

**FAMILY CAREGIVERS' LABOR FORCE PARTICIPATION AND FINANCIAL
WELL-BEING: A LONGITUDINAL STUDY**

by

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Submitted to the Graduate Faculty of
The School of Social Work in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy

University of Pittsburgh

2012

UNIVERSITY OF PITTSBURGH

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University of Pittsburgh, 2012

Abstract

As the older population continues to grow, the number of people in need of long-term care is likely to increase and more families than ever before are becoming involved in providing care to family members. Studies on family caregivers' labor force participation and financial well-being have implications for designing social policy and programs to support family caregivers. However, first, the existing research on the relationship between caregiving and labor force participation is suggestive but not conclusive due to equivocal research results based on cross-sectional design. Second, much of the previous literature on caregiving has focused on the effects of caregiving on the caregivers' psychological and physical well-being, and there is limited literature pertaining to caregivers' financial well-being. Third, a comparative study of the similarities and differences across cultures will add knowledge regarding how cultural background and institutional factors interact with care for the elderly.

This dissertation aimed to fill these gaps by examining family caregivers' labor force participation and financial well-being through a longitudinal research design. In addition, this study attempted to conduct a cross-national comparative study between the United States and Korea by exploring the two nationally representative data. Results suggest that while caregiving had a negative impact on women's labor force participation, employment status was not related

to assume the role of physical caregiver. In addition, men's labor force participation had a negative impact on taking on the physical care, whereas the role of physical caregiver was not related to their employment status. However, the impact of caregiving on change in financial well-being and the mediation effect of employment on financial well-being were not identified. Findings from this study provide a greater understanding of gender differences in the relationship between caregiving and labor force participation.

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Dedicated to My Parents, the Best in the World

1.0 INTRODUCTION

1.1 BACKGROUND

The number of people in need of long-term care is likely to increase as the older population continues to grow. Individuals aged 65 years or older represented 12.9% of the U.S. population and 10% of the Korean population in 2008 (UN, 2010). Further, given that the first baby-boomers turn 65 years old in 2011, the number of older adults is expected to rapidly increase in both countries. In the U.S., the majority of caregiving for older adults has been provided informally, and more American families than ever before are becoming involved in providing care or support to family members (Fredriksen-Goldsen & Scharlach, 2001). Recent national studies estimated that at least 43.5 million American caregivers aged 18 and over provided unpaid care to a family member aged 50 or older (NAC & AARP, 2009). Among Koreans 60 years and over, 89.5% received care from family members (Ministry of Health and Welfare, 2008).

Given this trend, family caregivers face difficult choices as they try to balance work and caregiving commitments. A large number of family caregivers are employed or working part-time in addition to their caregiving responsibilities. In the U.S., approximately seven out of 10 caregivers have been employed sometime during caregiving (NAC & AARP, 2009). Role responsibilities between caregiving and working frequently compete and conflict; employed

caregivers are described as feeling "sandwiched" (Neal & Hammer, 2007) as they struggle with balancing and combining two responsibilities. Consequently, working caregivers are likely to make adjustments in their working and/or caregiving roles. According to a National Alliance for Caregiving (2009) report, 70% of working caregivers made work-related adjustments to take on caregiving responsibilities in the U.S.

However, maintaining labor force participation is essential for current earnings and future financial security. Because of the increase in age eligibility for full benefits of Social Security, older Americans are likely to work longer and depend on wages or salary from employment as their main income (Baum, Hannah, & Ford, 2002; Michaud & Soest, 2008; Song, 2004). Employment also affects future financial security in terms of reduced opportunity to accumulate pension. When individuals leave the labor market or reduce their work hours, they lose income and benefits provided by work, and early labor force exit reduces Social Security benefits (Bergstrom & Heymann, 2005; Kingson & O'Grady-LeShane, 1993). In the U.S., a report that analyzed the national data has shown that among 38% of caregivers who took time off or worked fewer hours, 48% reported losing income while they were on caregiving leave (Aumann, Galinsky, Sakai, Brown, & Bond, 2010). Furthermore, when family caregivers re-enter the labor force after a period of unemployment, they are more likely to be employed at lower-wage jobs than in their previous employment (Harrington Meyer & Pavalko, 1996).

When caregiving is required, those with sufficient financial resources are more likely to use formal services such as nursing homes or to hire paid caregivers. A recent survey revealed that 50% of caregivers were spending more than \$5,531 a year on caregiving, and 34% used some of their savings to cover caregiving costs (NAC & AARP, 2009). On the other hand, low-income families have the most difficulty meeting the expenses of hiring caregivers for their

parents and thus, might leave the labor force to take on caregiving roles. Thus, caregiving responsibilities may put caregivers at risk of living in poverty, require public assistance in later life, and may overall have devastating consequences, particularly for individuals already living in poverty (Wakabayashi & Donato, 2005). For example, caregivers with annual household incomes of less than \$25,000 are spending more than 20% of their annual incomes on caregiving and provide the highest number of care hours, 41 hours per week in the U.S. (Aging Today, 2009).

Rationales for Comparative Study between the U.S. and Korea

Considering that the older population is growing globally, the demand for family care will increase exponentially in the next few decades not only in the United States but also in other countries. Yet, most studies are based on the U.S., and other countries, such as, Korea remain relatively unexplored in comparative research on family caregivers and their working and financial status. Korea is an interesting comparison because Koreans place very strong emphasis on family caregiving. Though older adults receive most of their care from family members in both countries, Koreans, culturally, expect more informal care than formal care. Additionally, social policy for older adults and their family caregivers are underdeveloped, and institutional care such as nursing homes is generally less available in Korea than in the U.S. (Grant, Bartolucci, Elliot, & Giger, 2000).

