The Impact of Family and Non-Family Roles on Caregiver Health Over Time

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Dedication

To my Family,

whose constant encouragement, support, and love made this dissertation possible.
Abstract

Using stress process and life course theory, this dissertation investigated pathways of adult child caregivers’ family (caregiving, marital, parenting) and non-family (employment) roles and their relation to caregiver psychological and physical health over time. Eight waves of data (1992-2006) from the Health and Retirement Study were analyzed for 1,300 adult child caregivers. Latent class analysis provided strong substantive and statistical evidence for a 4-class model of caregivers’ role pathways. The four pathways were (a) Married, Working Caregivers (22.5%), (b) Married, Retired Caregivers with Co-Residing Child (12.5%), (c) Married, Retired Caregivers (30.5%), and (d) Not Married, Retired Caregivers (34.6%). Married, Working Caregivers, who were more likely to be male, White, and younger than most other pathways, had more optimal psychological and subjective physical health, but were more likely to have high blood pressure compared to caregivers in other pathways. Results suggest that (a) adult child caregivers have distinct family and non-family role pathways, (b) caregivers’ gender, race/ethnicity, and age predict pathway membership, and (c) caregivers’ role pathways are connected to psychological and physical health over time. Future research should explore how adult child caregivers’ role pathways structurally differ for male versus female and younger versus older caregivers to further explain the heterogeneity of adult child caregivers’ role pathways. Family practitioners may be helpful in identifying practices and policies that help adult child caregivers manage their diverse range of long-term family and non-family roles.

Keywords: caregiving, health, life course, stress process, Health and Retirement Study
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The Impact of Family and Non-Family Roles on Caregiver Health Over Time

Chapter One. Introduction

Providing informal, non-paid care and personal assistance to older adults who are physically or cognitively disabled has historically been the primary responsibility of family members in the United States. Family caregivers provide approximately 80% of assistance in later life, which means that 44 million caregivers (19% of population) are currently providing assistance to adults age 50 and older (National Alliance for Caregiving and AARP, 2009). Family caregivers are predominantly females who are, on average, 48 years of age (National Alliance for Caregiving and AARP, 2009). Most family caregivers who are caring for a person age 50 and older are adult children providing informal care and assistance to parents (36%), followed by other relatives (24%; i.e., aunts, uncles, nieces, nephews), non-relatives (14%; i.e., friends, neighbors), and spouses (6%; National Alliance for Caregiving and AARP, 2009). As one of the largest caregiver groups, adult child caregivers are the basis for the current study. There is much to gain from understanding adult child caregivers’ experiences of providing care to aging parents.

Research on adult child caregivers, hereafter referred to as caregivers, shows strong support for the finding that caregivers experience significantly higher levels of depression as well as moderately lower levels of physical health when compared to non-caregivers (Amirkhanyan & Wolf, 2006; Andren & Elmstahl, 2008; Choi & Marks, 2006; Koerner & Kenyon, 2007; Pinquart & Sorenson, 2003a; Pinquart & Sorenson, 2007). The emotional and physical burden on caregivers is estimated to increase significantly over
the next 10-20 years as a result of the aging baby boom generation and fewer family members available to provide care (AARP, 2008). Despite these emotional and physical difficulties, caregivers continue to provide care to aging parents, saving the U.S. government billions of dollars each year. For example, the value of unpaid caregiving contributions was approximately $375 billion in 2007 (AARP, 2008). Thus, to minimize the financial costs of caregiving on society, it is in the best interest of society to support caregiver health and the valuable contributions they make to their families and communities (National Alliance for Caregiving and AARP, 2009).

A substantial body of cross-sectional research has examined the impact of caregiving on the psychological and physical health of caregivers. Guided by a strong theoretical framework such as Pearlin’s stress process theory (Pearlin, Mullan, Semple, & Skaff, 1990), caregiving research has sought to thoroughly describe and explain the caregiving stress process (Dilworth-Anderson, Goodwin, & Williams, 2004; Gaugler et al., 2003; Lu et al., 2007; Morano, 2003; Okabayshi et al., 2009). This research indicated that caregivers’ background characteristics (i.e., gender, race/ethnicity, age, and social roles) influenced their experience of stressors and strains, which in return were strong predictors of their depression, anxiety, physical health, and cognitive disturbance (Dilworth et al., 2004; Gaugler et al., 2003; Lu et al., 2007). How caregivers coped with caregiving and the support received from family and friends mediated the relationship between caregivers’ stressors, strains, and outcomes (Morano et al., 2003; Okabayshi et al., 2009). Few studies, however, have explored long-term patterns of caregiving stress processes and how aspects of caregivers’ lives may change over time (Pearlin, 2010). The
current study will address this gap in the literature by examining how caregivers’ background characteristics such as social roles are related to caregivers’ psychological and physical health over time.

Caregivers are likely to occupy family and non-family social roles that may impact their health over time. Family roles are social roles that individuals occupy within their families (i.e., caregiving, marital, and parenting roles) whereas non-family roles are social roles that occur outside of the family and include the domains of paid work, leisure, and friendship. Research has found positive and negative associations between caregivers’ family and non-family roles and health (Lima, Allen, Goldscheider, & Intrator, 2008; Marks, Lambert, Jun, & Song, 2008; Stephens, Townsend, Martire, & Druley, 2001). For example, one study found that being married and employed was associated with higher levels of depression for caregivers (Chumbler, Pienta & Dwyer, 2004) whereas another study found that employment served a protective function by providing a social outlet for caregivers who may otherwise have been isolated by their caregiving responsibilities (Williams et al., 2008). Conflict between caregiving, marital, and employment roles has also been found to exacerbate the relationship between caregiver stress and depressive symptoms (Stephens et al., 2001). In other words, the caregiving role alone may not influence health outcomes, but rather the combination of multiple roles can have additive or interactive effects on caregiver health (Chumbler et al., 2004; Marks et al., 2008; Stephens et al., 2001; Williams et al., 2008).

Although caregivers are heterogeneous and occupy multiple family and non-family roles in various ways over time, research has yet to capture this reality (Elder,
Researchers have tended to underestimate the differences in caregivers’ diverse life experiences by holding social roles constant (Dannefer & Kelley-Moore, 2009; Laditka & Pappas-Rogich, 2001; Lima et al., 2008; Raina et al., 2004). Further, a majority of caregiving research is cross-sectional and retrospective, which does not provide information about how caregiver family and non-family roles may change over time (Chumbler, Pienta, & Dwyer, 2004). Research is needed to understand how caregivers’ family and non-family roles may change over time and how this may impact their psychological and physical health (Dannefer & Kelley-Moore, 2009; Macmillan & Eliason, 2004; Wolff & Kasper, 2006).

**Purpose and Research Questions**

This dissertation research investigated three family roles (caregiving, marital, parenting) and one non-family role (employment) and their impact on caregiver health over time using eight waves (1992-2006) of data from the Health and Retirement Study (HRS) and RAND HRS (University of Michigan, Health and Retirement Study, accessed October 2009). This research explored the phenomena of interdependent family and non-family roles of caregivers through a theoretical lens of stress process and life course theory. Latent class analysis and regression were utilized to examine how changing family and non-family roles were related to caregivers’ psychological and physical health over time. This dissertation research answered two pertinent research questions regarding adult child caregivers: (1) what combination of long-term family and non-family roles are most common?; and (2) how are combinations of long-term family and non-family roles associated with change in adult child caregivers’ psychological and physical health?
Significance of the Study

This is the first study to examine long-term patterns of caregivers’ family and non-family roles and their relation to caregivers’ psychological and physical health using eight waves of data. This study is cutting edge because there is currently limited research that accurately depicts caregivers’ changing family and non-family roles and how they are related to caregiver health. As the baby boom generation continues to age and the United States continues to spend billions of dollars to assist our aging population, this study will provide a mechanism by which families, practitioners (i.e., employers, family educators, therapists), and policy makers can make more informed decisions about care provided by adult child caregivers. Study findings will have implications for helping caregivers manage their long-term family and non-family roles and be healthier, more productive caregivers, spouses, parents, and employees. Caregivers who are better able to manage their multiple and challenging roles are more likely to: (a) experience reduced levels of emotional and physical burden; (b) provide better care to elder family members; and (c) provide care for a longer amount of time, which keeps elders from entering a nursing home and exhausting government funds (McCann, Hebert, Bienias, Morris, & Evans, 2004). Without this research, community and government programs will continue to provide services to caregivers (i.e., respite care and support groups) that are not specific to caregivers’ diverse family and non-family roles, increasing the emotional and physical burden of caregiving for our families as well as financial burden for our communities and society (AARP, 2008).
Chapter Two. Theoretical Frameworks

This chapter describes the theoretical frameworks that guided this dissertation research. Caregivers’ social roles were conceptualized by integrating a stress process theory for caregivers (Pearlin et al., 1990) and life course theory (Elder, 1985; 1998; MacMillan & Eliason, 2004). Both theories posit that caregivers’ family and non-family roles influence their experiences of stressors as well as their personal and social resources available to handle these stressors over time (Dannefer & Kelly-Moore, 2009; Pearlin, 2010; Pearlin & Skaff, 1996). As a result, caregivers’ roles are expected to be connected to their expressions of stress such as psychological and physical health (Elder, 1998; Pearlin et al., 1990). Together, these theories highlight the diversity of social roles across the life course and illustrate that the context in which caregivers provide care to aging parents is a dynamic process that has implications for caregivers’ health.

Stress Process Theory

Stress process theory was developed by Pearlin and colleagues (1990) to conceptualize how stress was experienced as a process by informal family caregivers. Pearlin and colleagues (1990) aimed to improve measurement of the antecedents and outcomes of caregiver stress. They defined caregiving as “activities and experience involved in providing help and assistance to relatives or friends who [were] unable to provide care for themselves” (Pearlin et al., 1990, p. 583). Pearlin and colleagues (1990) assumed that caregivers provided specific amounts or types of care that occurred in the context of other roles such as marital, parenting, or employment roles. Thus, caregiving
does not occur in isolation and may affect other life events experienced by caregivers (Pearlin, 2010).

Multiple conceptual components of stress process theory include: (a) background characteristics and contexts, (b) primary stressors, (c) secondary role and intrapsychic strains, (d) mediators, and (e) outcomes (Pearlin et al., 1990). *Background characteristics and contexts* involve ascribed statuses such as gender, race/ethnicity, and age as well as attained roles such as marital, parenting, and employment roles. Attained roles have various statuses that are specific positions within a given role. For example, being married, widowed, divorced, never married, and remarried are statuses within the marital role. Caregivers’ characteristics and contexts represent a social stratification of “rewards, privileges, opportunities, and responsibilities” that are directly and indirectly related to every component of the stress process experienced by caregivers (see Figure 1: (Pearlin et al., 1990, p. 585).

*Primary stressors* develop from the needs of the care recipient that include care recipients’ problematic behaviors, dependencies, and cognitive disturbances (Pearlin et al., 1990). Primary stressors are directly related to secondary role strains and indirectly related to secondary intrapsychic strains and caregiver outcomes (see Figure 1). If primary stressors increase, secondary strains are expected to increase and outcomes are expected to be negatively affected as well.

*Secondary role and intrapsychic strains* are secondary because they result from increases in primary stressors (Pearlin et al., 1990). Secondary role strains encompass caregivers’ perceptions of family conflict, occupational conflict, and financial restraints
that are associated with caregiving. Secondary intrapsychic strains involve caregivers’ perceptions of self-esteem, mastery of caregiving, and loss of self due to caregiving. Secondary strains are directly related to each other as well as indirectly and directly to caregiver outcomes, respectively (see Figure 1). If secondary role strains increase, secondary intrapsychic strains are expected to increase, and caregiver outcomes would be negatively affected.

_Mediators_ such as coping strategies and social support prevent or reduce stressors and negative outcomes (see Figure 1; Pearlin et al., 1990). Coping strategies are any actions that caregivers take to minimize stressors and strains and to promote their own wellbeing. Caregivers’ coping strategies include managing the situation (i.e., learning about the illness), making meaning of the situation (i.e., reducing expectations or making positive comparisons), and minimizing stress associated with the situation (i.e., spending time alone, exercising, meditating). Social support is conceptualized as both instrumental and expressive support (Pearlin et al., 1990). Instrumental social support is having someone help provide care to the care recipient or assist the caregiver with household chores. Expressive social support is trust, compassion, confidence, and happiness that are given by friends and family to caregivers.

Finally, stress process theory defines _outcomes_ as the effects of caregivers’ abilities to maintain themselves and their social roles (Pearlin et al., 1990). Caregiver outcomes have included depression, anxiety, physical health, cognitive disturbance, and the decision to stop providing care (Pearlin & Skaff, 1996; Pearlin et al., 1990). Caregiver
outcomes are directly and indirectly affected by previous components of the stress process (see Figure 1).

This study focuses on the direct relationship between caregiver characteristics and caregiver outcomes as indicated by the bolded line in Figure 1. While stress process theory explains the interrelated components contributing to the stressful experience of caregiving, stress process theory has been limited in explaining the relationship between caregiver characteristics and health outcomes. Pearlin and colleagues (1990) have recognized that researchers all too often utilized individual characteristics such as social roles as statistical controls, consequently failing to give adequate attention to the relative impact of changing family and non-family roles on caregiver outcomes. Further, this theory acknowledges that stability and change in caregivers’ life circumstances are pertinent to understand, yet those dynamics are not fully addressed in the model (Pearlin, 2010). Life course theory provides a complimentary lens for defining family and non-family roles, understanding how caregiver roles may change over time, and determining the implications of this change on caregiver psychological and physical health.

**Life Course Theory**

Life course theory assumes that human development is structured by the order and timing of life events that occur throughout the life course (Elder, 1985; 1998). Moving into and out of family and non-family roles and statuses within these roles are examples of life events (Ferraro, 2001). Individuals interact within societal and cultural contexts that shape their life decisions and, ultimately, the order and timing of their family and non-family roles as well as health outcomes (Elder, 1998).
Five life course concepts constitute the foundation of this dissertation research. These concepts include roles, role configurations, and trajectories and transitions that culminate into pathways (Elder, 1985; 1998; George, 1993; 2009; Macmillan & Copher, 2005; Settersten, 2003). These concepts were designed to build upon each other to represent the complex life courses of individuals and family members. Roles are positions that individuals occupy within social domains such as paid work and family (Macmillan & Copher, 2005); they are the basic building blocks that structure an individual’s life course. Roles commonly considered among adult child caregivers have included family (caregiving, marital, and parenting) and non-family roles (employment; Chumbler et al., 2004). A role may have more than one status; for example, marital role statuses may include being married, divorced/separated, or never married. Life course theory stipulates that multiple family and non-family roles occur at various points in time over the life course, creating role configurations.

Role configurations are age-specific social roles that are interdependently linked throughout the life course (Macmillan & Eliason, 2003). Life course theory assumes that being a caregiver depends on the presence or absence of other family or non-family roles as well as perceptions of those roles (Settersten, 2003). For example, caregivers’ employment status (i.e., employed or not employed) has been related to the amount of time caregivers were able to provide care to a family member and the relationship with the employment role differed as the caregiving relationship changed with time (Henz, 2006). Mapping caregiver role configurations allowed researchers to verify
interdependent relationships among social roles and determine what patterns of family and non-family roles existed at particular ages across the life course (Settersten, 2003).

Life course theory emphasizes that roles and role configurations more accurately portray the life course when they were examined over time as trajectories (Elder, 1998). Trajectories are long-term, age-graded patterns of social roles (George, 2009; Macmillan & Copher, 2005). Life course theory recognizes the importance of examining the trajectories of multiple roles (George, 1993; 2009). Individuals could have caregiving, marital, parenting, and/or employment trajectories. Transitions are gradual or sudden changes in roles or statuses within roles that are located at the beginning and end of trajectories (Elder, 1985; George, 1993; 2009; Macmillan & Copher, 2005). Thus, transitions determine when a trajectory begins and when it ends. Trajectories could involve multiple transitions in family and non-family roles over time such as transitions into and out of caregiving, marital, parenting, and employment roles and statuses within those roles. Trajectories could also entail long durations within the same role over a specified period of time (e.g., employed for 10 years or providing intense, hands-on care to an aging parent for 5 or more years). Thus, life course theory provides a theoretical basis for conceptualizing caregiving, marital, parenting, and employment roles as roles that individuals are likely to enter and exit throughout the life course (Marks et al., 2008). Adults in midlife (ages 45 to 65) may be more likely to be transitioning out of roles and specific role statuses compared to younger adults (ages 18-44) (Pearlin, 2010).

According to life course theory, transitions could be stressful for individuals and families depending on whether the transition is planned, unplanned, on-time, and/or off-
time (Elder, 1998) or whether the transition occurred simultaneously with other transitions (Pearlin, 2010; Settersten, 2003). Transitions that are planned and normatively on-time (i.e., an expected and long-awaited retirement) are less stressful than transitions that are not planned and normatively off-time (i.e., involuntary job loss and parent care; Elder, 1998). The timing of various transitions may affect the health of individuals and families in different ways. Further, transitions into and out of family and non-family roles that occurred at relatively the same time were likely to be related to increased stress among individuals and families (Pearlin, 2010). Losing a job, becoming a caregiver to a frail parent, and having an adult child move into a household in the same week or even year could increase stress for individuals and families.

Life course theory combined the concepts of roles, role configurations, trajectories, and transitions to create pathways. *Pathways* are interdependent trajectories of family and non-family roles that structure the life course based on the differences in ordering and timing of these multiple roles (Macmillan & Eliason, 2003). Basically, pathways are combinations of multiple family and non-family role trajectories. Pathways capture the reality of the life course as interdependent trajectories of family and non-family roles over time (Elder, 1985; Macmillan & Copher, 2005). For example, in a ten-year time span, individuals could simultaneously (a) become caregivers and stop providing care; (b) be employed, and then retire; (c) have adult children move into and out of their home; and (d) be married, and then widowed. Life course theory assumes that pathways resulting from the various timing and ordering of transitions into and out of family and non-family roles have diverse associations with caregiver outcomes.
According to life course theory, caregivers are expected to differ in their ability to manage transitioning into and out of multiple roles and the responsibilities of those roles. Thus, caregivers’ pathways, the experience of transitioning into and out of roles, have been associated with their psychological and physical health (Elder, 1998; George, 1993; Marks et al., 2008; Macmillan & Copher, 2005; Macmillan & Eliason, 2004). Caregivers may experience diverse effects depending on the configuration of their multiple roles over time, which suggests that caregivers are heterogeneous and have different life experiences that impact their health.

