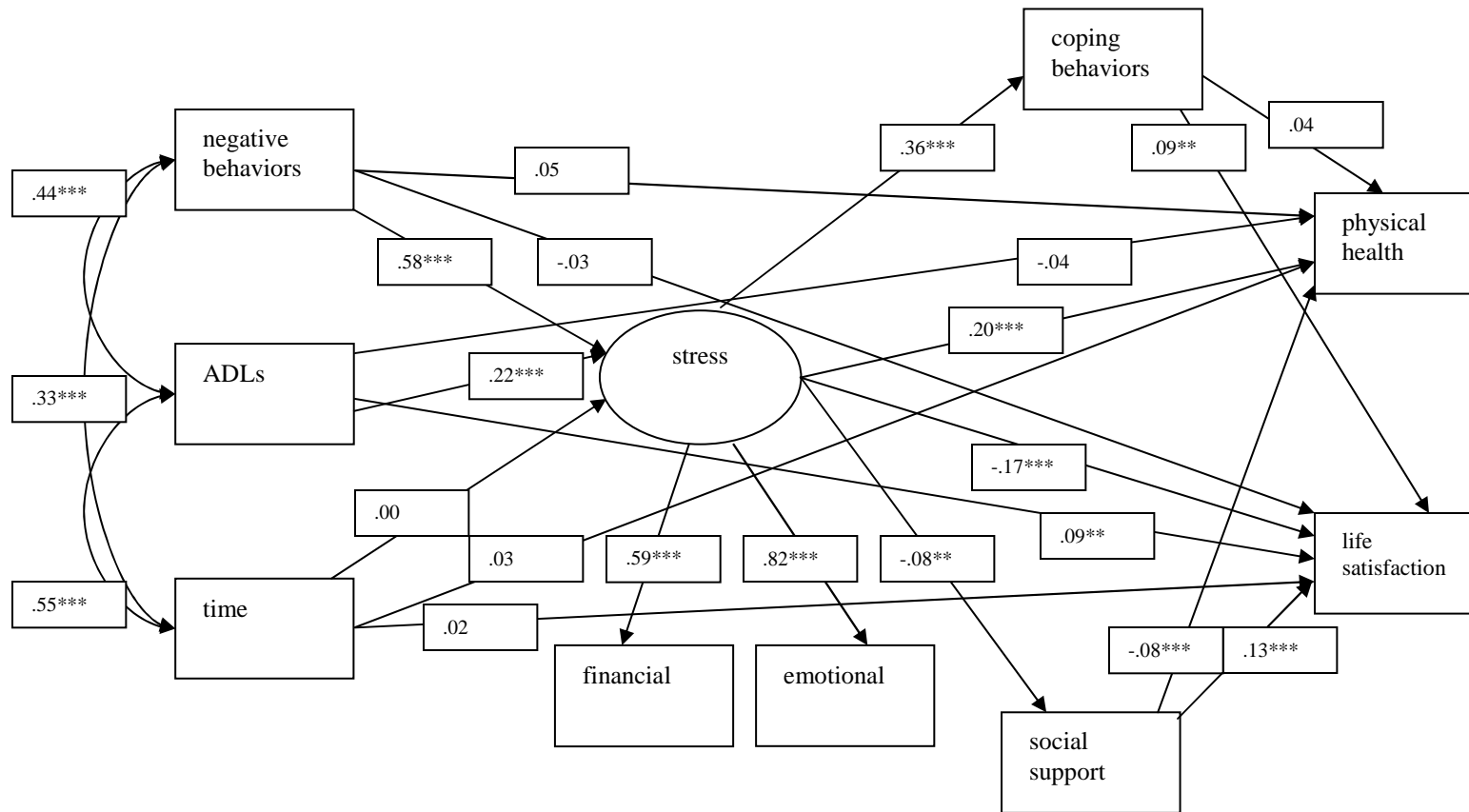
physical health =.07, and life satisfaction =.04. The correlations between the variables of negative care receiver behavior, ADL, and time were all found to be significant. The factor loadings of financial stress and emotional stress were both found to be significant. The paths that were found to be significant were from negative care receiver behavior to stress, from stress to stress, from stress to physical health, from stress to life satisfaction, from stress to coping behaviors, from stress to social support, from coping behaviors to life satisfaction, from social support to physical health, and from social support to life satisfaction. The results of Model C indicated that an increase in negative care receiver behaviors and an increase in the number of ADLs performed increased stress. An increase in stress resulted in more coping behaviors, less social support, perceived poorer physical health, and lower life satisfaction. An increase in coping behaviors resulted in higher life satisfaction. An increase in social support resulted in perceived better physical health and higher life satisfaction. The non-significant paths for Model C were from time to stress and from coping behaviors to physical health.

The Baron and Kenny (1986) criteria for mediation were used to evaluate the models in this study. There are four main criteria using this method. The first criterion is that there is a significant path coefficient between the predictor variable and the outcome variable. The second criterion is that the predictor variable has a significant path coefficient to the mediation variable. The third criterion is that the mediation variable has a significant path coefficient to the outcome variable. The last criterion of the method is that the path coefficient from the predictor variable to the outcome variable is significantly reduced (i.e., partial mediation) or becomes non-significant (i.e., full mediation) when the mediation variable is included in the equation.



As predicted it was found that the paths from stress to physical health and from stress to life satisfaction were significant and met the first criterion. In Model C, there are significant paths from stress to coping behaviors and stress to social support. Therefore, the second criterion was met. However, the path from coping behaviors to physical health was not significant and mediation did not occur on this path. The paths from coping behaviors to life satisfaction, from social support to physical health, and from social support to life satisfaction were significant and met the third criterion. For the last criterion, the paths from stress to physical health and stress to life satisfaction were compared in Model B and Model C. It is noted that Model B is nested in Model C and therefore this comparison was possible. The path coefficient for the path from stress to physical health was .24 in Model B and .23 in Model C. The path coefficient for the path from stress to life satisfaction was -.12 in Model B and -.14 in Model C. There was not a significant difference in the path coefficients for either path and therefore the fourth criterion for mediation was not met. This indicates that coping behaviors and social support were not significant mediators. Model B and Model C were similar in chi-square, *GFI*, *AGFI*, *CFI*, *RMSEA* and *sRMR*. However, Model C is the model of interest as it specifies additional significant variables and continues to maintain model fit.

In Model D (Figure 8) the chi-square was found to be significant. All of the fit indices were within acceptable range. The squared multiple correlations were stress =.50, emotional stress =.67, financial stress =.34, coping behaviors =.13, social support =.01, physical health =.07, and life satisfaction =.05. The correlations between the variables of negative care receiver behavior, ADL, and time were all found to be significant. The factor loadings of financial stress and emotional stress were both found to be significant. The paths



$\chi^2=60.24, df=12, p<.000, GFI=.99, AGFI=.97, CFI=.98, RMSEA=.05, sRMR=.02$

Figure 8. Model D with coefficients.