Recently in Korea, there have been concerns about the underdevelopment of formal care policy and services in addition to a decreased role of informal care for older adults. Policy makers are looking for the solution through development of formal care and institutional support.

On the other hand, for the U.S., there are public concerns about the rising costs of formal care for older adults and suggestions that informal care should play an increased role in providing care to older adults. Between the U.S. and Korea, significant variations and similarities may exist in family caregiving and the ability of countries to meet family caregivers' needs. A cross-national comparative study can provide some possible lessons for each country. More details about the differences between the U.S. and Korea will be further discussed in Chapter 2.

In addition, growing diversity within the U.S. population, and with the U.S. Asian population being the fastest growing in the last decade (U.S. Bureau of the Census, 2010), the need for understanding ethnic differences in family caregivers' experience and caregiver intervention is all the more pressing. Dilworth-Anderson and colleagues (2002) suggest that a more detailed understanding of culturally diverse population groups is necessary to evaluate their caregiving experiences. Therefore, more research is needed to systematically evaluate them (Napoles, Chadiha, Eversley, & Moreno-John, 2010).

1.2 SIGNIFICANCE OF THE STUDY

Given the high prevalence and financial effects of caregiving, it is increasingly recognized as a social work issue. The National Association of Social Workers (NASW) has approved new standards for social work practice with family caregivers of older adults to identify and further develop existing practices that will raise the knowledge, skills, values, and methods of professional social workers in supporting family caregivers (NASW, 2010). These standards encourage social workers to participate in the development of public policy to support family

caregivers of older adults and also to improve the quality of social work services provided to family caregivers of older adults.

Studies on family caregivers' labor force participation and financial well-being have implications for designing social policy and programs to support family caregivers. Empirical support is necessary to establish effective policy and practice, but the existing research on caregiving responsibilities and employment is suggestive but not conclusive due to equivocal research results. This dissertation will contribute to clarifying previous equivocal findings regarding caregiving and employment by examining the reciprocal relationship between caregiving and labor force participation.

In addition, this study will contribute to the scholarship regarding the influence of caregiving on financial well-being. Caregiving responsibility requires that caregivers sacrifice their time, health, energy, and jobs (Bakas, Lewis, & Parsons, 2001). Heavy care responsibility often brings about various negative consequences including physical, psychological, and financial problems for the caregiver (Dobrof & Ebenstein, 2003/2004; Swanberg, 2006). Much of the previous literature on caregiving has focused on the effects of caregiving on the caregivers' psychological and physical well-being such as caregivers' depression, stress, and the decline in physical ability. There is limited literature pertaining to caregivers' financial well-being associated with labor force participation. The present study attempts to fill this gap by exploring the changes over time in family caregivers' financial well-being and also, examining the mediation effect of labor force participation on caregivers' financial well-being. Also, this study will contribute to cross-national literature regarding labor force participation and financial well-being associated with caregiving. The specific effects of caregiving among the family caregivers in the Korean population may have implications in a diverse cultural setting. A

comparative study of the similarities and differences across cultures will add knowledge regarding how cultural background and institutional factors interact with care for the elderly.

From a theoretical perspective, this research will enhance theoretical development concerning the relationship between caregiving and working by testing role theory. Also, it will shed light on the applicability of role theory and accumulative disadvantage theory in the Korean experience. By conducting studies in different cultures, researchers can not only get a better understanding of the robustness of theoretical models but also consider alternative theoretical explanations for the findings from cross-cultural differences.

In terms of practice implications, this study will equip social workers with better information on how best to serve the needs of family caregivers with working commitments and financial problems. Further, this cross-cultural study will have implications for training social workers to improve their understanding of the needs of diverse ethnic caregivers. Social workers who understand Asian families' culture and circumstances will be able to provide responsive services to this population.

1.3 PURPOSE OF THE STUDY

The primary goal of this study is to expand knowledge about family caregivers' labor force participation and financial well-being utilizing a cross-national comparative study. This study specifically aims to:

- 1) investigate the reciprocal association between caregiving and labor force participation by examining how family caregiving influences labor force participation, and vice versa;

- 2) explore the trajectories of financial well-being and how caregiving and labor force participation affect the trajectories; and
- 3) compare the United States and Korea in the relationships among caregiving, labor force participation, and financial well-being.

1.4 DEFINITIONS OF TERMS

Definitions of family or informal caregiving are inconsistent. Bullock and colleagues (2003) defined informal care as help provided by nonpaid individuals. The National Family Caregiver Support Program passed in 2002, defined informal caregivers as “adult family members, friends or neighbors who provide care without pay and who usually have personal ties to the care recipient” (Fredriksen-Goldsen & Hooyman, 2007, p. 142). Usually, family care is considered help received from family members and friends without financial compensation (Lima, Allen, Goldscheider, & Intrator, 2008). Literature on caregiving has addressed eldercare, childcare, or people with chronic illness in relation to formal or informal caregiving. This study only focuses on family caregiving provided to a parent or parent-in-law.

Caregiving provided by family caregivers encompasses a variety of activities from helping with activities of daily living (ADLs) or instrumental activities of daily living (IADLs) to performing various chores and errands (Fredriksen-Goldsen & Scharlach, 2001; Swanberg, 2006). While ADLs include self feeding, toileting, bathing, grooming, and dressing, IADLs refer to more complex social activities than ADLs such as taking medications, preparing meals, managing money, shopping, use of telephone, and transportation (Lawton & Brody, 1969). Fredriksen-Goldsen and Scharlach defined caregiving as “direct or indirect physical assistance,

financial aid, or emotional support to adult family members or friends who have physical, cognitive or emotional disabilities” (2001, p. 33). Care responsibilities also include all help for the care-receivers’ needs from errands to long-term care to help make it through the day (Swanberg, 2006). NASW (2010) includes a variety of support and services that enhance or maintain the quality of life of older adults who receive family caregiving. These services include emotional, social, and spiritual support, assistance with decision making and physical tasks, support in navigating and negotiating health and social service systems, financial support, and shared housing.