Life course theory has been helpful for understanding families because it upholds the concept of linked lives. This concept maintains that the order and timing of family and non-family roles for one family member has consequences for the lives of other family members (Elder, 1994). Developmental trajectories (including roles and health outcomes) of family members are interdependently linked across time (Elder, 1985). For example, an employed adult child providing intensive care to an aging parent may have less time to spend with a spouse, which could negatively impact their marriage as well as the caregiver’s psychological and/or physical health. Providing care to an elder family member is a life event that structures caregivers’ developmental trajectories and impacts the life of the individual as well as lives of other family members (Marks et al., 2008; Rosenthal, Hayward, Martin-Matthews, & Denton, 2004). Caregivers’ pathways may affect family development by negatively or positively impacting relationships between adult child caregivers and their parents (caregiving role), spouses (marital role), adult children (parenting role), and employers (employment role) (Elder, 1994).
Similar to stress process theory, context has also been highlighted by life course theory. Contextual factors such as gender, race/ethnicity, and age position individuals in societal structures of opportunities and constraints that alter their family and non-family role pathways and health (Bengtson & Allen, 1993; Pearlin et al., 1990; Settersten, 2003). For example, caregivers who are female, White, and 50 years of age could have different role pathways and different levels of psychological and physical health compared to caregivers who are male, Black, and 60 years of age. Therefore, gender, race/ethnicity, and age should be accounted for in any examination of midlife adults’ life pathways.

**Summary**

In summary, stress process theory and life course theory inform each other to suggest that the patterning of social roles across the life course is a dynamic process that has implications for caregivers’ health. Stress process theory and life course theory provide a conceptual foundation for examining what is known about caregivers’ family and non-family roles and how they are related to caregiver psychological and physical health in the next chapter.

**Chapter Three. Literature Review**

This chapter examines what is currently known about family and non-family roles and psychological and physical health for adults in midlife (ages 45 to 65), the age at which most adult children become caregivers to their parents. Literature on adult child caregivers, not spousal caregivers nor other types of informal caregivers, was reviewed to achieve consistency between the current study and previous research. The following sections of this chapter include: (a) caregivers’ psychological and physical health; (b)
family and non-family role trajectories; and (c) family and non-family role pathways. This sequencing of sections establishes a clear understanding of psychological and physical health before discussing the role trajectories and pathways that can affect these dimensions of caregivers’ health.

**Caregivers’ Psychological and Physical Health**

Providing care to an aging parent can be time-consuming as well as emotionally and physically exhausting for adult child caregivers. Understanding the emotional and physical health of caregivers is pertinent because poor emotional and physical health for caregivers has been associated with their quality of life as well as the quality of life for care recipients. For example, caregivers with low levels of psychological and physical health struggled to manage their caregiving tasks, which negatively impacted their care recipients’ health and wellbeing (McCann et al., 2004; Navaie-Waliser et al., 2002; Yaffe, Fox, & Newcomer, 2002). Caregiving has also been related to positive outcomes such as increased life satisfaction and a sense of purpose in life (Jenson, Ferrari, & Cavanaugh, 2004; Piercy, 2007; Williams et al., 2008). This dissertation study focuses on caregivers’ health to better understand how caregivers’ family and non-family roles alter their psychological and physical functioning.

A plethora of research has examined how providing care to an aging parent is related to the psychological and physical health of caregivers (Amirkhanyan & Wolf, 2006; Marks et al., 2008; McConaghy & Caltabiano, 2005; Pinquart & Sorenson, 2003a; 2007; Williams, 2005). Most studies established that providing care was associated with higher levels of depression and psychological stress (Cooper, Katona, Orrell, &
Livingston, 2008; Li, 2005; Marks, et al., 2008; Pinquart & Sorenson, 2003a). Depression has been the most commonly assessed indicator of caregiver psychological health, which has most often been measured with the Center for Epidemiological Studies Depression Scale (CES-D; Amirkhanyan & Wolf, 2006; Li, 2005; Marks et al., 2008; Pinquart & Sorenson, 2003a). Using three waves of the Health and Retirement Study, Amirkhanyan and Wolf (2006) found that caregivers reported higher levels of depression compared to non-caregivers over time. Although there is longitudinal research on caregiving, few studies have examined how predictors of caregiver depression may change over time and how such changes may impact caregiver depression levels. Two studies, using nationally representative, longitudinal data, found that transitioning into a caregiving role increased depression levels for caregivers (Marks, Lambert, & Choi, 2002; Marks et al., 2008). It is still unknown how transitioning into and out of the caregiving role, in conjunction with other roles such as marital, parenting, and employment roles, over time may be related to the psychological health of caregivers.

Physical health of caregivers has received less empirical consideration than psychological health (Pinquart & Sorenson, 2007). Assessments of physical health have included subjective measures (i.e., self-reported physical health) and objective measures (e.g., stress hormones, diabetes, high blood pressure) of physical health (Pinquart & Sorenson, 2003b; Vitaliano, Zhang, & Scanlan, 2003). Providing care to an aging parent has been related to poorer physical health; however, research findings are less consistent with regard to the negative effects of caregiving on physical health compared to psychological health (McConaghy & Caltabiano, 2005; Pinquart & Sorenson, 2007;
Williams et al., 2008). Some studies found that caregivers were more likely to have lower levels of subjective and objective dimensions of physical health than non-caregivers (Bell, Araki, & Neumann, 2001; Williams et al., 2008) while other studies found no association between caregiving and subjective physical health (McConaghy & Caltabiano, 2005). A plausible explanation for these contradictory results was that this limited research utilized non-representative convenience samples, cross-sectional and comparative designs, and different measures of physical health (McConaghy & Caltabiano, 2005; Pinquart & Sorenson, 2007; Williams et al., 2008).

In addition to methodological contradictions, contextual factors (i.e., gender, race/ethnicity, and age) have also accounted for variability in caregivers’ psychological and physical health. Studies consistently found that White caregivers reported lower levels of depression than non-White caregivers (Janevic & Connell, 2001; Kang, 2006; Kosberg, Kaufman, Burgio, Leeper, & Sun, 2007; Marks et al., 2008; Roff, Burgio, Gitlin, Nichols, Chaplin, & Hardin, 2004). Latino caregivers had worse physical health compared to their White counterparts (Rabinowitz & Gallagher-Thompson, 2007); Black and Hispanic midlife adults were more likely to experience poor physical health than White midlife adults (Liang, Xu, Bennett, Ye, & Quinones, 2010). Using nationally representative data, Kang (2006) found that male caregivers reported higher levels of depression than female caregivers whereas a meta-analysis on caregiver gender differences and health found that female caregivers had higher levels of depression and lower levels of physical health than male caregivers (Pinquart & Sorenson, 2006). Findings regarding the relationship between caregivers’ age and health have also been
inconsistent. Utilizing nationally representative data, Marks and colleagues (2008) found a negative relationship between caregivers’ age and depressive symptoms whereas Chumbler, Pienta, and Dwyer (2004) found a positive relationship between caregivers’ age and depressive symptoms. McConaghy and Caltabiano (2005) found no statistically significant difference between older and younger adult child caregivers’ psychological health.

Overall, research suggests that caregivers’ physical and psychological health are two dimensions of health that should be examined to fully understand the impact that caregiving has on adult children (Pinquart & Sorenson, 2003b; Pinquart & Sorenson, 2007). This dissertation research will examine levels of depression as well as subjective and objective levels of physical health among adult child caregivers. To understand how family and non-family roles may impact the psychological and physical health of caregivers, it is important to review the literature on role trajectories and pathways.

**Family and Non-Family Role Trajectories**

**Caregiving Role Trajectory**

Caregiving is a family role that has been conceptualized as a career or trajectory for individuals in midlife and older adulthood (Aneshensel, Pearlin, Mullan, Zarit, & Whitlach, 1995; Pearlin, 1992; Seltzer & Li, 2000). Adult children enter the caregiving trajectory through either a gradual or sudden transition (Aneshensel et al., 1995; Marks, Lambert, & Choi, 2002; Marks et al., 2008; Pearlin & Aneshensel, 1994). Both types of transitions respond to the physical, emotional, financial, and social needs of care recipients, illustrating the life course concept of linked lives (Elder, 1998). Adult children
who gradually became caregivers for their parents are often unaware of when they became caregivers because their parents’ health declined gradually over time and parents’ needs increased relatively slowly (Pearlin & Aneshensel, 1994). A sudden transition into the caregiving role occurs when an unexpected health crisis of a parent demands an immediate increase in adult child involvement in care (Lawton, Moss, Hoffman, & Perkinson, 2000). Of course, adult children may experience both gradual and sudden transitions in the caregiving role when a health crisis occurs during the declining health trajectory of the aging parent (Aneshensel et al., 1995; Lawton et al., 2000; Pearlin & Aneshensel, 1994).

The level of involvement in the caregiving role has tended to increase over time as the parent aged and their health decreased (Dwyer, Henretta, Coward, & Barton, 1992; Seltzer & Li, 1996; Marks, Lambert, & Choi, 2002). One study found that family caregivers provide an average of 4 years of care, ranging from 1 year to 40 or more years (Donelan et al., 2002); approximately 40% of caregivers provide care for 5 or more years and one-fifth of caregivers provide care for 10 or more years. Research has found that caregiver involvement slightly decreased when care recipients entered an institutional setting such as a nursing home, providing some respite to adult child caregivers (Gaugler, Anderson, Zarit, & Pearlin, 2004). The caregiving role for an adult child ends with the death of the parent even though grieving the loss of that role may continue (Gaugler & Kane, 2001; Pearlin, 2010).

Providing care to a parent has been considered a stressful role because it is a role that most children do not plan for in advance and are not always expecting to fill.
Life course theory posits that unexpected transitions are more stressful than transitions that are expected such as marital and employment roles (Elder, 1998). Adult children have often not prepared for the gradual or sudden decline in parental health and the plethora of caregiving tasks involved in providing care to a parent (Aneshensel et al., 1995; Pearlin & Aneshensel, 1994; Seltzer & Li, 1996). Adult child caregivers gradually or immediately assist with tasks such as bill paying, meals, dressing, bathing, going to the bathroom, transportation, medications, yard work, and laundry when parents can no longer safely carry out these tasks themselves. The gradual accumulation of caregiving tasks has been related to increased caregiver stress, especially for female caregivers (Aneshensel et al., 1995; Marks, Lambert, & Choi, 2002; Pearlin & Aneshensel, 1994; Pinquart & Sorenson, 2006). Caregivers’ psychological and physical health has also been compromised when parents experienced a health crisis and adult children had to immediately address multiple caregiving tasks at once (Aneshensel et al., 1995; Pearlin & Aneshensel, 1994; Pinquart & Sorenson, 2006).

Congruent with stress process theory (Pearlin et al., 1990), research has depicted caregiving as a behavior, examining the number of hours caregivers provided care to aging and frail parents (Chumbler, Pienta, & Dwyer, 2004; National Alliance for Caregiving & AARP, 2009; Wolff & Kasper, 2006). Researchers have often identified caregivers by asking them how many hours a week or year they provided care and assistance to an aging parent. Caregivers have typically been defined as individuals who provided 100 or more hours of daily care per year, or approximately 3 hours per week.
(Chumbler et al., 2004; Dautzenberg et al., 1999; 2000). Some researchers have defined
 caregivers as persons who provided 10 hours of care per week (520 hours per year)
(Koerner & Kenyon, 2007). In 2009, adult child caregivers provided an average of 20
hours of informal care per week with approximately 13% of caregivers providing 40 or
more hours of care per week (National Alliance for Caregiving & AARP, 2009).
Research has yet to depict how caregiving hours may change over time in the form of
trajectories.

Research has found that caregiving trajectories may differ by race/ethnicity,
gender, and age. For example, the majority of caregivers are women (66%; National
Alliance for Caregivers & AARP, 2009). It has been estimated that 36 percent of
caregivers are Hispanic followed by Black (34%), White (31%), and Asian (20%)
caregivers. Approximately 48 percent of caregivers were 50 years of age or older with 35
percent of caregivers between 50 and 64 years of age, 9 percent of caregivers between the
ages of 66 and 74, and 4 percent of caregivers 75 years of age and older (National
Alliance of Caregivers & AARP, 2009). Female caregivers (49 years) were, on average,
older than males (47 years). White caregivers (50 years) were older than Black caregivers
(45 years) followed by Asian (44 years) and Hispanic (42 years) caregivers (National
Alliance of Caregivers & AARP, 2009).

The relationship between caregiving trajectories and caregivers’ psychological
and physical health is currently unknown. Research has found that caregivers providing
different amounts of care have experienced noticeable health differences (Pinquart &
Sorenson, 2003a; 2007). For example, Robertson and colleagues (2007) utilized cross-
sectional data and found that caregivers who provided more hours of care suffered from worse psychological health. Life course theory would assume that levels of care and involvement in the caregiving role would change over time (MacMillan & Copher, 2005). This assumption has been supported by research, which has found that transitioning into the caregiving role was related to higher levels of depression (Marks, Lambert, & Chio, 2002). One study of primary adult child caregivers found that the caregiving role increased distress for men more than women (Spitze et al., 2004). The current study seeks to address the limitation of previous cross-sectional research by examining the long-term pattern of caregiving in relation to other family and non-family roles as well as health outcomes.

**Marital Role Trajectory**

Midlife adults have marital role trajectories that reflect their stable or changing marital role. From a life course perspective, marriage is a legally defined social role in which the lives of married partners are closely linked over the course of a marriage (Moen, Robison, & Fields, 1994; Riley & Riley, 1993). The marital role changes as a result of changing relationship dynamics between adults and the people with whom they share close social relationships. Changes in marital status most likely occur in midlife when spouses die, couples separate or get divorced, adults in midlife marry for the first time, or midlife adults remarry (Barusch, 2008). Adults in midlife, much like young adults, experience committed love, new romances, and infatuations as well as infidelity, incompatibility, and growing apart that can lead to changes in marital status (Amato & Previti, 2003; Barusch, 2008).
Marital roles vary by age and gender (U.S Census, 2008). In 2008, the majority of midlife men were married regardless of age (67-72%; U.S. Census, 2008). Men’s likelihood of being separated or divorced decreased with age; men who were 45-54 and 55-64 years old (18%) were more likely to be separated or divorced compared to men ages 65 years and older (10%). Men’s likelihood of becoming widowed increased with age; men who were 45-64 years of age (4%) were less likely to be widowed compared to men ages 65 years and older (14%). Finally, the likelihood of never marrying decreased with age for men; 45-54 year old men (14%) were more likely to be never married compared to 55-64 year old men (8%) and men ages 65 and older (4%; U.S. Census, 2008).

The majority of women in midlife were also married. Women who were 45-54 years of age (64%) or 55-64 (62%) years of age, however, were more likely to be married than women ages 65 and older (40%; American Community Survey, 2008). Women who were 45-54 and 55-64 years of age (22%) were also more likely to be separated or divorced compared to women age 65 years and older (12%). Women’s likelihood of becoming widowed increased with age at a higher rate compared to men; women who were 65 years or older (44%) were more likely to be widowed compared to women 45-64 years old (12%). Finally, the likelihood of never marrying among midlife women did not vary significantly by age, ranging from 5 to 11 percent (U.S. Census, 2008).

Many of these age differences in marital status appear to represent age and cohort effects with older generations of men and women more likely to be married or widowed, and younger generations of men and women more likely to be married, divorced or
separated, or never married. With changing demographics, it has been supported that younger cohorts of midlife adults will enter retirement having been widowed, never married, or with a history of multiple marriages (Hughes & Waite, 2007; Pienta, Hayward, & Jenkens, 2000). Thus, it is important to consider how age contributes to differences in marital role trajectories.

Marital roles also vary as a result of race/ethnicity (U.S. Census, 2008). Asians (59%) were more likely to be married followed by Hispanic (54%), White (53%), Black (30%), and American Indian/Pacific Islander adults (39%; U.S. Census, 2008). American Indian/Pacific Islander and Black adults (16%) were most likely to be separated or divorced followed by White (13%), Hispanic (10%), and Asian (6%) adults. Black adults were more likely to be never married (47%) followed by American Indian/Pacific Islander (40%), Asian (29%), White (27%), and Hispanic (26%) adults. Widowhood appeared to be relatively stable across racial/ethnic groups with 5-7 percent of all racial ethnic groups experiencing widowhood (U.S. Census, 2008).

Marital status has been associated with the health of midlife adults (Carr & Springer, 2010). Most research has consistently found that married individuals in midlife live longer and report better psychological and physical health compared to their non-married counterparts (Barrett, 2000; Carr & Springer, 2010; Earle, Smith, Harris, & Longino, 1998; Gallo, Troxel, Matthews, & Kuller, 2003; Marks, 1996; Wilcox, Evenson, Aragaki, Wassertheil-Smoller, Mouton, & Loevinger, 2003). Using the 1992 wave of the Health and Retirement Study, Pienta, Hayward, and Jenkens (2000) found that married individuals had fewer diseases and overall better health compared to
widowed, divorced or cohabiting midlife adults. Compared to continuously married persons, men and women in midlife who were divorced or widowed had a significantly higher prevalence of cardiovascular disease at the baseline of a longitudinal study (Zhang & Hayward, 2006). In that same study, women who experienced marital loss (i.e., divorce or widowhood) had a higher prevalence of cardiovascular disease in midlife compared to continuously married women (Zhang & Hayward, 2006). Marital loss was also not associated with men’s prevalence of cardiovascular disease in midlife.