Note: \*\*\* Correlation is significant at the 0.001 level (2-tailed), \*\* Correlation is significant at the 0.01 level (2-tailed), \* Correlation is significant at the 0.05 level (2-tailed).

that were found to be significant were from negative care receiver behavior to stress, from ADL to stress, from ADL to life satisfaction, from stress to physical health, from stress to life satisfaction, from stress to coping behaviors, from stress to social support, from coping behaviors to life satisfaction, from social support to physical health, and from social support to life satisfaction. The results of Model D indicated that an increase in negative care receiver behaviors increased stress. An increase in the number of ADLs performed resulted in increased stress and higher life satisfaction. An increase in stress resulted in more coping behaviors, less social support, perceived poorer physical health, and lower life satisfaction. An increase in coping behaviors resulted in higher life satisfaction. An increase in social support resulted in perceived better physical health and higher life satisfaction. The non-significant paths for Model D were from negative care receiver behaviors to physical health, negative care receiver behaviors to life satisfaction, from ADL to physical health, from time to stress, from time to physical health, and from time to life satisfaction, and from coping behaviors to physical health.

Model D (Figure 8) was compared with Model C (Figure 7) and the models have similar fit. It is noted that Model C is nested in Model D. Although when comparing individuals paths, it is noted that of the added paths, only the path from ADL to life satisfaction was significant in Model D, while the other five added paths were not significant. Therefore, Model C continued to be the model of interest.

Table 4.

*Subgroup Chi-square Comparisons*

| Paths of Caucasian and African American | $\chi^2$ | $\Delta\chi^2$ | Significant |
|---|----------|----------------|-------------|
| NCRB – stress                           | 83.9     | 0.8            | no          |
| ADL – stress                            | 86.1     | 3.0            | no          |
| Time – stress                           | 83.1     | 0.0            | no          |
| Stress – physical health                | 85.7     | 2.6            | no          |
| Stress – life satisfaction              | 83.5     | 0.4            | no          |
| Stress – coping behaviors               | 84.5     | 1.4            | no          |
| Stress – social support                 | 84.0     | 0.9            | no          |
| Coping behaviors - physical health      | 92.4     | 9.3            | yes         |
| Coping behaviors – life satisfaction    | 83.3     | 0.2            | no          |
| Social support – physical health        | 83.1     | 0.0            | no          |
| Social support – life satisfaction      | 83.1     | 0.0            | no          |

Note: unconstrained  $\chi^2 = 83.1$ ,  $df = 36$ , significance=.3.64

| Paths of Adult Child and Spouse      | $\chi^2$ | $\Delta\chi^2$ | Significant |
|--------------------------------------|----------|----------------|-------------|
| NCRB – stress                        | 91.7     | .1             | no          |
| ADL – stress                         | 93.9     | 2.3            | no          |
| Time – stress                        | 92.0     | .4             | no          |
| Stress – physical health             | 91.7     | .1             | no          |
| Stress – life satisfaction           | 92.5     | .9             | no          |
| Stress – coping behaviors            | 91.7     | .1             | no          |
| Stress – social support              | 92.3     | .7             | no          |
| Coping behaviors - physical health   | 98.5     | 6.9            | yes         |
| Coping behaviors – life satisfaction | 91.7     | .1             | no          |
| Social support – physical health     | 91.6     | 0.0            | no          |
| Social support – life satisfaction   | 92.1     | .5             | no          |

Note: unconstrained  $\chi^2 = 91.6$ ,  $df = 36$ , significance=.3.64

| Paths of Male and Female             | $\chi^2$ | $\Delta\chi^2$ | Significant |
|--------------------------------------|----------|----------------|-------------|
| NCRB – stress                        | 95.2     | 1.1            | no          |
| ADL – stress                         | 94.1     | 0.0            | no          |
| Time – stress                        | 94.3     | .2             | no          |
| Stress – physical health             | 94.1     | 0.0            | no          |
| Stress – life satisfaction           | 94.3     | .2             | no          |
| Stress – coping behaviors            | 94.2     | .1             | no          |
| Stress – social support              | 98.0     | 3.9            | yes         |
| Coping behaviors - physical health   | 94.5     | .4             | no          |
| Coping behaviors – life satisfaction | 95.1     | 1.0            | no          |
| Social support – physical health     | 94.9     | .8             | no          |
| Social support – life satisfaction   | 98.2     | 4.1            | yes         |

Note: unconstrained  $\chi^2 = 94.1$ ,  $df = 36$ , significance=.3.64

**Hypothesis 2a.**

**Caucasians.** Model C (Figure 9) was also found to have a significant chi-square for the Caucasian caregiver subgroup in the comparison of Caucasian and African American caregivers, however, all of the other fit indices were within acceptable limits. The correlations between the variables of negative care receiver behavior, ADL, and time were all found to be significant. The factor loadings of financial stress and emotional stress were both found to be significant. Paths that were found to be significant in Model C were from negative care receiver behavior to stress, from ADL to stress, from stress to physical health, from stress to life satisfaction, from stress to coping behaviors, from coping behaviors to life satisfaction, from social support to physical health, and from social support to life satisfaction. For Caucasian caregivers, it was indicated that an increase in stress resulted in poorer perceived physical health, lower life satisfaction, and more coping behaviors. An increase in coping behaviors resulted in higher life satisfaction. An increase in social support resulted in better perceived physical health and higher life satisfaction. For the Caucasian caregiver subgroup, the paths that were as predicted were from stress to physical health, from stress to life satisfaction, from stress to coping behaviors, from coping behaviors to life satisfaction, from social support to physical health, and from social support to life satisfaction. The non-significant paths of Model C for the Caucasian subgroup were from time to stress, from stress to social support, and from coping behaviors to physical health.