Throughout this dissertation, caregiving responsibility refers to physical and financial caregiving. First, physical caregiving is defined as providing help directly by spending caregivers’ own time, energy, and effort such as help with activities of daily living (ADL). Second, financial caregiving refers to giving financial support or assistance. Most studies to date, have addressed caregiving in terms of physical caregiving. However, financial caregiving pays for needed personal assistance, and thus, giving money and providing personal care assistance to the elderly should be identified as different types of caregiving responsibilities. The definitions guide our inclusion criteria with respect to family caregiving.

2.0 LITERATURE REVIEW

In this chapter, I first review the characteristics of caregivers and cultural and policy differences between the United States and Korea. The dynamics of family caregiving and its outcomes may differ and are reflected in a country's culture and policy. Secondly, I present a theoretical background to guide this study. I will then review the existing literature on caregiving, labor force participation, and financial well-being and finally summarize the limitations of previous studies.

2.1 OVERVIEW OF CAREGIVING IN THE UNITED STATES AND KOREA

The majority of caregivers of older adults are women in both the U.S. and in Korea. According to a recent report, it is estimated that 67% of family care in the U.S. and 80% of care in Korea are provided by women (National Alliance for Caregiving, 2009; Ministry of Health and Welfare, 2008). Although the role of male caregivers is more likely to grow as the population ages (Kramer, 2002), a more intensive caregiving is more likely to be taken on women than men (Evandrou, Glaser, & Henz, 2002). For example, in both the U.S. and Korea, women are more likely to provide assistance with activities of daily living (ADL) and personal care such as bathing, dressing, and eating, while men are more likely to provide sporadic assistance (Merrill, 1993) or assistance with instrumental activities of daily living (IADL) including financial

management, transportation, shopping, and home maintenance (Allen, Herst, Bruck, & Sutton, 2000; Levande, Herrick, & Sung, 2000; Neal, Ingersoll-Dayton, & Starrels, 1997). Also, when formal care is purchased for their dependent elderly parents, men are more likely to become care managers (Connidis, Rosenthal, & McMullin, 1996; Montgomery & Kamo, 1989).

Although women are more likely to assume parent caregiving responsibilities in both countries, caregivers' relation to the elderly in care varies. In the U.S., adult daughters are most likely to be the primary caregiver (Levande, et al., 2000). According to a survey of individuals caring for someone age 50 or older, 50% provided care to a parent, 11% to a parent-in-law, 11% to a grandparent, and 6% to a spouse (National Alliance for Caregiving, 2009). In this U.S. survey, caregivers' average age was 50 years old, and they spent an average of 20.4 hours per week on caregiving. For Koreans, daughters-in-law constituted the majority (80%) of primary caregivers (Youn, 1998), and caregiving reported to be the responsibility of a son in Korea is actually performed by his wife (Choi-Kwon, Kim, Kwon, & Kim, 2005). According to the Korean National Survey of the Life and Welfare Needs of Older People (2008), among elderly aged 60 and older who have limitations in ADLs, it was estimated that 50.4% received primary care from a spouse, 27.3% from sons and daughters-in-law, 9.5% from daughters and sons-in-law, and 8.1% from paid caregivers. A local survey showed that caregivers' average age was approximately 55, and caregivers spent an average of 15.2 hours per week on care provision (Choi-Kwon, et al., 2005).

More American caregivers than Koreans are employed. In the U.S., among caregivers who care for someone age 50 or older, 50% were employed full-time and 11% were employed part-time (NAC, 2009). Another study found that approximately 63% of caregivers for infirm parents were employed full-time (53%) or part-time (10%) (R. W. Johnson, 2007). In contrast, in

Korea, among caregivers of parents who had limitations in an ADL or IADL, only 18.5% were employed, 81.5% were not employed, and the half of employed caregivers worked more than 8 hours per a day (Jang, 2006). In both countries, among employed caregivers, most have to make work place accommodations due to caregiving responsibilities (68% in the U.S. and 52.7% in Korea). In the U.S., the most common work place accommodation was an adjustment to working time, including going in late, leaving early, or taking time off during the day (64%), whereas in Korea, reducing work hours (25.7%) and getting a job closer to home (12.2%) were more common (NAC, 2009; Jang, 2006).

Cultural differences also exist in living arrangements. In the U.S., in general, both elderly parents and their children prefer living separately (Hamon & Blieszner, 1990), and it is rare for grown-up children to live with their parents. Parents and adult children live together only under circumstances such as unemployment, divorce, widowhood, or when there are extensive caregiving responsibilities that adult children assume (Brody, Litvin, Hoffman, & Kleban, 1995). When they live together, it is more common for an aging parent to live with an adult daughter than with an adult son. According to a survey by the National Alliance for Caregiving (2009), among care-receivers, 47% lived alone, 28% lived with a spouse, 13% lived with a grown child, and 8% lived with other family members. In contrast, older adults in Korea have a very strong preference for living with their children, though the children are less willing than their parents to live together. According to a National Survey of the Life and Welfare Needs of Older People (2008), 39.4% of community-dwelling adults aged 60 and over were living with a spouse, 30.2% were living with adult children, 25% were living alone, and 4.7% were living with another family member.