Research has also found that adults in midlife who exited marriage either through divorce or widowhood had poorer health compared to adults who never married (Lee, DeMaris, Bavin, & Sullivan, 2001; Pienta et al., 2000; Wilcox et al., 2003; Williams & Umberson, 2004). Exiting marriage through widowhood negatively affected the physical health of men in midlife whereas exiting marriage through divorce in later life negatively affected both midlife men and women (Williams & Umberson, 2004). Widowhood has been associated with higher levels of depression for men than women (Lee, DeMaris, Bavin, & Sullivan, 2001). This suggested that women adapted better to widowhood than men. Recent widows experienced worse physical and mental health compared to long-term widows (Wilcox et al., 2003).

Several explanations have developed to explain why marriage may appear to be more beneficial than not being married. The first explanation is selectivity of health benefits. This model states that psychologically and physically robust individuals are more likely to be selected during mate selection (Goldman, 1993; Lillard & Panis, 1996). Unmarried, divorced and widowed individuals are thought to be frailer and less healthy
than married individuals (Sbarra & Nietert, 2009). Not all researchers, however, approve of this purely biological reasoning for the benefits of marriage.

More contextual and environmental explanations were developed in response to the selectivity of health model. One such explanation is referred to as the marital resource model (Umberson, 1992). This model suggests that the context of marriage is beneficial and acts as a protective factor for individuals (Sherbourne & Hays, 1990). According to this model, marriage encompasses the human, social, and financial capital of both involved individuals (Brody, 1992; Brody et al., 1995; Pienta, Hayward, & Jenkens, 2000; Ron, 2006). Marriage is hypothesized to provide financial and nonfinancial resources not readily available outside of marriage (i.e., dual incomes and emotional support; Ducharme, 1994). Supporting this model, research found that marital satisfaction, employment status, emotional distress, and socioeconomic status were better predictors of emotional health than marital status by itself (Earle et al., 1998; Zhang & Wayward, 2006).

Another contextual or environmental explanation of the benefits of marriage has been referred to as the marital crisis model, which suggested that marriage was not necessarily more beneficial, but rather the experience of marital dissolution was harmful (Booth & Amato, 1991). William and Umberson (2004) examined a longitudinal sample of married and divorced men and women and found that marital status differences in health reflected strains with marital dissolution rather than perceived or observed benefits of marriage. They also found that marital transitions out of marriage did not undermine health over time and, in some instances, improved it. This is because separation or
divorce may bring an end to chronic strains that were once present in a marriage (Carr & Springer, 2010).

**Parenting Role Trajectory**

Adults in midlife may occupy the family role trajectory of parenting. They may be parents to young, dependent children (18 years or younger), adult children (older than 18 years), or both dependent and adult children. Research found that dependent children were more likely to co-reside in the parental household whereas adult children were more likely to leave the parental home to seek employment, marry, attend college, and/or obtain their own residence such as a house, apartment or college dormitory (White, 1994). Parental households in which adult children have moved out of the household have often been referred to in the literature as “empty nests” (Dennerstein, Dudley, & Guthrie, 2002). Empty nesting has been defined as the life stage when children were grown and no longer lived at home (Barber, 1989).

It is possible for midlife adults to experience several phases of empty nesting, and thus a parenting trajectory may occur, in which adult children enter and exit the parental household several times across their life course (Smits, Van Gaalen, & Mulder, 2010; Ward & Spitze, 2007; White, 1994). Adult children have often co-resided with their parents during changes in socioeconomic status related to employment and marital status changes (Giannelli & Monfardini, 2001; Messineo & Wojtkiewicz, 2004; Smits et al., 2010; White & Rogers, 1997). For example, divorced and unemployed adult children were more likely to reside with their parents than adult children who were married and employed (Smits et al., 2010). Co-residence is generally not a permanent phenomenon;
adult children have been more likely to live at home and then leave their parents’ homes once they established or re-established themselves (Aquilino, 1996; Giannelli & Manfardini, 2001; Smits et al., 2010; White 1994).

In 2008, approximately 31 percent of households consisted of parents and their biological children under the age of 18 (U.S Census, 2008). More White households (56%) had children under the age of 18 followed by Hispanic (19%), Black (15%), American Indian/Pacific Islander (7%), and Asian (3%) households (U.S. Census, 2008).

Patterns of co-residence between parents and adult children have been relatively difficult to determine because data such as census data have provided unreliable ways for verifying whether parents were living with children or if children were living with parents (Connidis, 2001). Despite this unreliability, research using census data has suggested that co-residence between parents and adult children decreased as adult childrens’ ages increased (U.S. Census, 2008; White, 1994). For example, approximately 21-25 percent of adult children between the ages of 18 and 24 lived with a parent compared to 1-5 percent of adult children between the ages of 25 and 34 (U.S. Census, 2008). Goldscheider (1997), in a literature review, found that more men (20%) than women (12%) between the ages of 25 and 29 had yet to permanently leave their parents homes due to sporadic attendance in higher education and high unemployment rates. Parents in midlife were more likely to have adult children who had not left home compared to parents ages 65 and older (Connidis, 2001). It has been estimated that 1 in 7 parents aged 65 and older had children living with them (White & Rogers, 1997). Overall, the likelihood of adult children co-residing with parents decreases as adult
children reach their later 20s and early 30s (U.S. Census, 2008; White, 1994). Older cohorts of midlife adults may also be less likely to have co-residing children compared to more recent cohorts of midlife adults (Hughes & Waite, 2007).

Co-residing dependent and/or adult children has been associated with the health of parents as well as the quality of parent-child relationships. The daily tasks, burdens, and hassles associated with raising young, dependent children has been consistently associated with increased stress and burden as well as decreased marital satisfaction and quality of life among parents (Crnic, Gaze, & Hoffman, 2005; Crnic & Low, 2002; Seiffge-Krenke, 1999). Co-residence between adult children and their parents has largely been beneficial to adult children and less beneficial to parents (Connidis, 2001). For example, research has found that the emotional wellbeing of the parent increased once children no longer resided in the household; the wellbeing of children did not increase (Dennerstein, Dudley, & Guthrie, 2002; Mitchell, 2000; Ward, Logan, & Spitze, 1992; White, 1994). Midlife parents with co-residing children of any age reported higher levels of depression compared to midlife parents without co-residing children (Evenson & Simon, 2005). Dennerstein and colleagues (2002) found that the return of any adult children reduced women’s frequency of sexual relations with partners. Parents perceived their children to be less psychologically healthy if they co-resided in their home, which was negatively associated with caregiver emotional health and their parent-child relationships (Mitchell, 2010; Seiffge-Krenke, 2006). Co-residence may increase chances for disagreements between adult children and parents, negatively impacting parent-adult child relationships and the emotional wellbeing of both parent and adult child (Ward &
Spitze, 2007). Overall, it seems that co-residing with children of any age increases parenting responsibilities, which can have detrimental effects on parental health.

**Employment Role Trajectory**

Similar to caregiving, marital, and parenting roles, adults in midlife have non-family employment trajectories (Austen & Ong, 2010). They are at a life stage in which they may be working full-time, working part-time, not employed, or retired. Full-time work has been defined by working 35 or more hours per week whereas part-time work has been defined as working 20 or fewer hours per week. Midlife adults may be unemployed, but looking for a job. Most individuals are considered retired when they are no longer working for monetary compensations (Kim & Moen, 2002; Mein, Martikainen, Hemingway, & Marmot, 2003; Moen, Kim & Hofmeister, 2001).

Employment trajectories of midlife adults tend to change as they leave their primary work careers and approach retirement (Kim & Moen, 2002; Shafer, 2011). While the official age to begin collecting Social Security retirement benefits has been 65 years of age, many individuals have retired before they reached this age (Social Security Administration, 2010). For example, the mean age at retirement is 62. When retiring, many midlife adults choose to leave their careers when retiring while other midlife adults involuntarily lose their jobs (Gallo, Bradley, Siegel, & Kasl, 2000). The retirement phase has become less defined over time as midlife adults retired while also pursuing part-time volunteer and paid work (Moen, Kim, & Hofmeister, 2001).

Employment trajectories vary by gender, race/ethnicity, and age of midlife adults. Men (84%) were more likely to be employed than women (72%) with men and women
having similar levels of unemployment (6%; U.S. Census, 2008). This statistic represents
the characteristic of older cohorts in which men are more likely to be breadwinners and
women are more likely to be homemakers (O’Rand & Henretta, 1999). Hispanic adults
were more likely to be employed (63%) compared to White (61%), Black (55%) and
American Indian/Pacific Islander (53%) adults (U.S. Census, 2008). Asians (62%) had
relatively similar employment statuses as Hispanic and White adults. Black and
American Indian/Pacific Islander adults (12%) were more likely to have higher
unemployment rates compared to Hispanic adults (7%) and White and Asian adults (5%).
More adults ages 45-54 (77%) and adults ages 55-64 (61%) were employed compared to
adults ages 65 and older (23%; U.S. Census, 2008). The likelihood of being unemployed
(4%) was the same for midlife adults regardless of age groups (U.S. Census, 2008).

Supported by longitudinal research, midlife adults’ employment trajectories are
complex and have the ability to impact caregivers’ health. Kim and Moen (2002) found
that men experienced increased morale as they transitioned from full-time employment to
retirement. They hypothesized that this occurred because men felt a sense of relief from
the pressures of their careers, improving their psychological health. Men who were
continuously retired, however, were more likely than recently retired men to experience
increased depression symptoms. Mein and colleagues (2003), also using longitudinal
data, found that individuals who continued working past the age of 60 had significantly
lower levels of mental health compared to individuals who retired at age 60 while
physical health declined for both continued workers and retirees. Additional research
found that retirees experienced lower levels of anxiety and distress compared to their employed counterparts, but retiring was not related to depression (Drentea, 2002).

Transitioning from full-time work to retirement has been associated with decreases in marital quality and increases in marital conflict for both men and women (Moen, Kim, & Hofmeister, 2001). This was especially salient for couples in which the wife remained employed full-time while the husband retired, illustrating the life course concept of linked lives (Moen, Kim, & Hofmeister, 2001). Kim and Moen (2002) found that women experienced poorer psychological health following retirement if they perceived their marital quality to decrease. It seems that transitioning from paid work to retirement has detrimental effects on the health and wellbeing of adults in midlife and this may differ by gender.

In summary, the literature supports that caregiving, marital, parenting, and employment roles each have trajectories that are likely to change over time and impact the health of adults in midlife. More research has focused on the impact of these family and non-family roles on psychological health and less on physical health. The next section of this literature review will examine how family and non-family roles are interdependently related to each other as well as to psychological and physical health of adult child caregivers in midlife.

## Family and Non-Family Role Pathways

As indicated by life course theory, adults in midlife may occupy many combinations of social roles that represent role pathways (Edwards et al., 2002; Kosberg, Kaufman, Burgio, Leeper, & Sun, 2007). For example, some individuals may be married,
employed, and providing care to an aging parent while others may not be married nor employed, but provide care to aging parents. Life course theory suggests that the interdependence of family and non-family roles can have detrimental effects on any particular role as well as health outcomes of individuals and families (Settersten, 2003). Most caregiving studies have examined the impact of two roles (i.e., caregiving and the marital role or parenting role or employment role) on caregiver health. Fewer studies are consistent with life course theory by examining the impact of interlocked, multidimensional caregiving, marital, parenting, and employment roles on caregiver health (Chumbler et al., 2004; Stephens et al., 2001). No studies, to the author’s knowledge, have examined how changes in caregivers’ family and non-family roles impact caregiver health over time. This is largely a result of most caregiving research utilizing cross-sectional data or statistically controlling for caregivers’ family and non-family roles.

**Caregiving and Marital Roles**

In 2009, most caregivers were married or partnered (64%) followed by divorced or widowed (21%), and never married (15%; National Alliance on Caregiving and AARP, 2009). Although most caregivers are married, research on the benefits of marriage for caregivers has been inconclusive. Studies of middle-aged female caregivers have found that they report fewer depressive symptoms than non-married caregivers (Dautzenberg et al., 1999; Reid & Hardy, 1999) while other studies have found no relationship between marital status and caregiver emotional health (Martin, 2000). Research that has found better overall health among married caregivers has suggested
that social support provided by spouses increased caregivers’ health (Brody, 1992; Brody, Litvin, Hoffman, & Kleban, 1995; Ron, 2006). Using nationally representative longitudinal data, Marks and colleagues (2008) found that being married was beneficial for caregiving men and not caregiving women. A cross-sectional study found that White caregivers were more likely to be married than Black caregivers, but White caregivers still experienced higher levels of depression than Black caregivers (Williams, 2005). Other research found a lack of evidence for the positive or negative impact of being married on caregiver health (Dautzenberg et al., 1999; Spitze et al., 1994). No research has examined how change in marital status among caregivers is related to caregivers’ psychological and physical health.

**Caregiving and Parenting Roles**

Research using nationally representative data found that many caregivers (36-50%) have co-residing children (Chumbler et al., 2004; Marks et al., 2008). Midlife adults who have dependent or adult children in the household and are providing care to aging parents have experienced competing demands from both generations (Grundy & Henretta, 2006). The term “sandwich generation” was given to individuals who raised dependent children while providing care to aging parents (Grundy & Henretta, 2006). Research found that providing care to dependent children and aging parents was not statistically normative (Connidis, 2001; Martin-Matthews & Rosenthal, 1993). Adults in midlife were more likely to have adult children. Further, when these adult children co-resided with their parents, they did so as a result of their dependence on their parents and not their parents’ dependence on them (White, 1994).
Most research using representative samples has found that co-residing dependent or adult children has not been related to the mental health of caregivers (Dautzenberg et al., 1999; 2000; Marks et al., 2008; Martin, 2000; Spitze et al., 1994). A cross-sectional study, however, found that providing childcare to young children and care to aging parents were two roles that created a substantial amount of stress for caregivers (Neal et al., 1993). In another study, female caregivers who had co-residing adult children also had higher levels of depression compared to female caregivers who did not have co-residing adult children (Reid & Hardy, 1999). While the presence of adult children in the household has been associated with additional strains for caregivers (Grundy & Henretta, 2006), it has also been found that assistance from co-residing adult children increased caregivers’ abilities to provide care to aging parents (Grundy & Henretta, 2006; Silverstein & Bengtson, 1997). Research has yet to examine how changes in the parenting role are related to caregiver physical health.

**Caregiving and Employment Roles**

In 2009, the majority of adult child caregivers worked full-time (50%) followed by those who were retired (17%), worked part-time (11%), and were unemployed and looking for work (5%; National Alliance for Caregiving and AARP, 2009). Employed caregivers have tended to be younger ($M = 46$ years of age) than caregivers who were not employed or retired ($M = 54$ years of age; National Alliance for Caregivers & AARP, 2009). Research suggests that the number of employed caregivers is growing. For example, 17% of employees reported providing care to a person age 65 or older in 2002 compared to 13% in 1997 (Bond, Galinsky, & Swanberg, 1998; Bond, Thompson,
It has been estimated that 33-50% of the employed American population will be caring for an elderly parent at some point over the next 20 years (Stephenson, 2002).

Research on caregiving and employment roles has focused on the bidirectional relationship between those roles. Approximately 50% of employed caregivers reported work-family conflict and, as a result, worked fewer hours or took time off without pay to provide care (Singleton, 2000; Wolff & Kasper, 2006). Caregivers who worked more hours in a paid position experienced more negative work conflict compared to caregivers who worked fewer hours (Barrah, Shultz, Baltes, & Stolz, 2004; Edwards, Zarit, Stephens, & Townsend, 2002). Characteristics of the workplace such as high demands and few resources have contributed to increased caregiver strain and lower caregiver emotional health (Fredriksen-Goldsen & Scharlach, 2006). In contrast to the above studies, Rosenthal and colleagues (2004), using a national, population-based sample, found that employment was not related to time spent providing care and assistance to aging parents.

Studies examining caregiving and employment roles have also considered how these bidirectional family and non-family roles are related to caregiver health, offering inconclusive findings. Research has found that employed caregivers, particularly females, were more likely to be depressed than non-employed caregivers (Lee, Walker, and Shoup, 2001; Marks et al., 2008; Metlife Mature Market Institute, 2010). Using longitudinal data, Rozario, Morrow-Howell, and Hinter-Long (2004) found that caregivers who worked and/or volunteered reported better overall health over time than
caregivers who did not work or volunteer. In contrast, Kang (2006), using a national sample, found that being employed was not related to caregiver emotional strain. Similar levels of emotional health and role strain have also been found among employed caregivers and non-caregivers (Edwards et al., 2002; Lee, Walker, & Shoup, 2001). With regard to physical health, Williams and colleagues (2008) found that employed caregivers reported significantly better health than non-employed caregivers. Minimal differences have been found between employed caregivers and non-caregivers and their diagnosed medical conditions such as cancer, high blood pressure, diabetes, and having a stroke (Metlife Mature Market Institute, 2010). It is unknown how changes in employment status impact caregiver psychological and physical health.

**Caregiving, Marital, Parenting, and Employment Roles**

There is currently no research, to the author’s knowledge, that has examined how caregiving, marital, parenting, and employment roles are interrelated over time in the form of pathways. A few cross-sectional studies have examined the relationship between family and non-family roles and caregiver health. Chumbler, Pienta, and Dwyer (2004), using the 1992 wave of HRS data, found that married and employed caregivers providing care to fathers (and not mothers) reported higher levels of depression; the parenting role was not associated with depression. Stephens and colleagues (2001), also using cross-sectional data, found that interrole conflict for marital, parenting, caregiving, and employment roles mediated the relationship between caregiver stress and depressive symptoms. This meant that caregivers with increased stress also experienced increased interrole conflict, which negatively affected their mental health. Reid and Hardy (1999)
found that the caregiver role was no longer a statistically significant predictor of caregiver depression after controlling for other roles such as work hours (employment) and adult children residing at home (parenting). This research indicated that the caregiving role alone may not cause poorer psychological or physical health outcomes, but rather the combination of multiple roles may have additive or interactive effects on caregiver health.