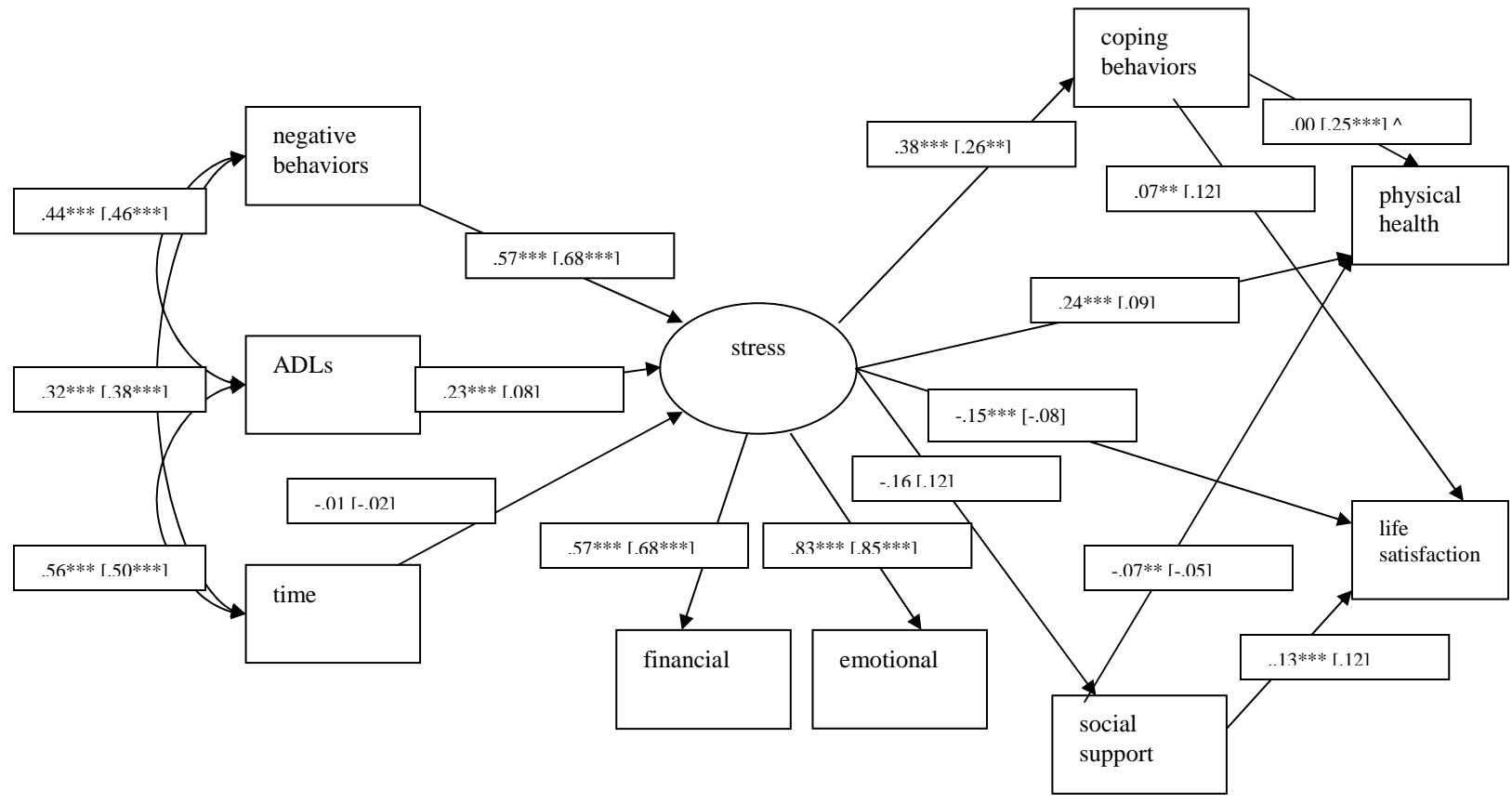
**African Americans.** For the African American subgroup, Model C (Figure 9) had a non-significant chi-square and the fit indices were all within acceptable limits. The correlations between the variables of negative care receiver behavior, ADL, and time were all found to be significant. The factor loadings of financial stress and emotional stress were both

found to be significant. Paths that were found to be significant in Model C were from negative care receiver behavior to stress, from stress to coping behaviors, and from coping behaviors to physical health. For African American caregivers, it was found that an increase in stress resulted in more coping behaviors and an increase in coping behaviors resulted in poorer perceived physical health. The path that was as predicted was from stress to coping behaviors. The path that was in the opposite direction from what was predicted was from coping behaviors to physical health. The non-significant paths for Model C in the African American subgroup were from ADL to stress, from time to stress, from stress to physical health, from stress to life satisfaction, from coping behaviors to life satisfaction, from social support to physical health, and from social support to life satisfaction.

**Comparing Caucasian and African American caregivers.** As shown in Figure 9, Caucasian and African American caregivers differed in significance level for all paths except for the predictor paths from negative care receiver behavior to stress and from ADL to stress and the path from stress to social support. The only path that was in the directions as predicted was from stress to coping behaviors for both for Caucasians and African American caregivers. The paths from stress to physical health, stress to life satisfaction, from coping behaviors to life satisfaction, from social support to physical health, and social support to life satisfaction were as predicted for Caucasian caregivers only. The path from coping behaviors to physical health was in opposite direction than predicted for African American caregivers only. The remaining paths were found to be non-significant.

As shown in Table 4 the model fit was similar for both groups. There were no significant differences in chi-squares between the unconstrained and the constrained models when the paths from negative care receiver behavior to stress, from ADL to stress, from time

to stress, from stress to physical health, from stress to life satisfaction, from stress to coping behaviors, from stress to social support, from coping behaviors to life satisfaction, from social support to physical health, and from social support to life satisfaction were constrained to be equal in both groups. There was a significant difference in chi-square between the unconstrained and constrained model when the path from coping behaviors to physical health was constrained to be equal in both groups. The unconstrained chi-square was 83.1 and the chi-square when the path from coping behaviors to physical health was constrained was 92.4. The path coefficient for the Caucasian caregiver subgroup for the unconstrained model was .00 (non-significant) and was .03 for the constrained model. The path coefficient for the African American caregiver subgroup for the unstrained model was .25 and was .03 for the constrained model. It is noted that the chi-square was higher for the constrained model and therefore, does not result in better model fit.



coping behavior residual – social support residual = .14\*\*\* [.08], physical health residual – life satisfaction residual = -.05 [.10]  
 $\chi^2=59.91, df=18, p<.000, GFI=.99, AGFI=.98, CFI=.98, RMSEA=.04, sRMR=.02$  [ $\chi^2=23.09, df=18, p<.187, GFI=.97, AGFI=.93, CFI=.98, RMSEA=.04, sRMR=.03$ ]

Figure 9. Caucasian and African American caregivers.

Note: African American in [ ]

\*\*\* Correlation is significant at the 0.001 level (2-tailed), \*\* Correlation is significant at the 0.01 level (2-tailed), \* Correlation is significant at the 0.05 level (2-tailed).