In the United States, while family responsibility includes providing emotional and psychological support, financial support is considered a responsibility of the federal government in the form of Social Security, Medicaid or Medicare, and other welfare programs (Seelbach, 1984). Both parents and adult children consider emotional support as the most important type of assistance a caregiver can provide, and financial support as the least important. In addition, parents reported that they did not want to be supported financially by their adult children (Hamon & Blieszner, 1990). While in Korea, family care is comprised of both emotional and financial support. For example, among older adults aged 60 and over, 56.9% received financial support from their adult children (Ministry of Public Health and Welfare, 2008). The difference in financial support between the U.S. and Korea was noted in one study that found at least 40% of caregivers gave financial transfers to their parents in Korea, whereas only 17% of American caregivers made such transfers (H. Kim, 2009).

Characteristics in Korean Culture

The above differences in living arrangements and financial support may reflect both cultural and policy differences between the two countries (Jang, Small, & Haley, 2001). In Korea, children's financial and emotional support for their parents and co-residence with parents are considered an obligation based on filial piety tradition. Korean cultural values are rooted in 'filial piety', which means "to respect one's parents by making them feel relaxed emotionally and taking good care of parents materialistically" (Baker, 1979, p. 98). Burr and Mutchler (1999) measured filial responsibility through two types of assistance: whether children provide financial aid and whether children take parents into their homes when parents can no longer live independently.

This tradition of filial piety has served as a moral basis for family caregiving and influences individual attitudes and behaviors in Korea (Sung, 1995). Furthermore, a social stigma is linked to placing older parents in a long-term care facility because it means not appropriately fulfilling the responsibilities of caring for parents. In addition, paternalism rooted in Confucianism still serves as a cultural value in Korean society and influences family roles in parental caregiving. Because of the long-standing cultural tradition that the eldest son is responsible for parental caregiving and that women take care of household affairs, caregiving responsibility assumed by the eldest son is extended to his wife, and thus, daughters-in-law rather than daughters are expected to provide care for parents-in-law (J. Kim, 2001). Usually, men provide financial support for parents, whereas women are responsible for physical and/or emotional care (Korea National Statistical Office, 2001).

Cultural differences in values about family and government responsibility for caregiving have lead to significant variations in policies related to care in the two countries. Older Americans can secure relatively adequate retirement income from their savings or governmental sources such as Social Security benefits without financial transfer from children (Crystal & Waehrer, 1996; H. Kim, 2009). In addition, care for older adults is supported by policy or programs such as home- and community-based services, and facilities such as nursing homes, and subsidized by public programs such as Medicare and Medicaid. On the other hand, the strong filial piety tradition in Korea likely influences the underdevelopment of policy or programs for caring the elderly (Sung, 1998). In Korea, social services and long-term care systems for caregivers and care-receivers have been underdeveloped because caregiving is viewed as a cultural and individual issue rather than a social policy issue (Do, 2008). For

example, day care, in-home services, short-term respite programs and institutional long-term care programs are unavailable or limited (Choi, 1996; J. Kim & Lee, 2003).

In summary, first, the primary caregivers of older adults are women in both countries. However, adult daughters in the U.S. and daughters-in-law in Korea provide care. Second, parents and adult children live separately in the U.S., whereas older adults have a strong preference for living with their children in Korea. Third, in terms of financial support, Americans consider emotional support as the most important types of assistance and financial support as the least important. On the other hand, family care is comprised of both emotional and financial support in Korea. These differences between the two countries reflect the unique cultural values, which are filial piety and paternalism in Korea.

2.2 REVIEW OF THEORETICAL LITERATURE

Role theory and cumulative disadvantage theory are used to explain the underlying links between caregivers' labor force participation and financial well-being. Of these two, role theory provides a framework for understanding the reciprocal relationship between caregiving and labor force participation. Cumulative disadvantage theory provides a conceptual reference framework for the changes over time in family caregivers' financial well-being.

2.2.1 Role theory

Role theory is used to study individuals' involvement in multiple roles. It posits that people assume certain roles in a society (Pearlin, 1983), and these social roles generate not only actual

behaviors but also expectations prescribed by society (Sarbin, 1954). In modern society, where people are voluntarily or involuntarily involved in multiple roles, working and family caregiving are considered some of the most central and productive roles in life (O'Reilly & Caro, 1994). In the current study, two contrasting perspectives of role theory are used as a theoretical lens to understand the relationship between caregiving and working: role strain and role enhancement.

Role strain perspective posits that involvement in multiple roles has negative impacts on individuals' well-being because there is difficulty in completing the competing responsibilities (Goode, 1960). Sieber (1974) further defines the notion of role strain as role overload and role conflict. According to role overload perspective, since individuals have a limited amount of time, energy, and resources, multiple roles interfere with the successful fulfillment of one role over another. As a result, the individual may experience psychological strain (Goode, 1960). Role conflict perspective assumes that multiple roles create conflicting demands and tensions because the expectations or pressures from different social roles are sometimes incompatible (Barnett, Marshall, & Pleck, 1992). Role overload perspective is more concerned with the lack of physical time, whereas role conflict refers to the emotional burden resulting from taking multiple roles. For example, when individuals have to juggle a caregiving role with a work-related role in the labor market, they could face role conflict because the pressures and psychological tensions from both roles are incompatible, and they experience role overload due to time constraints (Frone, Yardley, & Markel, 1997).