**Summary**

Knowledge of how family and non-family roles influences the psychological and physical health of caregivers over time is paramount to understanding how caregiver roles impact the caregiver stress process. From this review of the literature, it is apparent that there are inconsistent patterns of role trajectories and role pathways of adult child caregivers and a lack of clarity in how gender, race/ethnicity, and age contribute to changes in caregivers’ trajectories and pathways. It is also not clear how caregivers’ family and non-family roles are interdependently related and how caregivers’ role pathways impact caregiver psychological and physical health. This is because the impact of family and non-family roles on caregiver psychological and physical health has rarely been studied using longitudinal methods. Most research has been limited by cross-sectional, convenience samples that have inhibited generalizability to a small group of caregivers at one point in time. To address these gaps, this dissertation research was designed to examine family and non-family roles in a new way in order to contribute to the literature above and beyond what is already known. A conceptual framework of adult
child caregivers’ family and non-family trajectories and pathways and methods for testing this framework are described in the next chapter.

Chapter Four. Conceptual Framework and Methodology

This chapter describes a study of adult child caregivers’ family and non-family roles grounded in stress process and life course theory. A conceptual framework for this study is proposed to examine how family and non-family role pathways are related to the psychological and physical health of adult child caregivers (Elder, 1998; Macmillan & Eliason, 2004; Pearlin, 2010; Pearlin et al., 1990). Definitions of concepts are described along with research questions and hypotheses that were examined in this study. Study methodology is then described including the secondary dataset, sample, measures, and analytic strategy.

Conceptualizing Adult Child Caregivers’ Family and Non-Family Roles

This study focused on understanding the direct relationship between long-term patterns of caregivers’ family and non-family roles and their psychological and physical health, one of several relationships identified in stress process theory (see Figure 1; Pearlin et al., 1990). Stress process theory, life course theory, and previous literature suggest that (a) family roles commonly present in midlife include caregiving, marital, and parenting roles while the employment role is the most common non-family role (Macmillan & Eliason, 2004; Pearlin, 2010; Pearlin et al., 1990), and (b) caregivers’ family and non-family roles vary by gender, race/ethnicity, and age. Thus, the proposed conceptual framework, illustrated in Figure 2, suggests that gender, race/ethnicity, and
age inform family and non-family role pathways and these pathways are associated with
caregivers’ psychological and physical health.

**Psychological and Physical Health**

The dependent variables in this study, psychological and physical health, were
chosen from stress process theory, life course theory, and a review of the literature.
According to both stress process and life course theory, psychological and physical health
are two expressions of stress that result from providing care to an aging parent (Elder,
1998; Pearlin et al., 1990). In this study, psychological and physical health were
conceptualized as expressions of stress that result from managing multiple family and
non-family roles over time (see Figure 2). Psychological health represented the mental
expression of stress whereas physical health represented the subjective (perceptions) and
objective (conditions) physical expressions of stress.

**Pathways**

The first research question this study sought to answer was (1) *what adult child
caregiver role pathways exist?* Similar to life course theory, pathways in this study were
conceptualized as interdependent trajectories of caregivers’ family and non-family roles
(Macmillan & Copher, 2005). Pathways are depicted in Figure 2 as the over-lapping
sections of caregiving, marital, parenting, and employment trajectories. Pathways
illustrate how family and non-family roles fluctuate over time in response to other family
and non-family roles. For example, the employment role may fluctuate over time as
individuals adjust and readjust their employment role to correspond with other life events
such as increases in responsibilities for children and/or aging parents (Chumbler, Pienta,
& Dwyer, 2004; Marks et al., 2008). Parenting trajectories were also expected to moderately fluctuate over time as a result of the life events of the children as well as the midlife parents (Elder, 1998; White, 1994). The marital role was expected to be more stable than other family and non-family roles with fewer fluctuations occurring in response to other family and non-family roles (Moen, Robison, & Fields, 1994; Riley & Riley, 1993).

According to life course theory, pathways illustrate diversity in the order and timing of transitions into and out of family and non-family roles, which ultimately depicts the heterogeneity found among caregivers and their life experiences (Macmillan & Copher, 2005). The concept of order and timing of transitions means that role transitions may be stressful for caregivers depending on when the transition occurs in relation to other family and non-family roles (Settersten, 2003). Thus, caregivers’ family and non-family roles are expected to be interdependently related over time, but in different ways for different caregivers. Caregivers’ pathways were also expected to vary by gender, race/ethnicity, and age because these statuses position caregivers in societal structures of constraints and opportunities that can directly impact their family and non-family role pathways as well as indirectly impact their psychological and physical health (see Figure 2). Overall, the probability of being in any given pathway illustrates the diversity of typical and atypical life paths or patterns of roles for adult child caregivers providing care to aging parents (Macmillan & Eliason, 2004).

Guided by theory and research, pathways constructed from caregivers’ family and non-family roles as well as gender, race/ethnicity, and age were hypothesized. It was
expected that caregivers’ pathways would be characterized primarily by marital and employment roles followed by caregiving and parenting roles. Stress process and life course theory recognize that all caregivers occupy a marital role (married or not married) or employment role (employed, not employed) over time even if their status within this role changes (Kim & Moen, 2002; Pearlin, 2010; Riley & Riley, 1993; Settersten, 2003). Not all caregivers, however, provide care for an extended amount of time or have a co-residing child (National Alliance for Caregiving and AARP, 2009; Pearlin, 2010; Settersten, 2003). In addition, midlife adults’ marital and employment trajectories have been well-identified by previous research compared to caregiving and parenting trajectories, providing reliable information for hypothesizing about adult child caregivers’ role pathways (U.S. Census, 2008; National Alliance for Caregiving and AARP, 2009). As a result, caregivers’ role pathways were predicted using available statistical trends of midlife adults’ marital and employment roles from two national surveys (U.S. Census, 2008; National Alliance for Caregiving and AARP, 2009). Six role pathways for adult child caregivers were hypothesized: (1) *married, employed caregivers*, (2) *married, retired caregivers*, (3) *married, transition to retirement caregivers*, (4) *not married, employed caregivers*, (5) *not married, retired caregivers*, and (6) *not married, transition to retirement caregivers*.

Within these six role pathways, the probability of being in a caregiving or parenting role over time was expected to differ. Regarding the caregiving role, very little is known about caregiving trajectories and how caregiving trajectories are interrelated with marital, parenting, and employment trajectories (National Alliance for Caregiving
and AARP, 2009; Pearlin, 2010). This made it difficult to hypothesize specific caregiving trajectories for each of the 6 hypothesized role pathways. Research has found that adult child caregivers were, on average, 48 years of age and provided 4.3 years of care to an aging parent, with 40% of caregivers providing care for 5 or more years (Donelan et al., 2003; National Alliance for Caregiving and AARP, 2009). Using this information, the 6 hypothesized role pathways were expected to be characterized by caregiving trajectories that varied by when caregivers began providing care and the duration of care that was provided over time. Given previous statistical trends, it could be expected that caregivers would have a high probability of being a caregiver when they were younger (versus older) and for any length of time that could range from 1 to 5 or more years (Donelan et al., 2003; National Alliance for Caregiving and AARP, 2009). For example, married, working caregivers may have provided care for 4 years beginning at the age of 50 whereas not married, retired caregivers may have provided care for 2 years beginning at the age of 60. Overall, it is expected that this study will contribute to a better understanding of how caregiver pathways are characterized by caregiving role trajectories.

The parenting role was also difficult to hypothesize for the 6 role pathways. Previous cross-sectional research found that 30-50% of caregivers had a co-residing child (Chumbler et al., 2004; Marks et al., 2008). This suggests that of the 6 hypothesized pathways, 2-3 pathways may be characterized by the parenting role. For pathways characterized by the parenting role, it was hypothesized that younger caregivers, caregivers who are more likely to have dependent or emerging adult children, would be
more likely to have co-residing children than older caregivers (U.S. Census, 2008; White, 1994). This means that the 2-3 hypothesized pathways would be more likely to be characterized by the parenting role in earlier versus later years of the life course. Overall, it is expected that study findings will contribute to a better understanding of how caregiver role pathways are characterized by the parenting role.

Guided by statistical trends of caregivers’ role trajectories, 6 hypotheses regarding how gender, race/ethnicity, and age would be related to role pathways were developed (U.S. Census, 2008; National Alliance for Caregiving and AARP, 2009): (a) Married, employed caregivers were hypothesized to be male, White, and younger; (b) not married, employed caregivers were hypothesized to be female, White, and younger; (c) married, retired caregivers were expected to be female, White, and older; (d) not married, retired caregivers were hypothesized to be female, non-White, and older; (e) married, transition to retirement caregivers were expected to be male, White, and older; and (f) not married, transition to retirement caregivers were hypothesized to be female, White or non-White, and older. Regarding the parenting role, hypotheses suggested that married, employed caregivers and not married, employed caregivers would have a higher probability of being characterized by the parenting role because caregivers in these two pathways were expected to be younger than the other pathways. Overall, study findings will contribute to a more thorough description of caregivers’ gender, race/ethnicity, and age characteristics based on caregiver role pathways.

The second research question this study sought to answer was (2) how are adult child caregivers’ role pathways associated with psychological and physical health?
Previous research has yet to examine caregivers’ family and non-family role pathways and how they are related to caregivers’ health. Therefore, there was not enough evidence to hypothesize how pathways would be related to caregivers’ psychological and physical health. It was expected that answering these research questions would provide pertinent information that is currently unknown about caregivers’ family and non-family roles and their psychological and physical health.

Summary

According to stress process theory, family and non-family role pathways are directly related to caregivers’ psychological and physical health (see Figure 1 and 2; Pearlin et al., 1990). Life course theory further stipulates that family and non-family roles are interdependently related and impact the health of caregivers over time through role pathways (Elder, 1998; Macmillan & Eliason, 2004). Therefore, this study examined two pertinent research questions developed from the proposed framework. First, what adult child caregiver role pathways exist? Second, how are adult child caregivers’ role pathways associated with change in psychological and physical health?

Methodology

Data and Analytic Sample

The chosen data set was a combination of the Health and Retirement Study (HRS) and the RAND HRS, a user-friendly version of the original HRS. HRS, and consequently RAND HRS, is a nationally representative, longitudinal, and publicly available study of health, retirement, and aging sponsored by the National Institute on Aging (University of Michigan, Health and Retirement Study, accessed October 2009). The RAND HRS
covers a broad range of variables from the original HRS data, but does not include variables about caregiving, parenting, and several other variables or measures for the 1992 wave. Therefore, those items not included in the RAND HRS data were obtained from the original HRS data and merged with the RAND HRS data to create a single dataset. Merging several variables from the original HRS with the Rand HRS is a more efficient way to conduct this dissertation research because RAND HRS variables and variable values have been accurately labeled and cleaned by a team of researchers, reducing the time it took to prepare the final dataset for analysis. In addition, measures such as depression were computed for each wave by this team of researchers, making these variables easy to utilize as well as to compare to previous studies that have used these measures.

HRS has interviewed and surveyed approximately 22,000 individuals age 50 and older every two years, beginning in 1992 and ending most recently in 2008. Respondents from the 1992 wave of the HRS were from the 1931-1941 birth cohort. Additional birth cohorts have been added to HRS including the war baby cohort (1942-1947) in 1998 and early boomers cohort (1948-1953) in 2004. For this study, only waves of HRS data were analyzed for the 1931-1941 cohort. This cohort has been followed for the longest amount of time and has a relatively larger sample size of respondents for statistical analysis.

The analytic sample included multiple birth cohorts of adult child caregiver respondents born between 1931 and 1941, including adult child caregivers who were 50 to 61 years in 1992, and 64 to 74 years in 2006. The analytic sample of caregivers was identified by a caregiver status variable in each wave of data. Caregiver status questions
varied minimally between 1992 and 2006. In 1992, respondents were asked, “Did you spend a total of 100 or more hours in the past 12 months helping your parent(s)/stepparent(s) with basic personal activities like dressing, eating, and bathing?” In 1994, respondents were asked, “Did you spend a total of 50 or more hours in the past 12 months helping your parent(s)/stepparent(s) with basic personal activities like dressing, eating, and bathing?” For waves 1996 through 2006, respondents were asked, “Did you spend a total of 100 or more hours since the previous interview/in the last two years helping your parent(s)/stepparent(s) with basic personal activities like dressing, eating, and bathing?” Respondents needed to report “yes” to a caregiver status question for at least one time point to be included in the analytic sample. Adult child caregivers consisted of caregivers who reported providing care to biological mothers/stepmothers and/or biological fathers/stepfathers. Unfortunately, questions regarding care provided to parent-in-laws were not consistently included in every HRS wave and could not be used.

Caregivers were matched across waves using identification variables provided in the RAND HRS and HRS datasets to create a longitudinal dataset. Individual sample weights were not applied because original sample weights can lead to bias in subsamples (Levy & Lemeshow, 2008).

**Dependent Variables**

**Psychological health.** Psychological health was measured in this study using a RAND HRS measure of depression in 1994 and 2006. This measure of depression was computed by RAND researchers by summing eight items of the Center for Epidemiological Studies Depression Scale (CES-D). Depression in 1994 was used
instead of depression in 1992 because depression in 1992 had different response
categories and could not be compared to the 2006 measure of depression. In the 1994 and
2006 waves, respondents reported yes (1) or no (0) to each of the following questions
regarding the respondents’ feelings over the past week prior to the interview: (a) felt
depressed; (b) everything was an effort; (c) sleep was restless; (d) was happy; (e) felt
lonely; (f) felt sad; (g) could not get going; and (h) enjoyed life. Was happy and enjoyed
life were reverse coded to match the negative depressive symptoms. A scale was
constructed by summing the eight items for each wave, with the highest score (8)
indicating respondents with more negative feelings and lowest score (0) indicating
respondents with fewer or no negative feelings; coefficient α = .79 (HRS Health Working
Group, 2000).

Compared to physical health, the measure of psychological health is limited given
only subjective psychological health was measured in HRS. Objective and subjective
measures of psychological health could provide a more thorough explanation of
caregivers’ health outcomes than only examining a subjective measure of psychological
health. This limitation should be considered when interpreting the findings.

**Physical health.** Subjective and objective indicators of physical health were
measured for the 1992 and 2006 waves of RAND HRS data. Commonly used in the
family caregiving literature, subjective physical health was measured in both waves by
asking respondents to report if their health was (1) poor, (2) fair, (3) good, (4) very good,
or (5) excellent (Pinquart & Sorenson, 2007). Subjective physical health was reverse-
coded so that its scale matched psychological health. Therefore, higher values of
subjective physical health reflected poor health (5) and lower values reflected excellent health (1). Four objective indicators of physical health were also measured. Respondents reported yes (1) or no (0) if a doctor ever told them that they had any of the following physical health conditions: (a) high blood pressure; (b) diabetes; (c) lung disease; and (d) stroke. The measures of physical health are limited given they are measured using single-items that generally have less power than multi-item scales. This limitation should be considered when interpreting the findings.

**Independent Variables**

**Caregiving.** All caregiving variables were obtained from the original HRS dataset. The caregiving role was measured using respondents’ answers to the previously mentioned caregiver status questions (yes = 1, no = 0). As previously stated, respondents only needed to report providing care at one of the waves to be considered a caregiver; therefore, respondents were caregivers at one or more waves. Following non-significant preliminary findings, it was decided to not code the caregiving role using the number of hours respondents spent providing care to parents or stepparents. The question asking caregivers to report the number of hours they provided care was not included in the 1994 survey, which posed a potential challenge in analyzing caregivers’ pathways.

A limitation of this measure is that it is an exclusive, restricting measure of adult child caregiving. A measure of caregiving could be more inclusive by measuring caregiving as any type of assistance provided to a parent such as helping parents with bill paying, medication management, and arranging doctor visits as well as assistance with personal activities like eating, bathing, and dressing. These are all activities that can be
stressful, time-consuming, and burdensome for caregivers. Including caregivers who provide all types of care would provide a more thorough depiction of adult children who are providing care to parents. This limitation should be considered when interpreting the findings.

**Marital.** All marital status variables were obtained from the RAND HRS dataset. At each wave, respondents were asked about their marital status and asked to report if their marital status had changed since the last interview. Respondents’ marital roles included being *married* (1; married or partnered), or *not married* (0; separated, divorced, widowed, or never married). This variable was dichotomized because frequencies revealed that the majority of respondents were either married or widowed and cell sizes for separated/divorced or never married were not large enough for statistical analysis.

**Parenting.** All parenting variables were obtained from the original HRS dataset. In the 1992 and 1994 waves, respondents were asked whether they had any children living with them (*yes* = 1, *no* = 0). In the remaining waves (1996-2006), respondents were asked the number of children residing in their households at each wave. To maintain consistency across waves, continuous parenting variables in waves 1996-2006 were dichotomized to match waves 1992 and 1994; therefore, the parenting role in this study included respondents who had one or more residential children (1; *co-residing child*), and respondents who did not have residential children (0; *no co-residing child*).

A potential limitation of this measure is that the parenting role was not segmented into having parenting responsibilities for dependent children, adult children, or both. As indicated in the literature review, studies have found that having a co-residing child can
have detrimental effects on parental health, regardless of the child’s age (Crnic, Gaze, & Hoffman, 2005; White, 1994). This limitation should be considered when interpreting study findings.

**Employment.** Most waves of employment status (1994-2006) were obtained from the RAND HRS dataset; employment status for the 1992 wave was taken from the original HRS study because RAND HRS had not constructed this variable. Respondents were coded as either *working* (1; full- or part-time) or *not working* (0; retired, unemployed or disabled). This variable was dichotomized because frequencies revealed that the majority of respondents were either working full-time or retired and cell sizes for working part-time or unemployed/disabled were not large enough for statistical analysis.

**Covariates.** Stress process and life course theory suggest that gender, race/ethnicity, and age may impact caregiver roles and caregiver health. These variables were obtained from the RAND HRS dataset. *Gender* (female = 1, male = 0) and *race/ethnicity* (White = 1, non-White = 0) were categorical variables whereas *age* (number of years) was a continuous variable.

**Analytic Strategy**

**Cleaning data.** RAND HRS is a user-friendly version of the original HRS. RAND HRS has been cleaned at a very basic level. For example, value labels have been added and variables have been renamed to be more intuitive and consistent across waves. Combining the original HRS and RAND HRS required that coding errors, skewed data, and missing data be examined and addressed prior to data analysis. Cleaning data was approached through two stages: detection and correction (Tabachnick & Fidell, 2007).
The detection stage was accomplished by identifying incomplete, inaccurate, or unreasonable data. Univariate descriptive statistics of each study variable were examined including frequencies, histograms, and scatterplots. Minimum and maximum values, 0’s and 999’s (missing data), likeliness of values and distributions, and means, medians, and standard deviations were examined (Tabachnick & Fidell, 2007).