^ paths are significantly different between groups



**Hypothesis 2b.**

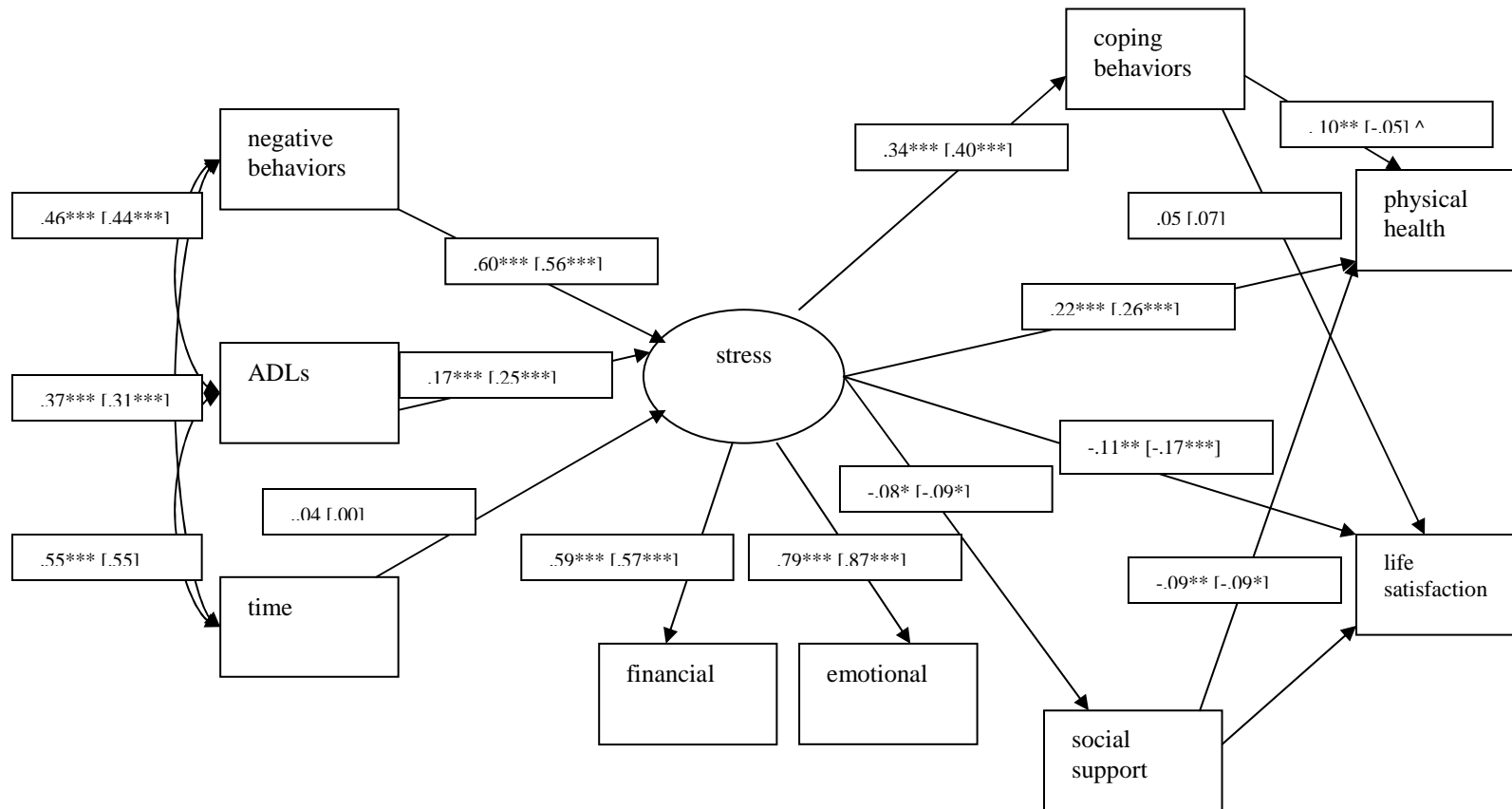
**Adult Children.** For Model C (Figure 10) it was found in the adult child subgroup that the chi-square was significant and the fit indices were within acceptable ranges. The correlations between the variables of negative care receiver behavior, ADL, and time were all found to be significant. The factor loadings of financial stress and emotional stress were both found to be significant. Paths that were found to be significant in Model C were from negative care receiver behavior to stress, from ADL to stress, from stress to physical health, from stress to life satisfaction, from stress to coping behaviors, from stress to social support, from coping behaviors to physical health, from social support to physical health, and from social support to life satisfaction. For adult child caregivers, it was found that increase in stress resulted in poorer perceived physical health, lower life satisfaction, more coping behaviors, and lower social support. An increase in coping behaviors resulted in poorer perceived physical health. Higher social support resulted in perceived better physical health and higher life satisfaction. The paths that were as predicted were from stress to physical health, from stress to life satisfaction, from stress to coping behaviors, from social support to physical health, and from social support to life satisfaction. The paths that were in the opposite direction as predicted were from stress to social support and from coping behaviors to physical health. The paths that were found to be non-significant for Model C were from time to stress and from coping behaviors to life satisfaction.

**Spouses.** For Model C (Figure 10), the chi-square was found to be non-significant in the spousal subgroup, and the fit indices all within acceptable ranges. The correlations between the variables of negative care receiver behavior, ADL, and time were all found to be significant. The factor loadings of financial stress and emotional stress were both found to be

significant. Paths that were found to be significant in Model C were from negative care receiver behavior to stress, from ADL to stress, from stress to physical health, from stress to life satisfaction, from stress to coping behaviors, from stress to social support, from social support to physical health, and from social support to life satisfaction. For spousal caregivers, it was found that an increase in stress resulted in poorer perceived physical health, lower life satisfaction, more coping behaviors, and less social support. An increase in social support resulted in better perceived physical health and lower life satisfaction. The paths that were as predicted were from stress to physical health, from stress to life satisfaction, from stress to coping behaviors, from social support to physical health, and from social support to life satisfaction. The path that was in the opposite direction as predicted was from stress to social support. Non-significant paths of Model C were from time to stress, from coping behaviors to physical health, and from coping behaviors to life satisfaction.

**Comparing adult child and spousal caregivers.** Adult child and spousal caregivers were compared using Model C (Figure 10). Paths that were in the direction as predicted for both adult child and spousal caregivers were from stress to physical health, from stress to life satisfaction, from stress to coping behaviors, from social support to physical health, and social support to life satisfaction. The path from stress to social support was in the opposite direction as predicted while the path from coping behaviors to life satisfaction was found to be non-significant for both adult child and spousal caregivers. The path from coping behaviors to physical health was in the opposite direction as predicted for adult child caregivers; however, it was non-significant for spousal caregivers. The level of significance was the same for adult child and spousal caregivers for all paths except from coping behaviors to physical health and social support to physical health.

As shown in Table 4 the model fit was similar for both groups. There were no significant differences in chi-squares between the unconstrained and the constrained models when the paths from negative care receiver behavior to stress, from ADL to stress, from time to stress, from stress to physical health, from stress to life satisfaction, from stress to coping behaviors, from stress to social support, from coping behaviors to life satisfaction, from social support to physical health, and from social support to life satisfaction were constrained to be equal in both groups. There was a significant difference in chi-square between the unconstrained and constrained model when the path from coping behaviors to physical health were constrained to be equal in both groups. The unconstrained chi-square was 91.6 and when the path from coping behaviors to physical health was constrained the chi-square was 98.5. The path coefficient from coping behaviors to physical health for the adult child caregiver subgroup for the unconstrained model was .10 and was .05 (non-significant) for the constrained model. The path coefficient from coping behaviors to physical health for the spousal caregiver subgroup for the unstrained model was -.05 (non-significant) and was .05 (non-significant) for the constrained model. It is noted that the chi-square was higher in the constrained model and therefore, does not result in a model with better fit.



coping behavior residual – social support residual = .14\*\*\* [.18\*\*\*], physical health residual – life satisfaction residual = -.01 [-.03]  
 $\chi^2=69.59, df=18, p<.000, GFI=.98, AGFI=.96, CFI=.96, RMSEA=.06, sRMR=.03$  [ $\chi^2=22.00, df=18, p<.232, GFI=.99, AGFI=.98, CFI=1.00, RMSEA=.02, sRMR=.02$ ]

Figure 10. Adult Child and Spousal Caregivers

Note: Spousal in [ ]

\*\*\* Correlation is significant at the 0.001 level (2-tailed), \*\* Correlation is significant at the 0.01 level (2-tailed), \* Correlation is significant at the 0.05 level (2-tailed).