On the other hand, role enhancement perspective suggests that occupying multiple roles does not bring about conflict; rather, it is beneficial to those with multiple roles (Sieber, 1974). Sieber (1974) suggests that role accumulation offers four types of positive outcomes: "role privileges," "overall status security," "resources for status enhancement," and "enrichment of the

personality and ego gratification” (p. 569). Since people have the ability to magnify their energy and to balance their roles, they can successfully assume multiple roles and benefit from them (Moen, Robison, & Dempster-McClain, 1995; Pavalko & Woodbury, 2000; Walter-Ginzberg, Blumstein, & Modan, 2002). In addition, even if there are costs incurred by taking multiple roles, it is often compensated by the rewards accrued to role takers (Scharlach, 1994).

Role strain and role enhancement perspective have been used in empirical studies. Role strain perspective has been applied in understanding caregivers’ health outcomes when they occupy multiple roles. Previous research demonstrated that employed caregivers experienced deterioration in physical and psychological health (Marks, 1998; Pavalko & Woodbury, 2000) and that taking a caregiver role had negative consequences on employment due to role strain (Boaz & Muller, 1992; Doty, Jackson, & Crown, 1998; Evandrou & Glaser, 2004; Evandrou, et al., 2002; Fredriksen-Goldsen & Farwell, 2004; Scharlach, Gustavson, & Dal Santo, 2007; Stephens, Townsend, Martire, & Druley, 2001). For example, Dautzenberg and colleagues (2000) suggested that elder care and working were incompatible, and thus, employment significantly reduced the chances of becoming a caregiver. That is, role strain perspective explains the conflicts people may experience between their caregiving responsibilities and employment commitments. Fredriksen-Goldsen and Farwell (2004) examined the role strain of employed family caregivers by ethnicity and found that White caregivers experienced higher levels of role strain than Black and Hispanic caregivers. They suggested that Black caregivers had a long history of combining a caregiver role and employment and deeply valued familial responsibility. Thus, Black caregivers may have more coping mechanisms, though they had fewer resources and more demands for caregiving than White caregivers.

While several studies attest to the role strain perspective, an equally compelling body of literature guided by the role enhancement perspective indicates that involving multiple roles may be beneficial (Adelmann, 1994a, 1994b; Hinterlong, Morrow-Howell, & Rozario, 2007; Rozario, Morrow-Howell, & Hinterlong, 2004). Rozario and colleagues (2004) used role enhancement and role strain perspectives to examine the impact of multiple roles on the well-being of caregivers. Their findings showed that caregivers who were employed had better self-rated health than those without multiple roles, thus supporting the role enhancement perspective. Hinterlong et al. (2007) suggested that engagement in multiple roles had positive impacts on self-rated health and physical functioning. Their findings showed that being engaged in at least one productive role among paid workers, irregular paid workers, unpaid volunteers, caregivers, and providers of informal social assistance were associated with better self-rated health and less functional impairment. Role enhancement perspective explains the relationship between caregiving and working in that employment may buffer stresses from caregiving demands by providing a respite and links to additional resources (Chumbler, Pienta, & Dwyer, 2004; Stoller & Pugliesi, 1989). Norton et al. (2002) also reported that women benefited from performing multiple roles including caregiving and working.

The current study will employ both role strain and role enhancement perspectives from the role theory framework to address the question of whether there is a reciprocal relationship between caregiving and labor force participation (RQ1). Role strain perspective supports the assumption of negative effects on both work and care (H1 and H3), whereas role enhancement perspective provides a conceptual reference framework of the assumption of positive effects on both work and care (H2 and H4).

2.2.2 Cumulative disadvantage theory

Cumulative disadvantage theory provides a compelling framework to understand how earlier life experiences shape later-life outcomes. This theory posits that increased exposure to risk and decreased exposure to opportunity across the life course lead to cumulative disadvantage such as financial inequality in older age. In particular, this theory focuses on the mechanisms that inequalities can be exaggerated throughout the life course. Cumulative disadvantage theory hypothesizes that some effects of early experiences may cumulate over the life span through a variety of mechanisms. For example, individuals with disadvantages that begin early in the life course, such as limited education, intermittent employment history, poor health status, minority-memberships and other individual transitions in the life course, such as divorce, and widowhood may not improve their financial status in later life (Crystal, Shea, & Krishnaswami, 1992; DiPrete & Eirich, 2006; Dupre, 2008; J. Kim & Miech, 2009; McLaughlin & Jensen, 2000; Ross & Wu, 1996; Shuey & Willson, 2008; Taylor, 2008; Warren, Raymo, Halpern-Manners, & Goldberg, 2010; Wilmoth & Koso, 2002). Likewise, a cumulative disadvantage perspective implies that individuals with economic disadvantages in earlier life stages, such as reduced working hours and lost wages due to caregiving, do not improve their financial well-being in later life. That is, the effect of caregiving may accumulate over time and thus result in an increased risk of financial disadvantages in later life. Crystal & Shea (1990) proposed cumulative disadvantage theory as a framework to understand inequality and needs among older adults.

Cumulative disadvantage theory is a life-course explanation highlighting the influences of earlier life that lead to diverse trajectories in later life. This cumulative disadvantage theory has been recently used in aging-related research, especially examining the experience of early disadvantage on health (Shuey & Willson, 2008) and inequality over time (Burton & Whitfield,

2006). Cumulative disadvantage theory provides a guiding framework for understanding poverty, health disparities, and economic inequality. Several analyses provided evidence supporting cumulative disadvantage theory (Crystal & Shea, 1990; G. J. Johnson & Johnson, 2005; Wakabayashi & Donato, 2006; Warren, et al., 2010). Crystal and Shea (1990) examined economic inequality after retirement, and their findings showed that pre-retirement inequalities were perpetuated, supporting cumulative advantage/disadvantage theory. Johnson and Johnson (2005) also applied cumulative disadvantage theory and found that African Americans were more likely to be employed in part-time and temporary work compared to Whites. Their findings implied that minority-membership as a disadvantage could lead to an unstable job experience and financial status over the life course.