The correction stage was completed by handling skewed or missing data. A comparison of study variables within and across each wave found no apparent data entry or coding errors. Normality of the distribution of continuous variables (dependent variables in this study) was assessed by statistical and graphical methods (Tabachnick & Fidell, 2007). Skewness and kurtosis should equal zero if variables were not skewed. Two variables in this study had positively skewed distributions: depression in 1994 and 2006. Log transformations for depression were computed prior to handling missing data to ensure that missing data values would not contribute to skewed distributions (Little & Rubin, 2002). As a result, the impact of extreme outliers on the continuous dependent variable was reduced. Frequencies of the independent, categorical variables in this study were examined to determine if frequencies between categories were balanced (did not reach or exceed 90-10 split); the categorical variables were balanced and did not require further attention.

As pertinent assumptions of multivariate analyses, linearity and homoscedasticity were also examined. Bivariate scatterplots of independent and dependent variables were used to test linearity (Tabachnick & Fidell, 2007). Linearity was found with an oval-shaped scatterplot between variables. Homoscedasticity was assessed between the
continuous dependent variables, psychological and perceived physical health. This assumption states that variability in one continuous variable is the same at all levels of another continuous variable (Tabachnick & Fidell, 2007). Homoscedasticity was met following the log transformations of depression.

**Missing data.** Patterns of missing data were examined using PASW Statistics 17.0 Missing Variable Analysis (MVA) (SPSS, 2009). This program provides lists of missing data and verifies patterns of missing data; it also verifies where missing data are a problem, especially if the patterns of missing variables are complex. Using PASW Statistics 17.0 MVA, the amount of missing data and pattern of missing data were examined (Tabachnick & Fidell, 2007). The reasons for missing data were examined using a RAND HRS variable that RAND developed to describe reasons for missing data at each wave.

Table 1 presents the frequencies and percentages of missing data for each study variable. Panel attrition was the primary pattern of missing data. Panel attrition was visible in the growth in missing data for most variables beginning with the 1992 wave and ending with the 2006 wave (see Table 1). The percentage of missing values for study variables ranged from 0% (gender, race/ethnicity, etc.) to 22.6% (CESD 2006); this percentage is expected in longitudinal research and can be sufficiently estimated using “modern” approaches for handling missing data (Acock, 2005; Tabachnik & Fidell, 2007).

Reasons for missing data due to panel attrition are presented in Table 2. The most common reason for missing data at any wave was the inability of HRS to locate
respondents (no response/alive or no response/dropped from study). The second most common reason was death of respondents. This suggested that eliminating cases with missing data would bias results towards respondents who participated in the study and respondents who were healthier, and thus, had not died. Therefore, it was pertinent to maintain respondents with missing data in order to preserve a representative sample of caregivers and to minimize non-response bias (Schafer & Graham, 2002).

Researchers and statisticians suggest that the pattern of missing is more important than the number or type of missing data (Allison, 2002; McKnight, McKnight, Sidani, & Figueredo, 2007; Tabachnick & Fidell, 2007). Random patterns, Missing Completely At Random (MCAR) or Missing At Random (MAR), are more acceptable than nonrandom patterns, Missing Not At Random (MNAR), because nonrandom patterns of missing data can alter the generalizability of study findings (Allison, 2002; Little & Rubin, 2002; McKnight et al., 2007). MCAR, MAR, and MNAR patterns were tested by examining mean differences between respondents with (a) missing data and (b) complete data using t-tests and chi-square. Only study variables with more than 5% missing data were examined (see Table 3; McKnight et al., 2007; Tabachnick & Fidell, 2007). Similar to other longitudinal social science research, missing data were more common among respondents who were male, non-White, and older (Sullivan, 2001). Overall, the statistically significant mean differences presented in Table 3 suggest that missing data can be considered MAR: patterns of missing could be explained by study variables and the majority of independent variables were not related to the dependent variables, psychological and physical health (Allison, 2002; Little & Rubin, 2002; McKnight et al.,
Missing data that are MAR can be handled with most “modern” missing data procedures (Tabachnick & Fidell, 2007).

Given that statistical analyses transitioned between statistical software packages PASW and Mplus, missing data were imputed using Estimation Maximization (EM) in PASW 17.0; EM was informed by study variables (Acock, 2005; Tabachnick & Fidell, 2007). EM imputes missing data using two steps: (1) expectation; and (2) maximization. The expectation step involves substituting missing values with conditional expectations of the missing data (Tabachnick & Fidell, 2007). This step is similar to conducting regression on the missing values (Allison, 2002). The maximization step then conducts maximum likelihood estimation until convergence is obtained. Maximum likelihood estimates were obtained for both continuous and binary variables used in this dissertation research (Tabachnick & Fidell, 2002; Acock, 2005).

EM has strengths and limitations. One strength is that EM is a respected “modern” method for handling missing data, providing substantively similar estimates of missing data compared to other missing data methods (Acock, 2005; Tabachnick & Fidell, 2002). A second strength is that EM can be conducted efficiently in PASW, statistical software that was well-known by the author (Tabachnick & Fidell). Limitations of EM are that, unlike full information maximum likelihood (FIML) or multiple imputation (MI) methods, it does not account for within-subject variability in longitudinal data nor does it account for error in the imputed data. As a result, EM estimates may have underestimated standard errors that can slightly bias data (McKnight et al., 2007; Tabachnick & Fidell). Statisticians, however, have found that the bias is not significant.
enough to alter substantive findings and conclusions (Acock, 2005); thus, study findings were interpreted with confidence. Future research using only Mplus or equivalent software for analyses could consider conducting FIML or MI methods for handling missing data to ensure that missing data do not bias study findings (Muthén & Muthén, 1998 – 2010; Tabachnik & Fidell, 2002).

**Descriptive and bivariate analyses.** Descriptive statistics (e.g., means, standard deviations, percentages, ranges, etc.) were utilized to report sample statistics such as gender; race/ethnicity; age; caregiving, marital, parental, and employment roles at each wave; and psychological and physical health in the 1992, 1994, and 2006 waves. Frequencies, means plots, and bar graphs were used to descriptively examine health outcomes by latent role pathways. Chi-square and t-tests were used in the analysis of missing data.

**Multivariate analyses.** The first research question, *what adult child caregiver role pathways exist?*, was answered by using latent class analysis (see Figure 3). Latent class analysis identifies types of related cases using multivariate categorical data (Clogg, 1995; Lazarsfeld & Henry, 1968) and was conducted using Mplus Version 6 (Muthén & Muthén, 1998 – 2010). Latent class analysis was used to identify pathways of caregivers’ family and non-family role trajectories by grouping specific trajectories in which within group similarities exceeded the within group differences. The goal was to obtain a parsimonious description of adult child caregivers’ family and non-family role pathways. Caregiving, marital, parenting, and employment roles were the manifest indicators being
used to construct latent role pathways. Gender, race/ethnicity, and age were incorporated in the model as covariates, predictors of class membership.

A combination of both theoretical and statistical criteria were used to determine the best fit of the latent class models. Statistical criteria included the log-likelihood, Bayesian information criterion (BIC; Hagenaars & McCutcheon, 2002), the Lo-Mendell-Rubin adjusted LRT (LMR; Lo, Mendell, & Rubin, 2001), entropy values (Celeux & Soromenho, 1996), and age-specific probabilities (Preston, Heuveline, & Guillot, 2001). A log-likelihood value that decreases substantially as the number of classes increases indicates an improved model fit. A BIC value that decreases substantially as the number of classes increases indicates an improved fit for the model that specifies the additional class. The LMR-LRT tests the null hypothesis that model fit would improve if a model with one less class than specified were utilized. An LMR that is statistically significant suggests that this null hypothesis can be rejected and that the model being tested produces a significant improvement in model fit relative to a model with one less class (Nylund, Asparouhov, & Muthén, 2007). Entropy with values approaching 1 indicate clear statistical delineation of classes and is comparable to a measure of internal reliability (Celeux & Soromenho, 1996; Muthén, 2004). Finally, year-specific probabilities are a validity check on the ability of the latent variable to capture the longitudinal structure of the data in posterior probabilities or marginal frequencies (I. R. Macmillan, personal communication, January 20, 2010; Preston et al., 2001). Conditional probabilities of the chosen k-class model are estimated by summing the product of caregiving, marital, parenting, and employment role conditional probabilities and their respective latent class
probabilities. Estimates of conditional probabilities from the chosen $k$-class model are then subtracted from the conditional probabilities of the 1-class model. Difference values approaching 0 indicate that the latent variable of the $k$-class model is capturing the temporal dynamics of the data.

The second research question, how are adult child caregivers’ role pathways associated with change in psychological and physical health?, was answered examining the relationship between latent role pathways and health outcomes using two ordinary least squares (OLS) regression models and four logistic regression models in PASW Statistics 17.0. Latent classes were saved in Mplus and then analyzed in PASW. In all regression models, health in 1992 or 1994 was entered first as a statistical control followed by the latent role pathways (see Figure 4). It is important to remember that gender, race/ethnicity, and age were indirectly accounted for in the four pathways and, thus, were not included directly in the regression models. The first OLS regression model regressed psychological health 2006 onto psychological health 1994 and the latent role pathways III, II, and IV. The second OLS regression model regressed subjective physical health 2006 onto subjective physical health 1992 and the three respective latent pathways.

model regressed stroke 2006 onto stroke 1992 and the three respective latent pathways. An overall statistically significant regression model and statistically significant beta-coefficients for latent role pathways determined whether latent role pathways accounted for change in health outcomes in 2006. Standardized beta-coefficients for OLS regression models and odds ratios (OR) for logistic regression models provided information on the relationship between latent role pathways and health outcomes in 2006.

Chapter Five. Results

Sample

Sample characteristics using analysis variables are presented in Table 4. Gender, race/ethnicity, and age are reported for the 1992 wave; caregiving, marital, parenting, and employment roles are reported for waves 1992-2006; and psychological health is reported for 1994 and 2006 while physical health outcomes are reported for 1992 and 2006. The majority of respondents were female (79%) and White (77%). The mean age of respondents in 1992 was approximately 55 years, ranging from 50 to 61 years. Approximately 13-28% of respondents reported providing care at any given wave. The majority of caregivers were married (59-68%), with a general decrease in being married and an increase in being not married over time. The percentage of respondents with a co-residing child at any given wave ranged from approximately 19-32%. Respondents’ employment role suggested a slight trend from working in 1992 (63%) to not working in 2006 (88%).

With regard to health outcomes, respondents reported relatively low levels of psychological health (depression) in 1994 ($M = 1.40$) and in 2006 ($M = 1.46$) (see Table
4). Respondents reported moderate levels of subjective physical health in 1992 ($M = 3.51$) compared to 2006 ($M = 2.98$). More respondents reported having high blood pressure, diabetes, lung disease, and a stroke in 2006 compared to 1992 (see Table 4).

**Pathways**

The latent class analysis was used to answer the first research question and examined how caregiving, marital, parenting, and employment roles intersected across time, forming latent role pathways for adult child caregivers. Table 5 shows the fit statistics for models estimated with the simultaneous effect of gender, race/ethnicity, and age as predictors on the latent role pathways. The four-class model provided the best substantive and statistical fit. Statistical evidence of this is provided by the decrease in log-likelihood and BIC combined with a statistically significant LMR-LRT. As indicated by the high entropy value (classification quality), adult child caregivers were clearly classified into the four latent role pathways. Age-specific probabilities are presented in Table 6. The difference values between conditional probabilities of the four-class and one-class model suggested that the four-class model captured the longitudinal structure of the data very well.

Figures 5 through 8 plot each latent role pathway’s probability profile for caregiving, marital, parenting, and employment roles. Conditional probabilities of family and non-family roles exceeding .60 indicated that the role(s) differentiated role pathways. As expected, marital and employment roles most clearly distinguished the four pathways. Having a co-residing child was also a differentiating factor but to a lesser degree.

Contrary to expectations, caregiving was not a differentiating factor. Latent role pathway
I, labeled *Married, Working Caregivers* was defined by a high probability of working and being married over time. Twenty-two percent of caregivers were estimated to follow this pathway. Latent role pathway II, labeled as *Married, Retired Caregivers with Co-Residing Child* was defined by a high likelihood of being married, not working, and having a co-residing child between years 1992 and 2002. Twelve percent of caregivers were estimated to be on this pathway. Being married and not working characterized latent role pathway III, labeled *Married, Retired Caregivers*. Thirty-one percent of caregivers were estimated to follow this pathway. Latent role pathway IV, labeled *Not Married, Retired Caregivers*, was defined by a high probability of not being married and not working. This pathway was the most common for adult child caregivers with 35% estimated to be on this pathway. Tables 6 and 7 show the conditional probabilities for each of the latent pathways. Again, conditional probabilities of family and non-family roles exceeding .60 indicated that the role(s) differentiated the given role pathways.

Overall, the probability profiles suggest that 3 of the 6 hypothesized role pathways were partially supported. Only partial support was provided because marital and employment roles for the estimated latent role pathways matched 3 of the hypothesized role pathways. In addition, contrary to expectations, the caregiving role did not significantly differentiate the role pathways and the parenting role characterized only one role pathway and not 2 or 3. Statistical support was found for estimated latent role pathways I (*married, working caregivers*), III (*married, retired caregivers*), and IV (*not married, retired caregivers*) and hypothesized pathways I (*married, employed caregivers*), II (*married, retired caregivers*), and V (*not married, retired caregivers*),
respectively. The estimated latent role pathway II, *Married, Retired Caregivers with Co-Residing Child*, did not statistically support a hypothesized pathway because caregivers were retired in this pathway versus working as had been hypothesized. There was no statistical support for hypothesized pathways III (*married, transition to retirement caregivers*), IV (*not married, employed caregivers*), and VI (*not married, transition to retirement caregivers*).

Latent role pathways were characterized by stable family role trajectories (see Tables 7 and 8). Caregivers had high probabilities of continuously (a) being married (latent pathways I, II, and III) or not married (latent pathway IV) over time, and (b) having a co-residing child (latent pathway II) or not having a co-residing child (latent pathway I, III, and IV) over time. The caregiving role, as indicated by the low conditional probabilities, consistently did not significantly differentiate between any of the latent role pathways.

The non-family employment role presented the most variability within latent role pathways (see Tables 7 and 8). *Married, Working Caregivers* (pathway I) had a relatively high probability of working from 1992 ($\pi = .90$) to 2002 ($\pi = .65$). *Married, Retired Caregivers with Co-Residing Child* (pathway II) were likely to be retired from 1992 ($\pi = .55$) to 2006 ($\pi = .98$). *Married, Retired Caregivers* (pathway III) were likely to be not working in 1994 ($\pi = .57$) through 2006 ($\pi = .98$). Finally, *Not Married, Retired Caregivers* (pathway IV) were likely to be not working 1996 ($\pi = .55$) through 2006 ($\pi = .89$). The latter two groups were labeled as “retired” and not “transition to retirement” because their probability of working in either 1992 or 1994 was relatively low.
Gender, race/ethnicity, and age predicted membership on the four latent pathways. Results in Table 9 present the logit coefficient ($B$), its standard error ($SE$), and the odds ratio (OR) from the multivariate multinomial logistic regression of latent role pathways on predictor variables. A reference category or comparison group was needed for this analysis. Married, Working Caregivers (pathway I) were chosen as the reference category or comparison group for this analysis because this group is of particular interest in the family caregiving literature. For example, research has yet to determine if it is psychologically and physically beneficial for adult child caregivers to be married and employed during the time that care is provided to an ill or disabled parent (Pinquart & Sorenson, 2003b). Understanding how gender, race/ethnicity, and age of Married, Working Caregivers (pathway I) compares to other latent role pathways will significantly contribute to this area of the literature.

Gender, race/ethnicity, and age were statistically significant predictors of latent role pathways. Caregivers in the Married, Retired Caregivers with Co-Residing Child (pathway II) and the Not Married, Retired Caregivers (pathway IV) pathways were more likely to be female (OR = 2.89; 2.52), non-White (OR = .53; .38), and older (OR = 1.28; 1.34) compared to the reference pathway of Married, Working Caregivers (pathway I). As expected, these findings suggest that Married, Working Caregivers (pathway I) were more likely to be male, White, and younger than caregivers in pathways II and IV. Caregivers on the Married, Retired Caregivers (pathway III) pathway were more likely to be female (OR = 3.03), White (OR = 1.78), and older (OR = 1.35) than Married, Working Caregivers (pathway I). As expected, this finding indicates that Married,
Working Caregivers (pathway I) were more likely to be male and younger than Married, Retired Caregivers (pathway III). Unexpectedly, Married, Working Caregivers (pathway I) were more likely to be non-White than Married, Retired Caregivers (pathway III).

Pathways and Health Outcomes

A descriptive analysis of caregivers’ role pathways by health outcomes was conducted using frequencies, means plots, and bar graphs. Figure 9 depicts the mean plots of psychological and subjective physical health in 2006. Married, Retired Caregivers with Co-Residing Child (pathway II) had the highest level of depression in 2006 ($M = 1.78$) followed by Not Married, Retired Caregivers (pathway IV; $M = 1.71$), Married, Retired Caregivers (pathway III; $M = 1.35$) and Married, Working Caregivers (pathway I; $M = 1.03$). Regarding subjective physical health, Not Married, Retired Caregivers (pathway IV) had the highest and thus poorest subjective physical health in 2006 ($M = 3.20$) followed by Married, Retired Caregivers with Co-Residing Child (pathway II; $M = 3.13$), Married, Retired Caregivers (pathway III; $M = 2.90$), and Married, Working Caregivers (pathway I; $M = 2.68$).