^ paths are significantly different between groups

**Hypothesis 2c.**

**Males.** For Model C (Figure 11) it is noted that the chi-square was non-significant in the subgroup of male caregivers and all of the fit indices were in acceptable ranges. The correlations between the variables of negative care receiver behavior, ADL, and time were all found to be significant. The factor loadings of financial stress and emotional stress were both found to be significant. Significant paths in Model C were from negative care receiver behavior to stress, from ADL to stress, from stress to physical health, from stress to life satisfaction, from stress to coping behaviors, from stress to social support, from coping behaviors to life satisfaction, and from social support to physical health. For male caregivers, it was found that an increase in stress resulted in poorer perceived physical health, lower life satisfaction, more coping behaviors, and less social support. An increase in coping behaviors resulted in higher life satisfaction. An increase in social support resulted in better perceived physical health. For the male caregiver subgroup, the paths that were as predicted were from stress to physical health, from stress to life satisfaction, from stress to coping behaviors, from coping behaviors to life satisfaction, and from social support to physical health. The path that was in the opposite direction as predicted was from stress to social support. The non-significant paths for Model C were from time to stress, from coping behaviors to physical health, and from social support to life satisfaction.

**Females.** In Model C (Figure 11) it was found that the chi-square was significant in the subgroup of female caregivers but the fit indices were within acceptable ranges. The correlations between the variables of negative care receiver behavior, ADL, and time

were all found to be significant. The factor loadings of financial stress and emotional stress were both found to be significant. Significant paths for Model C were from negative care receiver behaviors to stress, from ADL – stress, from stress to physical health, from stress to life satisfaction, from stress to coping behaviors, from coping behaviors to life satisfaction, from social support to physical health, and from social support to life satisfaction. For female caregivers, it was found that an increase in stress resulted in poorer perceived physical health, lower life satisfaction, and more coping behaviors. An increase in coping behaviors resulted in higher life satisfaction. An increase in social support resulted in better perceived physical health and higher life satisfaction. For the female caregiver subgroup, the paths that were as predicted were from stress to physical health, from stress to life satisfaction, from stress to coping behaviors, from coping behaviors to life satisfaction, from social support to physical health, and from social support to life satisfaction. Non-significant paths for Model C were from time to stress, from stress to social support, and from coping behaviors to physical health.

**Comparing male and female caregivers.** Male and female caregivers were compared using Model C (Figure 11). The paths that were in the direction as predicted were from stress to physical health, from stress to life satisfaction, from stress to coping behaviors, from coping behaviors to life satisfaction, from social support to physical health, and from social support to life satisfaction for both male and female caregivers. Paths that were in the opposite directions from what was predicted for both male and female caregivers were from stress to physical health, from coping behaviors to life

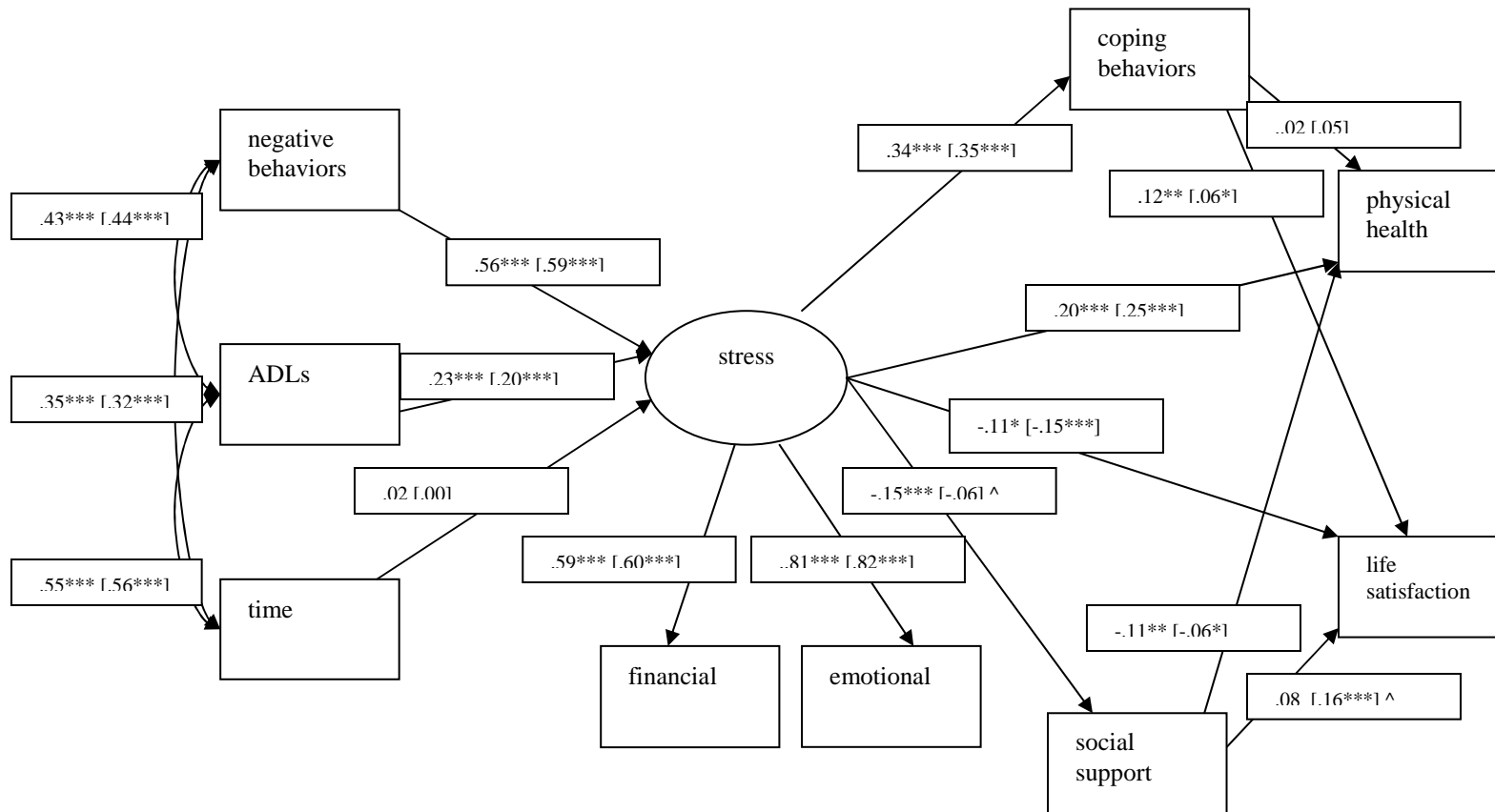
satisfaction, and from social support to life satisfaction. The path from stress to social support was found to be in the opposite direction than predicted for male caregivers and non-significant for female caregivers. The path from coping behaviors to physical health was found to be non-significant for both male and female caregivers. Male and female caregivers differed in level of significance on the paths from stress to life satisfaction, from stress to social support, from coping behaviors to life satisfaction, from social support to physical health, and from social support to life satisfaction.