In a recent literature overview, Wakabayashi and Donato (2006) noted the use of cumulative disadvantage theory in describing the process of women's increased risk of economic disadvantage in later life. They supported cumulative disadvantage theory by showing that caregiving experience in earlier life raised the possibility of living in poverty due to the negative effects of reduced work and earnings and declining health. They argued that women who assumed caregiving responsibilities might lose earnings and spend savings, and these incurred expenses accumulated over the life course and intensified economic disadvantage in later life. In addition, Warren, Raymo, Halpern-Manner, and Goldberg (2010)'s findings supported the concept of cumulative disadvantage by providing empirical evidence that economic well-being in later life was associated with the long-term trajectories of work and family roles.

However, this growing body of work regarding caregivers' financial well-being has not yet provided enough evidence of applying cumulative disadvantage theory. This dissertation seeks to fill this gap by using cumulative disadvantage theory as a conceptual framework to

examine how individuals' earlier caregiving experiences shape financial well-being in later life (RQ2).

2.3 REVIEW OF EMPIRICAL LITERATURE

Two lines of literature review are conducted. First, I explore the existing body of research focused on the relationship between caregiving and labor force participation. Second, the empirical findings regarding caregivers' financial well-being are investigated.

2.3.1 The relationship between caregiving and labor force participation

This review first examines the literature on the reciprocal relationship between caregiving and labor force participation and then examines these domains independently, assuming a unidirectional relationship. The first line of studies creates a distinction between caregiving interfering with work and work interfering with caregiving and takes a reciprocal approach, giving equal emphasis to both models. The second line of studies examines caregiving and work independently, with the impact of caregiving on work receiving more attention.

Reciprocal Relationship between Caregiving and Labor Force Participation

Although some studies suggested the need for examining the reciprocal relationship between caregiving and labor force participation, only a few studies have dealt with the reciprocal nature of caregiving and labor force participation (Berecki-Gisolf, Lucke, Hockey, & Dobson, 2008;

Boaz & Muller, 1992; Huang, Hammer, Neal, & Perrin, 2004; Pavalko & Artis, 1997). Boaz and Muller (1992) were some of the first researchers to suggest the potential for the simultaneity of both relationships. They examined two related research questions: 1) how the time allocated to paid work affected the time devoted to unpaid caregiving; and 2) how caregiving responsibilities affected work outside the home. Their findings showed that full-time employment reduced the hours of caregiving, while part-time employment was not associated with caregiving. Also, one additional hour of caregiving significantly reduced the probability of full-time employment, while caregiving was not associated with part-time employment.

However, the cross-sectional designs of these studies prevent inferences about the direction of association between caregiving and labor force participation. Using longitudinal data, Huang, Hammer, Neal, and Perrin (2004) examined the relationships between work and family and suggested that the relationship was dynamic and reciprocal. Their findings suggested a direct relationship between work and family where each negatively impacts the other. On the other hand, Pavalko and Artis (1997) examined the relationship between caregiving and employment using data over a three-year period and found that women's employment status (not employed, employed part-time, employed full-time) was not associated with taking on caregiving responsibility, whereas initiation of caregiving was related to reduced working hours and the increased likelihood of labor force withdrawal. Based on their findings, they suggested that the relationship between caregiving and employment was unidirectional, that is, caregiving has negative impacts on employment, but not vice versa. In addition, Berecki-Gisolf, Lucke, Hockey, and Dobson (2008) studied the order of occurrence between caregiving and employment in a sample of women using the longitudinal design. They examined whether caregiving or reduced labor force participation initiated a change in the other. Their results

showed that while hours of paid work were not significantly associated with starting caregiving, taking a caregiver role was associated with reduced work hours in the workplace.

Unidirectional from Caregiving to Labor Force Participation

Negative Effect

With respect to the consequences of caregiving, a body of empirical studies documented that caregiving was negatively related to labor force participation. Negative employment outcomes of caregiving included rearrangements of the work schedule, absenteeism, unpaid leave, constricted careers, reduced work hours and the likelihood of being unemployed (Bittman, Hill, & Thomson, 2007; Ettner, 1995, 1996; Phillips, 1994; Spiess & Schneider, 2003; Stone & Short, 1990). Several researchers reported that many caregivers left the labor force or even retired or shifted from full-time to part-time employment as a result of providing care to parents (Heitmueller, 2007; Henz, 2004; Richard. W. Johnson & Lo Sasso, 2006; Pavalko & Henderson, 2006; Ruhm, 1996). Sometimes, the demand of caregiving made non-employed caregivers postpone or abandon entering the labor market, and employed caregivers were less likely to return to previous levels of employment after they terminated their caregiving responsibilities (Bullock, et al., 2003; Lee & Gramotnev, 2007; Wakabayashi & Donato, 2005).

Ettner (1995, 1996) examined the impact of caregiving for disabled parents on working hours of men and women. In the study informal caregiving was categorized into: 1) co-residing; 2) extra-residential care 10 hours per week or more; or 3) extra-residential care less than 10 hours per week. The author assumed co-residential caregiving to be the most intensive commitment. The result showed that caregiving significantly reduced work hours and the

magnitude of the caregiving effect was larger for women than for men and for co-residence than for non co-residential care.