Objective physical health conditions by caregivers’ role pathways are illustrated with bar graphs in Figures 10 and 11. Of caregivers who reported having high blood pressure in 2006 ($N = 710$), Not Married, Retired Caregivers (pathway IV; $n = 249$) were most likely to have high blood pressure followed by Married, Retired Caregivers (pathway III; $n = 201$), Married, Working Caregivers (pathway I; $n = 157$), and Married, Retired Caregivers with Co-Residing Child (pathway II; $n = 103$). Of caregivers who reported having diabetes ($N = 234$), Not Married, Retired Caregivers (pathway IV; $n =$
were most likely to have diabetes followed by *Married, Retired Caregivers* (pathway III; \(n = 57\)), *Married, Retired Caregivers with Co-Residing Child* (pathway II; \(n = 43\)), and *Married, Working Caregivers* (pathway I; \(n = 50\)). Of caregivers who reported having lung disease in 2006 \((N = 137)\), *Not Married, Retired Caregivers* (pathway IV; \(n = 57\)) were most likely to have lung disease followed by *Married, Retired Caregivers* (pathway III; \(n = 38\)), *Married, Working Caregivers* (pathway I; \(n = 22\)), and *Married, Retired Caregivers with Co-Residing Child* (pathway II; \(n = 20\)). Finally, of caregivers who reported having a stroke in 2006 \((N = 76)\), *Not Married, Retired Caregivers* (pathway IV; \(n = 33\)) were most likely to have had a stroke followed by *Married, Retired Caregivers* (pathway III; \(n = 17\)), *Married, Working Caregivers* (pathway I; \(n = 15\)), and *Married, Retired Caregivers with Co-Residing Child* (pathway II; \(n = 11\)).

Overall, the descriptive analysis of role pathways by psychological and physical health outcomes revealed variation in health outcomes by role pathways, supporting the need to examine these relationships using multivariate analyses.

Two OLS regression models and four logistic regression models were used to answer the second research question and examined whether role pathways were significantly related to change in 2006 health outcomes while controlling for earlier health outcomes. Similar to the analysis of latent role pathways on covariates, *Married, Working Caregivers* (pathway I) was chosen as the reference category for regression analyses because this group is of particular interest in the family caregiving literature; it is currently undetermined whether being married and employed over time benefits or hinders caregivers’ health (Pinquart & Sorenson, 2003b). Understanding how the health
of Married, Working Caregivers (pathway I) differs from the other three pathways can significantly contribute to the caregiving literature. Supported by life course theory, the order that latent pathways were entered in the regression models was determined by degree of similarity between the three role pathways and the reference pathway, Married, Working Caregivers (pathway I). Thus, Married, Retired Caregivers (pathway III) was entered first because only the employment status differed from Married, Working Caregivers (pathway I). Married, Retired Caregivers with Co-Residing Children (pathway II) was entered second because this pathway had the same marital status as Married, Working Caregivers (pathway I). Finally, Not Married, Retired Caregivers (pathway IV), whose marital and employment statuses both differed from Married, Working Caregivers (pathway I), was entered last. It is important to remember that caregivers’ gender, race/ethnicity, and age are accounted for in the role pathways.

As indicated in Table 10, OLS regression examined the relationship between psychological health and latent role pathways. The overall model was statistically significant \((F = 76.81, p < .001)\). After controlling for psychological health in 1994, Married, Retired Caregivers with Co-Residing Child (pathway II) and Not Married, Retired caregivers (pathway IV) had a significant, positive relationship with psychological health in 2006. This meant that Married, Retired Caregivers with Co-Residing Child (pathway II) and Not Married, Retired caregivers (pathway IV) had more problematic rank order changes in depression compared to Married, Working Caregivers (pathway I). Married, Retired Caregivers (pathway III) did not significantly contribute to the variance in psychological health in 2006.
OLS regression also examined the relationship between subjective physical health and latent role pathways (see Table 11). The overall model was statistically significant ($F = 125.65, p < .001$). After controlling for subjective physical health in 1992, *Married, Retired Caregivers with Co-Residing Child* (pathway II) and *Not Married, Retired caregivers* (pathway IV) had a significant, positive relationship with subjective physical health in 2006. This meant that *Married, Retired Caregivers with Co-Residing Child* (pathway II) and *Not Married, Retired caregivers* (pathway IV) had more problematic rank order change in subjective physical health compared to *Married, Working Caregivers* (pathway I). *Married, Retired Caregivers* (pathway III) did not significantly contribute to the variance in subjective physical health in 2006.

Logistic regression was used to examine the relationship between change in objective physical health indicators and latent role pathways. The results for high blood pressure are presented in Table 12. The overall model was statistically significant ($\chi^2 = 281.12, p < .000$). After controlling for high blood pressure in 1992, *Married, Retired Caregivers* (pathway III) had a significant, negative relationship with high blood pressure in 2006. This translated into *Married, Working Caregivers* (pathway I) being 70% more likely to have more problematic rank order changes in blood pressure than *Married, Retired Caregivers* (pathway III; odds ratio = .70). Logistic regression results for diabetes, lung disease, and stroke are provided in Tables 13, 14, and 15. Despite statistically significant models, latent role pathways were not significantly associated with changes in diabetes, lung disease, or a stroke in 2006.
Chapter Six. Discussion

This is the first study to examine adult child caregivers’ family and non-family role pathways and their relation to caregivers’ psychological and physical health. Supporting stress process and life course theory, adult child caregivers’ family and non-family role trajectories created distinct role pathways that were related to changes in caregivers’ psychological and physical health (Elder, 1994; Pearlin et al., 1993). In addition, gender, race/ethnicity, and age predicted caregivers’ pathways membership. Study findings provide insight into the heterogeneity and complexity of adult child caregivers’ life experiences and the social context within which adult children provide care to their parents.

Pathways

Investigating how family (caregiving, marital, and parenting) and non-family (employment) role trajectories intersected and were linked across time to form pathways led to the identification of 4 latent role pathways. Strong substantive and statistical evidence supported the 4 latent role pathways, which means that not only were the pathways clearly classified statistically, but they were theoretically supported as well. As expected, marital and employment roles differentiated the four pathways for most caregivers followed by the parenting role. Contrary to expectations, the caregiving role did not significantly differentiate the role pathways. The most common pathway (35% of caregivers) was characterized by caregivers who were not married and not working continuously over time. The second most common pathway (31% of caregivers) entailed continuously married, not working caregivers. A third pathway (22% of caregivers) was
characterized by caregivers who were continuously married and working. The least common pathway (12% of caregivers) included caregivers who were married, not working, and had a co-residing child over time. Life course theory would suggest that the Not Married, Retired Caregivers, Married, Retired Caregivers, and Married, Working Caregivers were the statistically typical pathways in this study whereas the Married, Retired with Co-Residing Child Caregivers was a statistically atypical pathway for caregivers in this study (Macmillan & Eliason, 2004).

Substantive and statistical support for the 4 latent role pathways versus 6 hypothesized role pathways suggests that adult child caregivers may be less diverse in their role pathways than expected. For example, contrary to study hypotheses, there were no pathways characterized by a transition from working to not working (retired) over time. Parenting and caregiving roles also did not vary over time as was expected. Overall, the 4 role pathways are a more parsimonious depiction of how adult child caregivers’ lives are structured by their family and non-family roles over time.

A noticeable pattern within each of the 4 role pathways is the stability of family and non-family role trajectories. As suggested by life course theory, the pathways seem to be characterized more by stability of family and non-family roles and less by transitions into and out of these roles (Elder, 1985; George, 1993). For example, the 4 pathways were differentiated by caregivers who were either working or not working over time; no pathways were characterized by caregivers who transitioned between working and not working. This contrasts with some previous research that found the transition to retirement among midlife adults as they aged (U.S. Census, 2008; National Alliance on
Caregiving and AARP, 2009). Another example of stability in role pathways is with the parenting role. Only one pathway was characterized by having a co-residing child for most of the time frame of the study. This is contrary to the idea that midlife adults, including caregivers, are likely to have adult children transition in and out of their homes (Ward & Spitze, 2007; White 1994). To better understand the dynamic of having co-residing children, future research may seek to examine whether pathways with co-residing children have dependent children, adult children, or both. Employment trajectories were the most variable across role pathways, suggesting a trend from working to not working. The probabilities, however, were not high enough to statistically support this trend. As a result, caregivers’ pathways in this study were characterized as either working or not working/retired over time, which contrasted with previous research supporting the transition to retirement trend among midlife adults (U.S. Census, 2008; Kim & Moen, 2002).

Life course theory would suggest that the number and pattern of caregivers’ role pathways in this study may be a reflection of age and/or cohort effects (Elder, 1985; 1998). Regarding age effects, transitions in marriage or employment roles may not have characterized caregivers’ pathways because caregivers in this study were not at an age in which the transition to widowhood or retirement was experienced. For example, at the beginning of the study in 1992, caregivers’ ages ranged from 50 to 61. This age range suggests that the younger caregivers were more likely to be married and employed when they entered the study compared to the older caregivers who were more likely to have been widowed and retired (American Community Survey, 2008; Connidis, 2001). At the
end of the study in 2006, caregivers’ ages ranged from 62 to 73. This age range suggests that the younger caregivers were just beginning to reach the common retirement and widowhood age while the older caregivers may have been retired and widowed the entire length of the study (U.S. Census; Connidis). Life course theory would suggest that future research should examine how role pathways differ by age of caregivers (Elder, 1985; 1998); younger caregivers (ages 50-55) may have a different structure of role pathways compared to older caregivers (ages 56-61).

Regarding cohort effects, stability in family and non-family roles may be characteristic of the cohort of caregivers in this study who were born in 1931-1941. Individuals born during this historical time are more likely to be married or exit marriage through widowhood in midlife compared to younger cohorts, who are more likely to experience multiple marriages as a result of widowhood, divorce, and remarriage (Hughes & Waite, 2007; Pienta et al., 2000). This manifests as fewer marital transitions among older cohorts compared to younger cohorts of caregivers. Regarding employment, men born in 1931-1941 are more likely to be working over time than women because many families during this time were characterized by male breadwinners and female homemakers (U.S. Census, 2008; O’Rand & Henretta, 1999). This cohort of individuals is also less likely to have co-residing adult children compared to younger cohorts, resulting in fewer transitions in the midlife parenting role (White, 1994). Thus, it may be more appropriate to report that findings from this dissertation research provide an understanding of role pathways for adult child caregivers born in 1931-1941. Guided by life course theory, future research should consider how role pathways differ for younger
(born after 1941) and older (born between 1931-1941) cohorts, especially given younger cohorts of caregivers have been predicted to experience more transitions in their family and non-family roles over their lifespan (Elder, 1985; 1998; Hughes & Waite, 2007; Pienta et al., 2000; Stephenson, 2002).

A second noticeable pattern characteristic of caregivers’ role pathways is that the caregiving role did not contribute to the differentiation of pathways. This is an unexpected finding that has a number of potential explanations. Three reasons are related to measure error. First, one measurement error explanation suggests that data collected in 2-year intervals may not be able to capture caregiving trajectories or the variability associated with the caregiving role (George, 2009; Sullivan, 2001). George (2009) suggests that latent class analysis may not be able to account for every type of change that occurs within a longitudinal sample because longitudinal data are often not measured in “real-time.” Time intervals such as 6-month or 1-year intervals may be more appropriate for studying caregiving trajectories and role pathways (Donelan et al., 2002; George, 2009; Marks et al., 2002).

Second, measures of caregiving in the Health and Retirement Study account only for intense, hands-on care and there is more to caregiving than helping a parent with bathing, eating, and dressing. For example, adult children provide care to parents by helping with paying bills, arranging doctor visits, transportation, and medication management. Measures of caregiving that account for all types of care may be a more inclusive way of capturing caregiving trajectories and allowing these trajectories to differentiate caregivers’ family and non-family role pathways (Connidis, 2010).
Third, the non-significant caregiving role may be a result of a measurement error known as response bias. Interview and survey methods like those used by HRS are prone to socially acceptable responses (Sullivan, 2001). Some respondents may have given socially acceptable responses about providing care to an aging parent, and these responses biased caregiver trajectory results in this study. Unfortunately, remedies for these measurement errors are not available for this study because data come from a secondary dataset.

A fourth reason the caregiving role was not statistically significant may be that the longitudinal sample does not account for the risk or probability of being a caregiver over time. In this study, the likelihood of being a caregiver slowly declined from 1998 through 2006. This is the same time, however, that the risk of being a caregiver should increase for individuals who have a living parent; the risk that adult child caregivers’ parents will need care increases as adult children and their parents age. Therefore, contrary to the study sample, a higher number of caregivers in 1998-2006 might be expected. There are three explanations for this. First, there may be fewer caregivers as time goes by because fewer respondents have living parents. Second, if both parents are alive, the healthier parent may be providing care to the less healthy parent, reducing the risk of adult children becoming caregivers. Third, parents’ mortality was not modeled appropriately. One way to account for the potential caregiving risk would be to measure the caregiving role using three responses at each wave: (1) caregiving; (2) not caregiving, parents living; and (3) not caregiving, parents deceased. This would take into account the
long-term pattern of mortality for adult child caregivers’ parents and possibly help to
differentiate caregivers’ care trajectories.

A fourth explanation for the non-significant caregiving role is more conceptual.
Life course theory recognizes that there is flexibility in family and non-family roles and
how individuals manage those roles (Elder, 1985; 1998). Therefore, it is possible that
adult child caregivers provide care to their parents when needed without altering existing
pathways. In other words, the caregiving role may not be interdependently related to
other more prominent family and non-family roles over time. This explanation suggests
that caregivers are not dramatically altering their marital, parenting, and employment
roles as a result of providing care. This contrasts with previous research that found
caregiving led to changes in employment status (Singleton, 2000; Wolff & Kasper,
2006). Caregivers, however, may alter their marital, parenting, and employment roles in
ways that are more subtle and do not result in changes in role statuses. For example,
caregivers may continue to be employed while they provide care to an aging parent, but
experience more work-family conflict and caregiving burden (Barrah et al., 2004;
Edwards et al., 2002; Fredrikse-Goldsen, 2006). Also, caregivers may continue to be
employed because they utilize community resources that help reduce the burden of
caregiving (McCann et al., 2004). Related to the life course concept of linked lives, more
research is needed to understand the extent to which caregiving is related to or alters
other family and non-family roles, if at all (Elder, 1985; 1998; Marks et al., 2008).
Researchers may want to first examine caregiving trajectories to understand how the
caregiving role changes over time and then examine how caregiving trajectories are interrelated with other family and non-family roles.

Finally, a fifth reason the caregiving role may not have significantly differentiated role pathways in this study is that caregiving trajectories are being masked by gender and/or age effects. Similar to previous research, the majority of caregivers in this study were female (National Alliance of Caregivers and AARP, 2009). If female caregivers provide more care and male caregivers provide less care to aging parents, a gender effect may be occurring in the current study in which male and female care trajectories are canceling each other out. Age effects may also be occurring with younger caregivers having a different structure of role pathways than older caregivers. For example, older caregivers are at a higher risk of providing care if their parent is still alive compared to younger caregivers (National Alliance for Caregivers & AARP, 2009). Therefore, caregiving trajectories may emerge in caregivers’ role pathways if a distinction was made by gender and age. To test this, future research should consider how caregiver role pathways are structured differently for younger male and female caregivers compared to older male and female caregivers.

In addition to the number and pattern of caregivers’ role pathways, this study found that gender, race/ethnicity, and age predicted membership in the latent role pathways. *Married, Retired Caregivers with Co-Residing Child* (pathway II) and *Not Married, Retired Caregivers* (pathway IV) were more likely to be female, non-White, and older than *Married, Working Caregivers* (pathway I) whereas *Married, Retired Caregivers* (pathway III) were more likely to be female, White, and older than *Married*
Working Caregivers (pathway I). Gender appeared to be the strongest predictor of pathway membership followed by age and race/ethnicity.

Predictors of caregivers’ role pathways provide new information in understanding the heterogeneity of adult child caregivers’ life experiences. Previous research has found that midlife adults’ roles and role trajectories differed by gender, race/ethnicity, and age (Chumbler et al., 2004; National Alliance of Caregivers and AARP, 2009); however, how caregivers’ role pathways differ by these contextual factors has not been examined. Study findings reveal that caregivers of different genders, races/ethnicities, and ages experience different role pathways. Stress process and life course theory suggest that gender, race/ethnicity, and age significantly predicted caregivers’ role pathways in this study because these contextual factors placed caregivers into various societal structures of opportunities and constraints based on their different family and non-family roles (Bengtson & Allen, 1993; Pearlin et al., 1990). This may help explain why caregivers who are male, White, and younger are more likely to be balancing marital and work roles over time while caregivers who are female, White or non-White, and older are more likely to be balancing different combinations of their marital, parenting, and employment roles over time. Whether gender, race/ethnicity, and age are opportunities or constraints for caregivers will be discussed in more depth in the discussion section on pathways and health outcomes.

Life course theory would suggest that predictors of adult child caregivers’ role pathways also reflect cohort effects (Elder, 1985; 1998). For example, similar to previous research, the majority of caregivers in this study were female (National Alliance for
Caregivers & AARP, 2009). It has been estimated that younger cohorts of caregivers will increasingly include male caregivers (Connidis, 2001). In addition, more women are expected to be working while providing care to aging parents (O’Rand & Henretta, 1999; Stephenson, 2002), and caregivers in the United States will become more racially and ethnically diverse (U.S. Census, 2008). In order to account for changes in the demographics of adult child caregivers, future research must consider how caregivers’ role pathways will become more diverse by gender, race/ethnicity, and age. This may be accomplished by examining differences in the magnitude of predictors between caregivers’ pathways using multiple group comparisons. Multiple group comparisons would provide information on whether caregivers in one role pathway are significantly more or less likely to be a specific gender, race/ethnicity, and age compared to another role pathway. Another method for examining the diversity of caregivers’ pathways may be to determine how the structure of caregivers’ role pathways differs by gender, race/ethnicity, and age for younger (born after 1941) and older (born between 1931-1941) cohorts of caregivers (Elder, 1985; 1998; Pearlin, 2010). Congruent with life course theory, this research would provide additional information about intra-individual and inter-cohort caregiver heterogeneity that exists in the context of caregivers’ historical time and place (Dannefer & Kelley-Moore, 2009).