As shown in Table 4 the model fit was similar for both groups. There were no significant differences in chi-squares between the unconstrained and the constrained models when the paths from negative care receiver behavior to stress, from ADL to stress, from time to stress, from stress to physical health, from stress to life satisfaction, from stress to coping behaviors, from coping behaviors to physical health, from coping behaviors to life satisfaction, and from social support to physical health were constrained to be equal in both groups.

There were significant differences in chi-square between the unconstrained and constrained model when the paths from stress to social support and from social support to life satisfaction were constrained to be equal in both groups. The unconstrained chi-square was 94.1 and the chi-square when the path from stress to social support was constrained was 98.0. The unconstrained chi-square was 94.1 and when the path from social support to life satisfaction was constrained the chi-square was 98.2. The path coefficient from stress to social support for the male caregiver subgroup for the unconstrained model was  $-.15$  and was  $-.07$  for the constrained model. The path

coefficient from stress to social support for the female caregiver subgroup for the unconstrained model was  $-.06$  (non-significant) and was  $-.09$  for the constrained model. The path coefficient from social support to life satisfaction for the male caregiver subgroup for the unconstrained model was  $.08$  (non-significant) and was  $.14$  for the constrained model. The path coefficient from social support to life satisfaction for the female caregiver subgroup for the unconstrained model was  $.16$  and was  $.12$  for the constrained model. It is noted that the chi-square was higher in the constrained model and therefore, does not result in better model fit.





coping behavior residual – social support residual = .17\*\*\* [.11\*\*\*], physical health residual – life satisfaction residual = -.03 [-.02]  
 $\chi^2=27.59, df=18, p<.069, GFI=.99, AGFI=.98, CFI=.99, RMSEA=.03, sRMR=.02$  [ $\chi^2=66.4, df=18, p<.001, GFI=.99, AGFI=.97, CFI=.97, RMSEA=.05, sRMR=.03$ ]

Figure 11. Male and Female Caregivers.

Note: Female in [ ]

\*\*\* Correlation is significant at the 0.001 level (2-tailed), \*\* Correlation is significant at the 0.01 level (2-tailed), \* Correlation is significant at the 0.05 level (2-tailed).

^ paths are significantly different between groups

## **DISCUSSION**

This chapter reviews and interprets the findings of the present study for the 2004 cross-sectional data and for the caregiver subgroups (i.e., Caucasian, African American, adult child, spousal, male, and female). Finally, limitations of the present study and recommendations for future research in family caregiving are addressed.

### **Coping Behaviors and Social Support**

It was predicted that the effect of increased caregiver stress on decreased caregiver physical health and on decreased life satisfaction would be significantly mediated through coping behaviors and social support. This was evaluated by using Model C and the 2004 Supplemental Caregiver Survey dataset.

The path coefficients from stress to physical health and from stress to life satisfaction were in the direction as predicted. It was found that the variables of coping behaviors and social support did not mediate these paths. This finding is inconsistent with the majority of the research literature on stress and family caregiving indicating that coping behaviors and social support mediate the relationship between stress and the outcome variables. This researcher believes that this may be due to the fact that types of coping behaviors (i.e., emotion-focused or problem-focused) and types of social networks (i.e., types of networks or size of networks) were not considered as not all coping behaviors and social support have an equal effect on stress, physical health, and life satisfaction. However, coping behaviors and social support were still found to be significant in the model and were used to evaluate the subgroups in this study.

### **Caucasian and African American Caregivers**

The path coefficients of the model and the goodness of fit were predicted to differ significantly between Caucasian and African American caregivers. However, for both Caucasian caregivers and African American caregivers positive path coefficients were hypothesized from stress to physical health, from stress to coping behaviors, from stress to social support, from coping behaviors to life satisfaction, and from social support to life satisfaction. The path coefficients from stress to life satisfaction, from coping behaviors to physical health, and from social support to physical health were predicted to be significant but negative.

Although model fit was predicted to differ significantly, it was similar for Caucasian and African American caregivers. The path coefficients from stress to physical health, from stress to life satisfaction, from coping behaviors to life satisfaction, from social support to life satisfaction, and from social support to physical health were in the direction as predicted for Caucasian caregivers. The path coefficient from stress to coping behaviors was as predicted for both Caucasian and African American caregivers. The path coefficient from coping behaviors to physical health was predicted to be negative but was positive for African American caregivers. This unexpected result indicates that with more coping behaviors, African American caregivers had perceived poorer physical health. Emotion-focused coping behaviors have been found to be less effective in decreasing feeling of stress. Some researchers reported that the relationship between coping and physical health is influenced by the types of coping behaviors used by a caregiver, such as emotion-focused and problem-focused coping (Folkman & Lazarus, 1980; Mathews et al., 2004). Knight and colleagues (2000) reported that African American caregivers were more likely to use more emotion-

focused coping behaviors than other caregivers. However, other researchers found no relationship between coping behaviors and physical health (George & Gwyther, 1986; McConaghy & Caltabiano, 2005).

In this study, the coping behavior items were vague and could not be categorized as emotion-focused or problem-focused. For example, reading can be emotion-focused when used as an escape but it can be problem-focused when used to learn about caregiving methods or disease process. It is also unknown whether the coping behaviors started prior to caregiving or if there were changes in the frequency of the coping behaviors after caregiving began. The participants' perception of their physical health prior to caregiving was not identified. Perception of physical health of the caregiver may have decreased (i.e., perceiving that their health would be worse) due to having less time to focus on physical health due to time spent caregiving. In addition, the coping behavior items included taking medication, drinking alcohol, and smoking which are related to poorer physical health. The coping behavior items in this survey may also be biased. For example, as stated by Mbanaso and colleagues (2006), African American caregivers are more likely to be spiritual and only one coping behavior item (i.e., prayer/mediation) addressed religious coping behaviors. Further research on the relationship between coping behaviors and physical health and the types of coping behaviors used by caregivers is needed.

The paths from stress to social support and from coping behaviors to physical health were non-significant for Caucasian caregivers. The paths from stress to physical health, from stress to life satisfaction, from stress to social support, from coping behaviors to life satisfaction, from social support to physical health, and from social support to life satisfaction were non-significant for African American caregivers. The African American

subgroup had the most non-significant paths of any of the subgroups. This might be due to the small sample size of this group. As noted by Dilworth-Anderson and colleagues (2002), African American caregivers can be hard to recruit and therefore, it is difficult to get a large sample size but results can still be indicators of what is occurring and are still valuable. It was also predicted that path coefficients would differ significantly; however, the only path coefficient that was significantly different between the Caucasian and African American was from coping behaviors to physical health.

### **Adult Child and Spousal Caregivers**

It was predicted that the path coefficients of the model and the goodness of fit would differ significantly between adult child caregivers and spousal caregivers. It was predicted that for adult child caregivers and spousal caregivers the positive path coefficients would be from stress to physical health, from stress to coping behaviors, from stress to social support, from coping behaviors to life satisfaction, and from social support to life satisfaction. The predicted inverse path coefficients would be from stress to life satisfaction, from coping behaviors to physical health, and from social support to physical health.