Spiess and Schneider (2003) examined the relationship between changes in caregiving and changes in work hours among women who participated in the labor force. The results identified that initiating a caregiving role and increasing the hours of care were negatively associated with the number of hours in paid work. However, stopping care and reducing the hours of care were not associated with change in work hours. They suggested that women caregivers were unlikely to increase work hours or return to employment when their caregiving responsibilities were terminated. Similarly, Henz (2004) examined the effects of the start and end of care responsibilities. They tested the effect of age and found that caregivers in the youngest age group (13-29) were less likely to stop working than the older age group (55 and older) due to caregiving. On the other hand, younger caregivers were more likely to start working again than older caregivers when they terminated caregiving. In addition, Pavalko and Henderson (2006) found that although employed women were likely to stop working once taking on caregiving commitments, women caregivers who remained in the labor force were less likely to reduce their work hours than non-caregivers. The results suggested that caregivers opted to withdraw from employment completely rather than decreased work hours.

In a Korean study, Do (2008) investigated the effects of informal care on caregivers' labor market outcomes using the Korean Longitudinal Study of Aging (KLoSA). He examined labor market outcomes in terms of labor force participation, type of work (employed, self-employed, and unpaid family work), work hours, income, and wage. His findings suggested that there were negative effects of intensive caregiving on labor force participation, work hours, and wage rates among female caregivers but not among male caregivers.

Positive Effect

Several studies have shown that caregiving has positive associations with employment. As family caregiving may cause a financial burden, caregivers may want to remain employed due to financial considerations or health insurance (Carmichael & Charles, 2003; Dentinger & Clarkberg, 2002). In addition, some caregivers consider their workplace a respite from the demands of caregiving (Carmichael & Charles, 1998, 2003; Hawranik & Strain, 2000). From this perspective, employed caregivers consider their employment as a means of buffering the strain and stress of caregiving demands, and thus, caregivers may want to keep working (Pavalko & Woodbury, 2000). Dentinger and Clarkberg (2002) showed that while male caregivers for parents/parents-in-law significantly delayed their retirement decision, there was no significant association between caregiving and retirement among female caregivers. The results suggested that men were more likely to feel a financial burden when they assume caregiving responsibilities. Thus, men remained in the labor force longer and postponed the transition to retirement to maintain the same level of income.

No Effect

On the other hand, a body of studies failed to find any significant associations between caregiving and employment or showed mixed results (Pohl, Collins, & Given, 1998; Wolf & Soldo, 1994). Wolf and Soldo (1994) examined the relationship between caregiving and labor force participation among married women with at least one elderly parent aged 65 or older. Their findings suggested that caring for an elderly parent was not associated with any reduction on labor force activity and effort. Pohl, Collins, and Given (1998) examined whether caregiving's impact on working was temporary or enduring by observing the transition after 3 months and

over the first 18 months after caregiving initiation. Those who were employed full-time prior to caregiving were less likely to make changes in their employment status after they took on a caregiving role. However, contrary to Boaz and Muller's (1992) findings, a majority of part-time workers made changes in their employment status such as quitting, retiring or taking a leave. The authors pointed out the necessity of examining the employment outcomes separately by employment status, that is, full-time or part-time work.

Unidirectional from Labor Force Participation to Caregiving

Compared to the effect of caregiving on work, relatively fewer studies have examined how caregivers' labor force participation affects the decision of taking on caregiving responsibilities. Some research suggested that employment limited the amount of time that family members could participate in caregiving responsibilities (Boaz, 1996; C. Chang & White-Means, 1995; Dautzenberg, et al., 2000; Doty, et al., 1998; Dwyer, Henretta, Coward, & Barton, 1992; Scharlach, et al., 2007), but other studies found no significant differences in providing care between employed and non-employed persons (Bullock, et al., 2003; Moen, Robison, & Fields, 1994; Robison, Moen, & Dempster-McClain, 1995). For example, Dwyer, Henretta, Coward, and Barton (1992) examined the change of caregiving patterns of adult children in terms of initiating caregiving and discontinuing caregiving. Their results showed that employed adult children were less likely to initiate caregiving, whereas employment was not significantly associated with discontinuing caregiving. Conversely, Moen, Robison, and Field (1994) showed that women were equally likely to become caregivers, regardless of their employment status.

Although women engaged in caregiving responsibilities regardless of their work commitments, according to Doty, Jackson, and Crown (1998), employed female primary caregivers provided significantly fewer hours of help to disabled elderly care recipients than non-working female primary caregivers. Instead, disabled elders with employed female primary caregivers received significantly more hours of help from other sources such as paid caregivers or informal secondary caregivers as compared to care-receivers with non-employed primary caregivers. They suggested that family caregivers who were employed replaced their own unavailability with both paid and unpaid caregivers. Additionally, Scharlach et al. (2007) found that care recipients of full-time employed caregivers were less likely to receive large amounts of care from their caregivers than care recipients of non-employed caregivers.

Although previous studies using cross-sectional design have shown inconsistent results, two studies using longitudinal data have replicated the negative association between employment and caregiving (Young & Grundy, 2008). Young and Grundy (2008) suggested an association between patterns of employment and propensity to caregiving. For example, men with the least employment experience were more likely to provide care than those with the most experience. Women with no work experience were more likely to provide caregiving than those with work experience. In another longitudinal study, Mentzakis, McNamee, and Ryan (2009) examined the determinants of informal care by focusing on co-residential care. They found that employment competed with co-residential care, and thus, participation in the labor force negatively affected the decision to be a caregiver.