**Pathways and Health Outcomes**

Supporting stress process and life course theory, caregivers’ role pathways were significantly associated with changes in psychological and physical health outcomes (Elder, 1998; George, 1993; Macmillan & Copher, 2005). Specifically, *Married, Retired*
Caregivers with Co-Residing Child (pathway II) and Not Married, Retired Caregivers (pathway IV) were significantly associated with changes in psychological and subjective physical health while Married, Retired Caregivers (pathway III) were significantly associated with changes in high blood pressure, an objective health condition. This meant that, after accounting for stability in health outcomes, Married, Working Caregivers (pathway I) reported significantly less problematic change in psychological and subjective physical health in 2006 compared to Married, Retired Caregivers with Co-Residing Child (pathway II) and Not Married, Retired Caregivers (pathway IV). Married, Working Caregivers (pathway I), however, were more likely than Married, Retired Caregivers (pathway III) to have more problematic changes in blood pressure. These results support previous research that found associations between caregivers’ roles and psychological (Chumbler et al., 2004; Stephens et al., 2001) and physical health (Pinquart & Sorenson, 2007; Williams et al., 2008). Study results provide additional evidence that caregivers’ role pathways are associated with changes in subjective and objective indicators of physical health, not just one indicator as had been found with cross-sectional previous research (McConaghy & Caltabiano, 2005; Pinquart & Sorenson, 2007; Williams et al., 2008).

Study results contribute to the caregiving literature by illustrating within-group variability in caregivers’ health outcomes. Previous caregiving research has often examined how health outcomes vary between caregivers and non-caregivers, finding that caregivers report worse health than non-caregivers (Amirkhanyan & Wolf, 2006; Bell et al., 2001; Williams et al., 2008). Less research has examined how health outcomes vary
within groups of caregivers (Chumbler et al., 2004; Marks et al., 2002; Marks et al., 2008; Pearlin, 2010). Descriptive and regression findings in this study found that not all caregivers experience the same health outcomes; some caregivers report more optimal health than other caregivers. For example, using descriptive findings, **Married, Working Caregivers** (pathway I) often reported the most optimal psychological and physical health outcomes followed by **Married, Retired Caregivers** (pathway III), **Married, Retired Caregivers with Co-Residing Child** (pathway II), and **Not Married, Retired Caregivers** (pathway IV). Based on regression findings, **Married, Working Caregivers** (pathway I) reported less problematic changes in psychological and subjective physical health and more problematic changes in blood pressure compared to one of the caregiver pathways. Overall, as suggested by stress process and life course theory, caregivers’ different life experiences as expressed through their role pathways appear to contribute to caregivers’ different and changing health outcomes (Elder, 1985; 1994).

The current study provides insight into how caregivers’ family and non-family roles pathways are related to different dimensions of caregivers’ health. This is important given that few caregiving studies have included measures of psychological and physical health as well as subjective and objective indicators of physical health in the same study (Pinquart & Sorenson, 2003a; 2007). As supported by life course theory and previous research, **Married, Working Caregivers** (pathway I) may perceive themselves to have more less problematic changes in psychological and subjective physical health because their marriages and jobs serve as protective factors, providing opportunities to receive social support (Brody, 1992; Rozario et al., 2004; Umberson, 1992; Williams et al.,
2008). Being married and employed while caregiving, however, can also be stressful because it can be challenging to manage all three roles (Chumbler et al., 2004; Marks et al., 2008). It is possible that Married, Working Caregivers (pathway I) have more problematic changes in blood pressure because they are having difficulty managing their multiple roles. Compared to Married, Working Caregivers (pathway I), Married, Retired Caregivers with Co-Residing Child (pathway II) and Not Married, Retired Caregivers (pathway IV) may report more problematic changes in psychological and subjective physical health because these caregivers do not have a job and/or spouse to serve as protective factors (Pienta et al., 2000; Umberson, 1992). In addition, Married, Retired Caregivers with Co-Residing Child (pathway II) are managing a co-residing child over time, which is known to contribute to lower levels of health among midlife adults (Crnic et al., 2005; Evenson & Simon, 2005; Neal et al., 2003; Reid & Hardy, 1999).

Interestingly, the more problematic changes in psychological and subjective physical health among Married, Retired Caregivers with Co-Residing Child (pathway II) contrasts with previous research that found no relationship between having a co-residing child and caregivers’ health outcomes (Dautzenberg et al., 1999; 2000; Marks et al., 2008). The pathways that were not significantly related to health outcomes provide additional information about caregivers’ psychological and physical health. Interestingly, Married, Retired Caregivers (pathway III) were not significantly associated with psychological and subjective physical health compared to Married, Working Caregivers (pathway I). This suggests that married caregivers could be working or not working over time and not experience significant changes in psychological and subjective physical
health outcomes. This contrasts with previous research that found married, working caregivers had more optimal psychological health compared to married, retired caregivers (Marks et al., 2008; Rozario et al., 2004). Supporting previous research, however, *Married, Working Caregivers* (pathway I) had more problematic changes in blood pressure than *Married, Retired Caregivers* (pathway III) (Williams et al., 2008). In line with stress process theory, this finding suggests that being employed may bring additional stresses and strains that are only expressed physically through high blood pressure (Pearlin et al., 1990). As for the remaining pathways, *Married, Retired Caregivers with Co-Residing Child* (pathway II) and *Not Married, Retired Caregivers* (pathway IV) were not significantly associated with changes in objective physical health outcomes, suggesting that caregivers in these pathways were not more likely than *Married, Working Caregivers* (pathway I) to have changes in blood pressure, diabetes, lung disease, or a stroke. This contrasts one study that found an increased risk of cardiovascular disease among divorced/widowed midlife adults and not married midlife adults (Zhang & Hayward, 2006). Contributing new information to the literature, the non-significant regression findings suggest that caregivers’ role pathways are not associated with an increased risk for diabetes, lung disease, or a stroke. This study, however, may lack adequate power to detect significant changes in objective health outcomes due to the small number of caregivers who reported having these conditions.

Predictors of caregivers’ pathways provide insight into the relationship between caregivers’ pathways and health outcomes. According to stress process and life course theory, contextual factors such as gender, race/ethnicity, and age position individuals in
societal structures that provide opportunities and constraints, resulting in various health outcomes for caregivers (Bengtson & Allen, 1993; Pearlin et al., 1990). This may explain why Married, Retired Caregivers with Co-Residing Child (pathway II) and Not Married, Retired Caregivers (pathway IV), who were more likely to be female, non-White, and older than Married, Working Caregivers (pathway I), reported more problematic changes in psychological and subjective physical health than the latter group. These findings support previous research that found (a) White caregivers had better psychological and physical health than non-White caregivers (Kang, 2006; Kosberg et al., 2007; Liang et al., 2010; Marks et al., 2008; Rabinowitz & Gallagher-Thompson, 2007), (b) female caregivers had worse psychological and physical health than male caregivers (Pinquart & Sorenson, 2006), and (c) older caregivers were more likely to be depressed than younger caregivers (Chumbler et al., 2004). These findings only contrast with research that found a negative relationship between caregivers’ age and depressive symptoms (Marks et al., 2008). In this study, Married, Retired Caregivers (pathway III) were more likely to be female, White, and older than Married, Working Caregivers (pathway I), and less likely to problematic changes in high blood pressure. Contrary to previous caregiving research, these findings suggest that being a married, working caregiver who is male, non-white, and younger is associated with having higher blood pressure compared to being a married, retired caregiver who is female, White, and older (Pinquart & Sorenson, 2006). It seems that male, younger caregivers do not always have more optimal health.

The relationship between caregivers’ role pathways and health outcomes endorse the life course concept of linked lives (Elder, 1994). Findings indicate that caregivers’
long-term relationships or lack of relationships with spouses, children, and employers significantly altered caregivers’ psychological and physical health outcomes (Elder, 1985; 1994). Considering health outcomes, the most optimal pathways to be a member of were either *Married, Working Caregivers* (pathway I) or *Married, Retired Caregivers* (pathway III). Regardless of employment status, those caregivers who were married and did not have a co-residing child seemed to have less problematic changes in psychological and physical health. The least optimal pathways to be a member of were *Married, Retired Caregivers with Co-Residing Child* (pathway II) and *Not Married, Retired Caregivers* (pathway IV). These retired caregivers who were married or not married and had a co-residing child had more problematic changes in psychological and physical health. This suggests that coping with being retired and not married or being retired, married, and having a co-residing child while providing care to an aging parent may be psychologically and physically difficult for adult child caregivers.

Similar to findings on caregivers’ role pathways, results on the relationship between caregiver role pathways and health outcomes may reflect cohort effects. For example, more adult child caregivers are expected to be employed in the next 20 years, and this could have a positive or negative impact on caregiver health (Stephenson, 2002). Caregivers’ marital and parenting trajectories are also expected to be characterized by more transitions, which could result in various health outcomes for caregivers that are not depicted in this study (Hughes & Waite, 2007; Pienta et al., 2000). To better understand historical changes in caregivers’ role pathways, future research should consider how the
relationship between caregivers’ pathways and health outcomes varies for younger cohorts of caregivers.

Limitations and Weaknesses

Despite the significant contributions of this dissertation research, there are limitations and weaknesses inherent to secondary data analysis that were not aforementioned in the methods section and that are important to consider. One limitation may be the age of participants in HRS. Participants were first interviewed when they were 50 years of age. The mean age of adult child caregivers, however, is 48 (National Alliance of Caregiving and AARP, 2009). Assuming that the age of adult child caregivers is normally distributed, the HRS data can only capture the experiences of older adult child caregivers (ages 50 and older) and, thus, is not representative of all adult child caregivers. Frequencies of caregivers at each wave of HRS data suggested that substantial variability in entering and exiting the caregiving role existed and did not present a large problem for this particular study. It would be beneficial for future research not using HRS data to capture the entire distribution of adult child caregivers in order to understand potential age effects in managing multiple family and non-family roles.

A second limitation is that this study did not include caregivers who provided care to parents-in-law. Care provided to parents-in-law can account for a relatively large number of adult child caregivers, especially caregivers who are of non-White races/ethnicities (National Alliance for Caregiving and AARP, 2009). Unfortunately, HRS did not consistently ask about care to parents-in-law from one wave to the next, and this type of care relationship could not be examined. Therefore, study findings can only
be generalized to adult child caregivers providing care to biological parents and stepparents. Future research should examine role pathways of adult child caregivers who provide care to biological parents, stepparents, and parents-in-law in order to provide a more representative depiction of adult child caregivers’ life pathways. Relationship to care recipients could also be used as a predictor of caregivers’ role pathways in latent class analysis.

A third limitation of this study is the exclusive measure of caregiving. HRS identifies adult child caregivers by asking respondents if they assist parents with dressing, eating, and bathing; these are activities that often occur near the end of a parent’s life. Thus, it could be assumed that caregivers in this study were managing multiple family and non-family roles in the context of losing a parent. Loss of a parent may impact adult children’s family and non-family roles as well as health outcomes, a relationship that future research should consider. Further, the exclusive measure of caregiving does not differentiate whether caregivers gradually became caregivers over time or suddenly became caregivers due to a crisis at the end of a parent’s life. Future research is encouraged to examine the types of care trajectories that exist among adult children.

A weakness of this study is that HRS provides information about the presence or absence of family and non-family roles and not the perceptions of roles. It is possible for caregivers to have similar role pathways but perceive their roles in different ways, leading to differences in psychological and physical health. For example, two caregivers may provide care to their aging parents; one caregiver may perceive this experience positively and have optimal health outcomes whereas the other caregiver may perceive
this as a burden and experience poor health outcomes. Despite this potential limitation, study findings illustrated that health outcomes varied by most role pathways, indicating that caregivers perceived their roles in a relatively uniform way within role pathways. In other words, the relationship between pathways and health outcomes would not have been statistically significant if caregivers had completely different or opposite perceptions of their family and non-family roles. To further investigate the heterogeneity of caregivers’ life experiences, however, future research could examine how caregivers’ perceptions of family and non-family roles change over time and compare to findings from this study.

Another weakness is that this study only examines the perspective of one family member (primary adult child caregivers) and not the perspectives of multiple family members such as care recipients, secondary caregivers, co-residing children, spouses/partners, or employers/co-workers. The field of family science recognizes that it is important to examine the perspectives of multiple family members and how those multiple perspectives can impact the caregiving experience, particularly with regard to caregiver health. The life course concept of linked lives was used in this study to help minimize this limitation (Elder, 1985; Macmillan & Copher, 2005); in line with this concept, adult child caregivers’ role pathways describe how caregivers’ lives are linked with their family and non-family roles over time. In this study, married, retired, co-residing child caregivers and not married, retired caregivers seemed to have difficulty managing or coping with their co-residing children, spouses, loss of spouse, or retirement because they had the poorest psychological and subjective physical health. Multiple
family perspectives could further inform this research by examining how relationships with other family and non-family members change over time in relation to caregivers’ family and non-family roles as well as health outcomes. For example, future research may examine (a) how care recipient health coincides with caregivers’ role pathways and health outcomes; (b) how caregivers’ role pathways compare to their spouses’ role pathways (Schafer, 2011); (c) how caregivers and their children (dependent and/or adult) perceive their relationships over time; and (d) how primary caregivers’ role pathways and health outcomes compare to secondary caregivers’ role pathways and health outcomes.

Summary

Given the strengths and limitations of the current study, this dissertation research confirmed that adult child caregivers have distinct role pathways that vary by gender, race/ethnicity, and age and are associated with caregivers’ psychological and physical health outcomes. Study findings can be generalized to adult child caregivers who are (a) providing care to biological parents and stepparents (not parents-in-law), (b) assisting parents with personal activities such as eating, bathing, and dressing, and (c) ages 50 and older. Life course theory also suggests that study findings may only be generalized to adult child caregivers born between 1931 and 1941 due to potential cohort effects. Study findings have important implications for family theory, research, and practice that are discussed in the next section.

Chapter Seven. Implications for Theory, Research, and Practice

Findings from this dissertation research have theoretical and empirical implications as well as practical implications for families, practitioners, and policy
makers. With regard to theory, this is one of the first studies on caregiving to integrate stress process theory and life course theory (Elder, 1985; Pearlin et al., 1990). This integration contributes to conceptualization of stress process theory, specifically with regard to understanding the relationship between caregiver characteristics and caregiver outcomes over time. Family and non-family roles were more accurately defined and measured as role pathways (Macmillan & Copher, 2005), and caregivers’ role pathways were significantly associated with psychological and physical health outcomes. As a result, study findings support the need for conceptualizing caregiver health and stress as processes that change over time in response to multiple family and non-family roles.

While study findings confirm that role pathways are important to study, the life course concept of role pathways also seems to be challenged by the statistically non-significant caregiving role found in this study. As previously indicated, there are several statistical explanations for the non-significant caregiving role. It is also important, however, to question the theoretical implications for this finding. Life course theory defines pathways as interdependent trajectories of family and non-family roles that structure the life course based on the ordering and timing of these roles (Macmillan & Eliason, 2003). In this study, caregiving was a family role that was not interdependently related to other family and non-family roles over time and did not seem to significantly structure the lives of caregivers. This suggests that family and non-family roles may structure an individual’s life course in different ways with some roles being more prominent than others. In this study, marital and employment role trajectories differentiated role pathways the most while the parenting and caregiving role trajectories
differentiated role pathways to a lesser degree. Life course theorists may need to revisit and revise the concept of role pathways to address the idea that some role trajectories may be more dominant than others in structuring the life courses of individuals and families (Dannefer & Kelley-Moore, 2009). This conceptualization could contribute to how the complexity of individual’s life courses are understood and studied.

Supporting stress process theory, this study confirmed that caregiver health is multidimensional (Pearlin et al., 1990). The relationship between caregivers’ pathways and health outcomes are better understood by using measures of psychological health, subjective physical health, and objective physical health. For example, caregiver role pathways may be related to caregivers’ psychological and subjective physical health but not their objective physical health indicators such as high blood pressure, diabetes, lung disease, and stroke. In line with stress process theory, future research may seek to examine how caregivers’ health dimensions are interrelated over time. For example, research could examine how caregivers’ psychological health at Time 1 is related to caregivers’ subjective and objective physical health at Time 2 and vice versa (Pearlin et al., 1990; Pearlin, 2010); caregivers who are depressed at Time 1 may have poorer physical health at Time 2. Such research would provide empirical evidence for the theoretical relationships hypothesized by stress process and life course theory.

In addition to theory, there are implications for research. This is the first study to utilize eight waves of data to examine family caregiving in general and the relationship between caregivers’ family and non-family roles and health in particular. Study findings reinforce the benefits of longitudinal research when researching family caregiving. For
example, caregivers’ role pathways illustrated how caregivers’ family and non-family role trajectories are heterogeneous yet stable, and that caregivers’ role pathways are related to change in their health outcomes. Cross-sectional research would not have captured the stability of caregivers’ family and non-family roles over time nor their relationship with health outcome change.

Due to the stable nature of caregivers’ role pathways in this study, findings suggest the need for more in-depth information about why caregivers in specific role pathways are experiencing better or worse health outcomes. As suggested by life course theory, the order and timing of family and non-family role transitions can provide information about why caregivers’ health outcomes vary (George, 1993); for example, caregivers with more role transitions are expected to experience more stress and possibly worse health (Elder, 1985). Caregivers’ role pathways, however, were not characterized by transitions and were relatively stable. Thus, several questions could be asked: (a) if caregivers’ role trajectories remain stable over time, why do caregivers in one role pathway have more optimal health than caregivers in another pathway?; (b) are caregivers’ perceptions of family and non-family role trajectories contributing to worse or more optimal health?; and (c) are certain caregivers having difficulty managing or coping with their role pathways compared to other caregivers? More research is needed to examine the similarities and differences between and within caregiver role pathways in order to understand why caregivers’ role pathways are related to better or worse psychological and physical health.
The stability of caregivers’ family and non-family roles in this study also suggests that statistically controlling for these roles in caregiving research may be appropriate. In other words, there are no changes in roles to account for if family and non-family roles are stable. As previously discussed, however, cohort differences should be considered (Elder, 1985). Caregivers born after 1941 may experience more transitions in their midlife family and non-family roles that should be accounted for in caregiving models. Thus, statistically controlling for caregivers’ family and non-family roles may be appropriate for some studies and not for others (Pearlin, 2010). Researchers should take the potential impact of changing social forces as expressed through family and non-family roles into consideration when designing studies on adult child caregivers (Dannefer & Kelley-Moore, 2009).