Although it was predicted to differ significantly, model fit was similar for adult child and spousal caregivers. The paths from stress to physical health, from stress to life satisfaction, from stress to coping behaviors, from social support to physical health, and from social support to life satisfaction were as predicted for adult child and spousal caregivers. It was predicted that the path coefficient from coping behaviors to physical health would be negative; however, this path coefficient was positive for adult child caregivers. As stated previously, the research literature continues to be inconsistent on whether or not there is a relationship between coping behaviors and physical health and this relationship needs to be

explored further. However, the inconsistency could be due to difference in type of coping behaviors utilized and the frequency of these coping behaviors by adult child and spousal caregivers. Therefore, this researcher believes that this may have an impact on the coping behavior results in that different types of coping behaviors and the difference in the frequency of their use would render different results.

The path from stress to social support was also predicted to be positive but was negative for both adult child and spousal caregivers. This finding indicates that with increased stress, both adult child and spousal caregivers were more likely to report less social support. Kang (2006) reported that adult child caregivers were more likely to receive social support than spousal caregivers. However, this study's finding suggests that both adult child and spousal caregivers do not receive the quality of social support from others as needed. It may be that when stressed, adult child and spousal caregivers withdraw and seek out less support or it could be that when an adult child or a spouse becomes a caregiver, individuals in their social support network do not offer support. Therefore, professionals should encourage both adult child and spousal caregivers to seek quality social support. The path from coping behaviors to life satisfaction was non-significant for adult child and spousal caregivers and the path from coping behaviors to physical health was non-significant for spousal caregivers.

### **Male and Female Caregivers**

The path coefficients of the model and the goodness of fit were predicted to differ significantly between male caregivers and female caregivers. The predicted positive path coefficients for male and female caregivers were from stress to physical health, from stress to coping behaviors, from stress to social support, from coping behaviors to life satisfaction, and from social support to life satisfaction. The predicted inverse path coefficients were

from stress to life satisfaction, from coping behaviors to physical health, and from social support to physical health.

Although it was predicted to differ significantly, model fit was similar for male and female caregivers. The paths from stress to physical health, from stress to life satisfaction, from stress to coping behaviors, from coping behaviors to life satisfaction, and from social support to physical health were as predicted for both male and female caregivers. It was predicted that the path from stress to social support would be positive; however, the path was negative for male caregivers. This indicates that with increased stress, male caregivers were more likely to report less social support. When gender is not taken into account, it is expected that with an increase in stress there will be an increase in social support. If the variable of gender were considered, research has generally found that women are more likely to seek social support than men when experiencing high levels of stress. Therefore, the research literature supports the result of increased caregiving stress resulting in decreased social support for male caregivers (DiBartolo & Soeken, 2003; House et al., 1988). The path from social support to life satisfaction was non-significant for male caregivers, the path from stress to social support was non-significant for female caregivers, and the path from coping behaviors to physical health was non-significant for both male and female caregivers.

### **Limitations**

The NLTCs was selected as the dataset for this study because of the large number of participants. However, this study was still limited with the small number of participants in the African American caregiver subgroup ( $n=179$ ). For example, Model C included 27 parameters. As Kline (1998) recommended there should be at least 5 participants per parameter; however, 10 or more participants would be preferred. It was noted that the

remaining groups in this study (i.e., Caucasians, adult children, spousal, males, females, had more path coefficients that were not significant than the African American caregiver subgroup. Although, the small number of participants of these subgroups may or may not have caused the path coefficients to be non-significant, caution should be used when generalizing the results from the African American subgroup.

The present study does not address the original purpose of the NLTCS Supplemental Caregiver Survey. The original purpose was to evaluate resources and government assistance programs used by family caregivers. In addition, the measures used in this dataset were not standardized and were items selected by the NLTCS. An increased number of standardized measurements would have aided in increasing credibility.

Further, as discussed there are different ways to assess coping behaviors (i.e., emotion-focused and problem-focused) and social support (e.g., size of networks, types of networks, or quality of network) that would better explain the stress process of caregiving. However, due to the small number of items and vague wording of the items in this study, it was not possible to explore the different types of coping behaviors or social support in more depth.

Lundh (1995) found that the caregiver's burden can be affected by the caregiver/care receiver relationship prior to caregiving with individuals which had more positive relationship experience less caregiver stress. Stoller (1983) also found adult child caregivers that had a positive relationship with the care receiver parent prior to caregiving found the caregiving situation to be less stressful than adult child caregivers that did not have a positive relationship with the care receiver parent. Research indicated that caregiver satisfaction may be correlated with the caregiver-care receiver relationship prior to caregiving (Walker et al.,



1990). However, prior quality of the relationship between the caregiver and care receiver was not assessed in this study.

### **Recommendations**

Caregivers represent a heterogeneous group of people with respect to ethnicity, relationship to caregiver, and gender. Despite these differences, caregivers were similar to one another with regard to stress and the variables involved in the caregiving experience. Caregiver stress and the caregiving experience are factors that can be readily identified in social service practice. Developing screening instruments that prioritize these factors in the scoring configurations will assist in better assessment outcomes. The ABC-X model is a theoretical link developed to account for the role of stress in the human environment. Social services programs must design intervention strategies that reflect the complex background of caregivers and caregiver needs. Through the ABC-X model, this study expands on the literature to bring focus to the bridging of the gap between research and practice. Although the ABC-X model was not fully supported in this study, future research should still strive to establish a relationship between research and practice.

Although coping behaviors and social support were not found to be mediators of the paths from stress to physical health and from stress to life satisfaction, they were found to be significant variables in the stress model and the ABC-X framework. Programs attempting to help caregivers need to include components of caregiver's stress, coping behaviors, social support, physical health and life satisfaction along with caregiver's ethnicity, relationship to caregiver, and gender. The inclusion of these additional factors will serve to guide the social as well as mental health professional in the development of meaningful interventions.

Additional waves of data are essential to be able to understand the meaning behind many of the findings in this study. This study was limited in several areas and these limitations prevented the exclusion of multiple, plausible explanations. However, as this study shows, for some caregivers there were significant path coefficients from coping behaviors to physical health, from coping behaviors to life satisfaction, from social support to physical health, and from social support to life satisfaction. Addressing coping behaviors and social support can promote better physical health and higher life satisfaction and improve the caregiver's experience. This study was valuable in identifying findings that can and should be included in future research studies. The topic and focus of this study is both timely and critical to family caregivers of older adults. In addition, family caregiving is an intimate personal experience. Research should include both positive and negative aspects of caregiving, as well as quantitative and qualitative measures of caregiving experiences.