Study findings regarding the relationship between caregiver role pathways and health outcomes are preliminary findings that should be further examined using structural equation modeling (SEM). In this study, health outcomes were regressed on caregivers’ role pathways in PASW to determine if a statistically significant relationship existed between caregivers’ role pathways and health outcomes; this is important to establish before conducting more complex and time-consuming analyses using SEM. Transferring latent role pathways in Mplus to observed role pathways in PASW make pathway membership definitive and do not account for the respondents who do not fit 100% into one of the four pathways. For example, definitive pathway membership does not account for respondents who fit 60% in one pathway and 40% in another pathway. Future research should examine how caregivers’ role pathways are related to health outcomes.
using SEM, taking varying class membership into account and providing potentially more precise findings.

Comparing adult child caregivers’ role pathways to non-caregivers’ role pathways would also provide insight into the relationship between caregivers’ role pathways and health outcomes. Caregivers may have similar or different role pathways as well as similar or different relationships between role pathways and health outcomes compared to non-caregivers. Similarities would suggest that family and non-family roles and health outcomes are similar for caregivers and non-caregivers. Differences, however, would suggest that not only do caregivers differ from each other, but they also differ from non-caregivers in their role pathways and health outcomes. The latter finding would provide additional evidence of the heterogeneity of adult child caregivers’ family and non-family roles and health outcomes.

A final research implication, as suggested by stress process and life course theory, is for researchers to examine the impact of caregiver role pathways on the entire stress process when the appropriate longitudinal data are available (Pearlin, 2010). It would be beneficial to understand how caregivers’ role pathways are related to caregivers’ long-term patterns of primary stressors, secondary strains, coping strategies, and health outcomes in order to capture the diversity in caregiving experiences. The addition of these other factors may provide the necessary information about caregiving trajectories that is missing from the current study. Future research may also utilize stress process and life course theory to examine additional predictors of caregivers’ role pathways such as (a) socioeconomic status and education, (b) primary stressors such as care recipients’
problematic behaviors and dependencies, (c) secondary strains such as family conflict and financial restraints; and (d) caregivers’ coping strategies (Pearlin et al., 1990). Such research would provide further information about caregiver membership in certain role pathways and the relationship between those role pathways and health outcomes.

In addition to theory and research, findings from this dissertation research provide practical implications for families, practitioners, and policy makers. Regarding families, study findings help adult children and their care recipients understand how caregivers experience multiple family and non-family roles over time and how that is associated with their psychological and physical health. Some caregivers may need more long-term assistance with caregiving, coping with the loss of a spouse, co-residing children, or a lack of socialization due to not having a job compared to other caregivers. Employed caregivers may need help with managing their long-term caregiving, marital, and employment roles to reduce their likelihood of having high blood pressure. Overall, study findings inform family members about the unique long-term challenges experienced by adult child caregivers’ and provide insight into what types of caregivers may be most at risk of poorer psychological and physical health.

Family practitioners can use study findings to create services (i.e., educational materials, support groups, policies) for caregivers that are specific to caregivers’ family and non-family role pathways. Educators can use study findings to provide information to caregivers and their communities about managing their multiple family and non-family roles over time. It may be beneficial to educate caregiving families and communities about the different types of caregivers, especially those who are most at-risk for poorer
health outcomes. Families and communities may be better informed to take appropriate action for assisting adult child caregivers. This could be accomplished using a pamphlet, on-line module, or phone application that illustrates and describes the four caregiver role pathways and their relationship to specific health outcomes; gender, race/ethnicity, and age differences would also be described. This educational material could serve as a point of discussion for both adult child caregivers and practitioners working with caregivers, encouraging these individuals to better understand how long-term family and non-family roles may impact caregivers’ health over time.

Therapists can use study findings to help adult child caregivers have healthier caregiver-care recipient, spousal, parent-child, and employer-employee relationships, with the ultimate goal of strengthening caregivers’ psychological and physical health as well as their ability to provide care to their aging parents. One way to do this may be to provide support groups for caregivers based on their configurations of family and non-family roles. Caregivers could learn techniques for managing their family and non-family roles that are more specific to their situation. For example, married, working caregivers could learn techniques for managing caregiving, marital, and employment roles from each other while not married, not working caregivers could learn how other caregivers are coping with widowhood and retirement while providing care to an aging parent. Receiving support specific to their situation may help caregivers improve their psychological and physical health over time. Overall, this would be a holistic view of caregiving that considers other aspects of caregivers’ lives that extend beyond the care they provide to their parents.
Finally, policy makers can utilize study findings to promote policies that address the diversity of needs experienced by adult child caregivers. Study findings provide evidence that adult child caregivers with specific family and non-family role pathways are more vulnerable to low levels of psychological and physical health, indicating that they need more immediate attention and assistance from policy makers. For example, employed caregivers may need policies that support more work-friendly environments to help reduce their likelihood of having high blood pressure. Caregivers with co-residing children or caregivers who are coping with widowhood and retirement may need access to respite services and support groups that allow them to successfully manage these other roles and relationships. Study findings also illustrate that policies may need to vary for caregivers depending on their gender, race/ethnicity, and age. For example, adult child caregivers who are female, non-White, and older may need access to services that can promote their health and wellbeing.

Overall, this dissertation research illustrated that adult child caregivers’ long-term patterns of family and non-family roles are structurally diverse and relate to changes in caregivers’ psychological and physical health in different ways. Findings encourage future research to examine the diverse lives of adult child caregivers using longitudinal methods. Increasing what is known about the long-term patterns of caregivers’ lived experiences will help to minimize the burden of caregiving experienced by caregivers, families, communities, and society for years to come.
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Table 3

Examining MCAR and MAR Missing Patterns: Mean Differences for Study Variables (N = 1300)

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Table 3 (Continued)

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  - Older ns Other Less ns Higher ns
- No missing
  - Younger ns White More ns Lower ns

Parenting 2000
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- No missing
  - Younger ns White More ns Lower Lower

Parenting 2002
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- No missing
  - ns ns White More ns ns ns

Parenting 2004
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  - ns ns ns ns ns Higher ns
- No missing
  - ns ns ns Lower ns ns

Parenting 2006
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- No missing
  - Younger ns ns More ns ns ns

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- No missing
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Employment 1996
- Missing
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- No missing
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*Note.* Mean differences were only examined for variables with more than 5% missing data.
Table 4

Sample Characteristics and Coding (N = 1300)

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<td>1060 (81.5)</td>
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<td>865 (66.5)</td>
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<td>829 (63.8)</td>
<td>804 (61.8)</td>
<td>787 (60.5)</td>
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(Table 4 Continues)
Table 4 (Continued)

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<th>N</th>
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<th>N</th>
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<td>1.46 (1.86)</td>
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<td>710 (54.6)</td>
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Table 5

Statistical Criteria for Latent Role Pathway Models (N = 1300)

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<tr>
<th>Number of Classes</th>
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<th>Number of Free Parameters</th>
<th>BIC</th>
<th>LMR-LRT</th>
<th>Entropy</th>
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<tr>
<td>1</td>
<td>-23,846.20</td>
<td>32</td>
<td>47,921.84</td>
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<td>n/a</td>
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<tr>
<td>2</td>
<td>-19,819.94</td>
<td>68</td>
<td>40,127.44</td>
<td>( p &lt; .001 )</td>
<td>.99</td>
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<tr>
<td>3</td>
<td>-18,754.88</td>
<td>104</td>
<td>38,255.45</td>
<td>( p = .007 )</td>
<td>.94</td>
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<td>4</td>
<td>-18,041.46</td>
<td>140</td>
<td>37,087.54</td>
<td>( p &lt; .001 )</td>
<td>.95</td>
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<tr>
<td>5</td>
<td>-17,221.52</td>
<td>176</td>
<td>35,704.24</td>
<td>( p = .621 )</td>
<td>.96</td>
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<tr>
<td>6</td>
<td>-16,959.76</td>
<td>212</td>
<td>35,439.59</td>
<td>( p = 689 )</td>
<td>.96</td>
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Table 6

**Year-Specific Probabilities Capturing Longitudinal Structure of the Data (N = 1300)**

<table>
<thead>
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<td>0.23</td>
<td>0.28</td>
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<td>0.21</td>
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<td>0.14</td>
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<td>0.29</td>
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<td>0.20</td>
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<td>0.17</td>
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<tr>
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<td>0.23</td>
<td>0.28</td>
<td>0.25</td>
<td>0.20</td>
<td>0.21</td>
<td>0.19</td>
<td>0.14</td>
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<td>0.29</td>
<td>0.25</td>
<td>0.21</td>
<td>0.20</td>
<td>0.19</td>
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<td>0.56</td>
<td>0.47</td>
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<td>0.16</td>
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<tr>
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*Note.* Values approaching 0 indicate 4-class model captures the longitudinal structure of the data.
### Table 7

*Conditional Probabilities for Latent Pathways I (N = 292) and II (N = 161)*

<table>
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<tr>
<th>Variable</th>
<th>Married, Working Caregivers (Pathway I: 22%)</th>
<th>Married, Retired Caregivers with Co-Residing Child (Pathway II: 12%)</th>
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<td>Not married</td>
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<tr>
<td>Co-residing child</td>
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<tr>
<td>No co-residing child</td>
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Table 8

*Conditional Probabilities for Latent Pathways III (N = 398) and IV (N = 449)*

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<td>0.02</td>
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<td>0.02</td>
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<td>0.97</td>
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<tr>
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<td>0.02</td>
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<td>0.98</td>
<td>0.97</td>
<td>0.98</td>
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Table 9

**Multivariate Multinomial Logistic Regression of Latent Pathways on Predictor Variables (N = 1300)**

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Married, Retired Caregivers with Co-Residing Child (II) $^a$</th>
<th>Married, Retired Caregivers (III) $^a$</th>
<th>Not married, Retired Caregivers (IV) $^a$</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>$B$</td>
<td>$SE$</td>
<td>$OR$</td>
</tr>
<tr>
<td>Female (1), Male (0)</td>
<td>1.06***</td>
<td>.26</td>
<td>2.89</td>
</tr>
<tr>
<td>White (1), Other (0)</td>
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<td>.26</td>
<td>.53</td>
</tr>
<tr>
<td>Age</td>
<td>.25***</td>
<td>.04</td>
<td>1.28</td>
</tr>
</tbody>
</table>

*Note.* $^a$ Reference pathway = married, working caregivers (I); * $p < .05$; ** $p < .01$; *** $p < .001$. 

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Table 10

*OLS Regression of Psychological Health on Role Pathways (N = 1300)*

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE</th>
<th>β</th>
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<tr>
<td>1994 Psychological health</td>
<td>.39</td>
<td>.02</td>
<td>.42***</td>
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<td>Married, retired caregivers (III)(^a)</td>
<td>.25</td>
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<td>.06</td>
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<td>Married, retired caregivers with co-residing child (II)(^a)</td>
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<td>.09**</td>
</tr>
<tr>
<td>Not married, retired caregivers (IV)(^a)</td>
<td>.29</td>
<td>.13</td>
<td>.08*</td>
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</table>

Sum of Squares 860.69
Mean Square 215.17
\(F\) 76.81***
\(R^2\) .19

Note. \(^a\) Reference category = married, working caregivers (I);
* \(p < .05\); ** \(p < .01\); *** \(p < .001\).
Table 11

**OLS Regression of Subjective Physical Health on Role Pathways (N = 1300)**

<table>
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<td>Married, retired caregivers (III)</td>
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<td>Married, retired caregivers with co-residing child (II)</td>
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<td>.09</td>
<td>.07**</td>
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<td>.07</td>
<td>.11***</td>
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</tbody>
</table>

| Sum of Squares                      | 417.88 |
| Mean Square                         | 104.47 |
| \(F\)                               | 125.65*** |
| \(R^2\)                             | .28    |

*Note.* a Reference category = married, working caregivers (I);

* \(p < .05\); ** \(p < .01\); *** \(p < .001\).
Table 12

*Logistic Regression of High Blood Pressure on Role Pathways (N = 1300)*

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE</th>
<th>Log Odds$^b$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992 High Blood Pressure</td>
<td>2.19</td>
<td>.15</td>
<td>8.92***</td>
</tr>
<tr>
<td>Married, retired caregivers (III)$^a$</td>
<td>-.36</td>
<td>.17</td>
<td>.70*</td>
</tr>
<tr>
<td>Married, retired caregivers with co-residing child (II)$^a$</td>
<td>.17</td>
<td>.23</td>
<td>1.19</td>
</tr>
<tr>
<td>Not married, retired caregivers (IV)$^a$</td>
<td>-.19</td>
<td>.17</td>
<td>.82</td>
</tr>
</tbody>
</table>

-2 Log likelihood 1509.97
Chi-square (df) 281.12***
Pseudo R-square (Nagelkerke) .26

Note. $^a$ Reference category = married, working caregivers (I); $^b$ Odds ratios over 1.00 indicate a positive effect, and under 1.00 indicate a negative effect; * $p < .05$; ** $p < .01$; *** $p < .001$. 


Table 13

*Logistic Regression of Diabetes on Role Pathways (N = 1300)*

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE</th>
<th>Log Odds(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992 Diabetes</td>
<td>2.63</td>
<td>.23</td>
<td>13.92***</td>
</tr>
<tr>
<td>Married, retired caregivers (III)(^a)</td>
<td>-.28</td>
<td>.23</td>
<td>.76</td>
</tr>
<tr>
<td>Married, retired caregivers with co-residing child (II)(^a)</td>
<td>.39</td>
<td>.26</td>
<td>1.48</td>
</tr>
<tr>
<td>Not married, retired caregivers (IV)(^a)</td>
<td>-.03</td>
<td>.21</td>
<td>.98</td>
</tr>
</tbody>
</table>

-2 Log likelihood          1074.43
Chi-square (df)             151.19***
Pseudo R-square (Nagelkerke) .18

*Note.* \(^a\) Reference category = married, working caregivers (I); \(^b\) Odds ratios over 1.00 indicate a positive effect, and under 1.00 indicate a negative effect; *\(p < .05\); **\(p < .01\); ***\(p < .001\).
Table 14

*Logistic Regression of Lung Disease on Role Pathways (N= 1300)*

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE</th>
<th>Log Odds$^b$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992 Lung Disease</td>
<td>2.47</td>
<td>.25</td>
<td>11.81***</td>
</tr>
<tr>
<td>Married, retired caregivers (III)$^a$</td>
<td>.07</td>
<td>.29</td>
<td>1.07</td>
</tr>
<tr>
<td>Married, retired caregivers with co-residing child (II)$^a$</td>
<td>.29</td>
<td>.35</td>
<td>1.33</td>
</tr>
<tr>
<td>Not married, retired caregivers (IV)$^a$</td>
<td>.39</td>
<td>.27</td>
<td>1.47</td>
</tr>
</tbody>
</table>

-2 Log likelihood: 782.73
Chi-square (df): 92.83***
Pseudo R-square (Nagelkerke): .14

*Note.* $^a$ Reference category = married, working caregivers (I); $^b$ Odds ratios over 1.00 indicate a positive effect, and under 1.00 indicate a negative effect; * $p < .05$; ** $p < .01$; *** $p < .001$. 

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Table 15

Logistic Regression of Stroke on Role Pathways (N = 1300)

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE</th>
<th>Log Odds^b</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992 Stroke</td>
<td>3.59</td>
<td>.43</td>
<td>36.10***</td>
</tr>
<tr>
<td>Married, retired caregivers (III)^a</td>
<td>-.39</td>
<td>.39</td>
<td>.68</td>
</tr>
<tr>
<td>Married, retired caregivers with co-residing child (II)^a</td>
<td>.16</td>
<td>.44</td>
<td>1.18</td>
</tr>
<tr>
<td>Not married, retired caregivers (IV)^a</td>
<td>.26</td>
<td>.34</td>
<td>1.30</td>
</tr>
</tbody>
</table>

-2 Log likelihood 509.08  
Chi-square (df) 69.97***  
Pseudo R-square (Nagelkerke) .15  

Note. ^a Reference category = married, working caregivers (I); ^b Odds ratios over 1.00 indicate a positive effect, and under 1.00 indicate a negative effect; * p < .05; ** p < .01; *** p < .001.
Appendix Two

Figure 1

*Stress Process Theory: The Relationship Between Caregiver Characteristics and Caregiver Outcomes (Pearlin et al., 1990)*
Figure 2

*Conceptual Framework of Adult Child Caregivers’ Family and Non-Family Role Pathways and Health Outcomes*
Figure 3

Analytical Model of Latent Family and Non-Family Role Pathways for Adult Child Caregivers
Figure 4

Analytical Model of Ordinary Least Squares (OLS) and Logistic Regression Models for Adult Child Caregivers

Health Outcome 1992 or 1994

Latent Role Pathway 2

Latent Role Pathway 3

Latent Role Pathway 4

Health Outcome 2006

Note. Reference category = married, working caregivers (pathway I)
Figure 5

*Latent Role Pathway I: Married, Working Caregivers (22.5%)*
Figure 6

*Latent Role Pathway II: Married, Retired Caregivers with Co-Residing Child (12.5%)*
Figure 7

Latent Role Pathway III: Married, Retired Caregivers (30.5%)
Figure 8

*Latent Role Pathway IV: Not Married, Retired Caregivers (34.6%)*
Figure 9

*Means plots of Caregivers' Role Pathways by Psychological and Subjective Physical Health in 2006 (N = 1300)*
Figure 10

*Bar Graphs of Caregivers’ Role Pathways with High Blood Pressure (N = 710) and Diabetes (N = 234) in 2006*
Figure 11

*Bar Graphs of Caregivers’ Role Pathways with Lung Disease (N = 137) and Stroke (N = 76) in 2006*