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**APPENDIX**

## Variables Used in Study

## Evaluation of the model:

|          |   |                          |
|----------|---|--------------------------|
| Sex      | 2a. Are you male or female?<br>Male 1<br>Female 2   | CWS_2C                   |
| Race     | 3d. Please choose one or more races that you consider yourself to be:<br>White<br>Black or African American | CGD_3DTG_1<br>CGD_3DTG_2 |
| Relation | What is your relationship to the sample person?<br>Spouse/Spousal Equivalent 1<br>Son 2<br>Daughter 3       | CGREL_R                  |

## Model Variables:

|                                 |  |          |
|---------------------------------|--|----------|
| Negative CR Behaviors           | In the past week, on how many days did you personally have to deal with the following behavior [SAMPNAME]? How many days did (he/she): |          |
|                                 | 1. keep you up at night  | CGE_8_A  |
|                                 | 2. repeat questions/stories  | CGE_8_B  |
|                                 | 3. try to dress the wrong way  | CGE_8_C  |
|                                 | 4. have a bowel or bladder accident  | CGE_8_D  |
|                                 | 5. hide belongings and forget about them   | CGE_8_E  |
|                                 | 6. cry easily  | CGE_8_F  |
|                                 | 7. act depressed or downhearted  | CGE_8_G  |
|                                 | 8. cling to you or follow you around?  | CGE_8B_H |
|                                 | 9. become restless or agitated?  | CGE_8B_I |
|                                 | 10. become irritable or angry?   | CGE_8B_J |
| 11. swear or use foul language? | CGE_8B_K   |          |

|  |  |            |
|--|--|------------|
|  | 12. become suspicious, or believe someone is going to harm (him/her)?  | CGE_8B_L   |
|  | 13. threaten people?   | CGE_8B_M   |
|  | 14. show sexual behavior or interest at the wrong time/place?  | CGE_8B_N   |
|  | 15. destroy or damage property?  | CGE_8B_O   |
| ADLs                                       | 2a. Help [SAMPNAME] walk around inside or get around inside with a wheelchair or similar device?   | AKH_AD_A   |
|  | 2b. Help [SAMPNAME] eat?   | AKH_AD_B   |
|  | 2c. Help [SAMPNAME] get in or out of bed?  | AKH_AD_C   |
|  | 2d. Help [SAMPNAME] get dressed – by getting and putting out the clothes (he/she) wears during the day?  | AKH_AD_D   |
|  | 2e. Give [SAMPNAME] shots or injections?   | *AKH_AD_E  |
|  | 2f. Give [SAMPNAME] medicine, pills, or change (his/her bandages)?   | *AKH_AD_F  |
|  | 4c. In the past week, that is since last [day], did you help [SAMPNAME] bathe by helping (him/her) get into or out of the bathtub or shower, or by washing (him/her) in a bathtub or shower or at a sink or basin?                                 | AKH_BTH1   |
|  | 5a. In the past week, that is since last [day]. Did you help [SAMPNAME] do any of the following? Did you help [SAMPNAME] – Use the toilet by helping (him/her) get on or off the toilet, by arranging (his/her) clothes, or by cleaning (him/her)? | **AKH_TO_A |
|  | 5b. With a bed pan?  | **AKH_TO_B |
|  | 5c. With a catheter or colostomy bag?  | **AKH_TO_C |
|  | 5d. Clean up after bladder or bowel accidents?   | **AKH_TO_D |
|  | 8a. In the past week, that is since last [day], did you, BECAUSE OF [SAMPNAME]'s DISABILITY, help (him/her) by – Preparing special foods or fixing extra meals?  | AKH_ID_A   |
|  | 8b. Managing [SAMPNAME]'s money, like keeping track of bills or handling cash?   | AKH_ID_B   |
| 8c. Making telephone calls for [SAMPNAME]? | AKH_ID_C   |            |



|           |  |          |
|-----------|--|----------|
|           | 8d. Doing things around the house, such as straightening up, putting things away, or doing dishes?   | AKH_ID_D |
|           | 8e. Doing [SAMPNAME]'s laundry ?   | AKH_ID_E |
|           | 8f. Shopping for [SAMPNAME]'s groceries?   | AKH_ID_F |
|           | 8g. Doing other small errands for [SAMPNAME] outside of the house?   | AKH_ID_G |
|           | 8h. Helping [SAMPNAME] get around outside, including helping (him/her) walk or use a wheelchair or walker?   | AKH_ID_H |
|           | 8i. Helping [SAMPNAME] get around the neighborhood or city by driving (him/her) or helping (him/her) use public transportation?  | AKH_ID_I |
| Time      | 10. On average, about how many hours do you spend helping [SAMPNAME] in a typical week?  | AKH_GEN  |
| Financial | 4. Using the same scale from 1 to 5 where 1 is no hardship at all and 5 is a great deal of hardship, how much of a financial hardship would you say that caring for [SAMPNAME] is for you?         | CGE_4    |
| Emotional | 3. Using the scale from 1 to 5, where 1 is not all stressful and 5 is very stressful, how emotionally stressful would you say that caring for [SAMPNAME] is?                                       | CGE_3    |
| Coping    | Here are some things that some people do when they are under stress from caregiving. How often do you do them? (1) Never, (2) Once in a while, (3) Fairly often, (4) Very often, -8 DK, -9 Refused |          |
|           | 14a. Spend time alone  | CGE_14_A |
|           | 14b. Eat   | CGE_14_B |
|           | 14c. Take some medications to calm yourself  | CGE_14_C |
|           | 14d. Drink some alcohol  | CGE_14_D |
|           | 14e. Prayer/Meditation   | CGE_14_E |
|           | 14f. Talk with friends or relatives  | CGE_14_F |
|           | 14g. Spend time on exercise or hobbies   | CGE_14_G |
|           | 14h. Smoke   | CGE_14_H |
|           | 14i. Watch TV  | CGE_14_I |

|                 |   |          |
|-----------------|---|----------|
|                 | 14j. Read   | CGE_14_J |
|                 | 14k. Get help from counselor or other professional  | CGE_14_K |
| Social Support  | Let's turn now to the help and support you get from your friends and relatives. Thinking about your friends and family, other than [SAMPNAME]. Please indicate the extent to which you agree or disagree with the following statements: (1) Strongly disagree, (2) Disagree, (3) Agree, (4) Strongly Agree, (-8) Don't Know, (-9) Refused |          |
|                 | 13a. There is really no one who understands what you are going through.   | CGE_13_A |
|                 | 13b. The people close to you let you know that they care about you.   | CGE_13_B |
|                 | 13c. You have a friend or relative in whose opinion you have confidence.  | CGE_13_C |
|                 | 13d. You have someone whom you feel you can trust.  | CGE_13_D |
|                 | 13e. You have people around you who help you to keep your spirits up.   | CGE_13_E |
|                 | 13f. There are people in your life who make you feel good about yourself.   | CGE_13_F |
|                 | 13g. You have at least one friend or relative you can really confide in.  | CGE_13_G |
|                 | 13h. You have at least one friend or relative you want to be with when you are feeling down or discouraged.   | CGE_13_H |
| Physical Health | 1a. The next question is about your health. Compared to other people your age, would you say your health, in general, is excellent, good, fair, or poor?<br>(1) Excellent, (2) Good, (3) Fair, (4) Poor, (-8) Don't Know, (-9) Refused  | GIC_1A   |
| Satisfaction    | 7a. Providing help to [SAMPNAME] has – Made me feel good about myself. (1) Disagree a lot - (5) Agree a lot, -8 DK, -9 RF   | CGE_7_A  |
|                 | 7b. Providing help to [SAMPNAME] has – Enabled me to appreciate life more.  | CGE_7_B  |

Note: \* ADLs were combined as one item of giving medications  
 \*\* ADLs were combined as one item of toileting