Financial Caregiving and Labor Force Participation

The majority of studies of caregiving and labor force participation have focused on physical caregiving. Although financial assistance from family members can allow for support from paid caregivers, financial caregiving has received little attention. The dearth of work is likely due to the small number of adult children who transfer money to their parents in the U.S. and that such assistance is provided to parents who have difficulties in ADLs or IADLs at the end of their lives (Boaz, Hu, & Ye, 1999; McGarry & Schoeni, 1995). According to McGarry and Schoeni (1995), only about 9% of adult children provided financial support of \$500 or more a year to their parents in the U.S. In addition, Freedman and colleagues (1991) reported that about 20% of adult children provided parents with physical assistance, whereas just 12% gave financial assistance. However, physical caregiving and financial caregiving are interrelated (White-Means & Hong, 2001), and the two different forms of caregiving can complement or substitute for each other. For example, when the level of household income is high, physical caregiving decreases, whereas financial caregiving increases (Couch, Daly, & Wolf, 1999; McGarry & Schoeni, 1995). McGarry and Schoeni (1995) reported that in the highest quartile of household income, physical caregiving fell and financial caregiving increased. Thus, study findings can be misleading when only one type of caregiving is examined (Soldo & Hill, 1995; White-Means & Hong, 2001).

Labor force participation may affect the way of providing care. When caregivers aged 50 and older are employed, they are likely to provide more financial caregiving and less physical caregiving than non-working caregivers (White-Means & Rubin, 2008). Conversely, unemployed caregivers provide more physical caregiving and less financial caregiving. On the other hand, the type of caregiving can affect caregivers' ability to participate in the labor force.

Financial support given by adult children might increase the probability of labor force participation of adult children (White-Means & Hong, 2001). Since this financial caregiving may include money that can be spent specifically for elder care, it may enable adult children to increase their labor market attachment. However, when caregivers have to provide physical caregiving, they may not be able to keep working in the labor market.

Boaz, Hu, and Ye (1999) examined the extent to which the provision of time, money transferring, and living together were interdependent in order to explain how elderly parents receive care. Their findings showed that employment of adult children aged 51 to 61 affected only physical caregiving by significantly reducing hours of informal care and that employment had no significant effect on financial caregiving. In addition, middle-aged children with a substantial level of fungible wealth, that is, income from assets, were more likely to provide financial caregiving and had a weaker attachment to the labor force than children with no fungible wealth.

White-Means and Hong (2001) examined the relationship between physical caregiving and financial support and found different forms of caregiving were interrelated. That is, while financial caregivers were more likely to remain in employment, physical caregivers were more likely to leave employment. White-Means and Rubin (2008) examined parental caregiving responsibilities in terms of assistance in activities of daily living (ADL) and instrumental activities of daily living (IADL), and financial assistance. Their findings suggested that when family caregivers were employed, they were less likely to provide ADL and IADL support and more likely to support their parents financially.

In summary, empirical evidence on the relationship between caregiving and labor force participation was inconsistent. First, some of literature showed there was negative reciprocal

association between physical caregiving and labor force participation. Second, among studies examining the unidirectional relationship between caregiving and employment, physical caregiving responsibilities negatively affected labor force participation through rearrangements in work schedules, absenteeism, decrease in work hours, terminating employment, and decrease in productivity. On the other hand, a few studies suggested that physical caregivers were more likely to remain employed for extra earnings and for a respite place. Third, some studies failed to find any significant associations between caregiving and employment. Lastly, unlike the associations between physical caregiving and employment, which showed inconsistent results, financial caregiving suggested relatively consistent results. Most of the literature indicated that financial caregiving increased the probability of labor force participation and employed caregivers were more likely to provide financial caregiving.

Other Factors Associated with Caregivers' Labor Force Participation

Previous research has established that a number of factors influence caregivers' employment. Age effects might further complicate the reciprocal relationship between caregiving and working. Employed caregivers in early mid-life (45-49 years) were likely to change their work arrangements whereas those close to retirement age were more likely to stop working if they took on caregiving responsibilities (Bullock, et al., 2003; Dentinger & Clarkberg, 2002; Evandrou & Glaser, 2004; Henz, 2004; Spiess & Schneider, 2003; Wakabayashi & Donato, 2005). Also younger and middle-aged caregivers were more likely to depend on employment income than older people who might live on pensions or other savings, and are thus more likely to keep working (Lee & Gramotnev, 2007). Rather than discontinuing either responsibility,

middle-aged women between 45 and 54 years were more likely to combine caregiving and work than women in their 30s or those older than 54 (Moen, et al., 1994). Usually, caregivers working in full-time or part-time positions are younger than caregivers who are not involved in any employed work (Hayward, Friedman, & Chen, 1998; Neal, Chapman, Ingersoll-Dayton, & Emlen, 1993).

Previous findings suggest that there are differences in the consequences of caregiving and working by gender. Findings showed that women caregivers were more likely to have a negative experience in the labor force than male counterparts (Boaz, 1996; Covinsky et al., 2001; Dentinger & Clarkberg, 2002; Evandrou, et al., 2002; Henz, 2004, 2006; Zimmerman, Mitchell, Wister, & Gutman, 2000). According to Berecki-Gisolf et al. (2008), women caregivers were more likely to be unemployed than male caregivers. Although the number of male caregivers is increasing, given that caregivers are predominantly women, caregiving responsibilities are more likely to affect women's labor force participation (Hirschfeld & Wikler, 2003).

In addition, the impact of caregiving responsibilities on employment can be dependent on other caregiver characteristics such as marital status, health, and education. Undertaking heavy caregiving responsibilities reduced the likelihood of employment for married individuals but increased labor force participation for single persons (Ruhm, 1996). Caregivers in poor health were more likely to have reduced working hour or to adjust their employment to accommodate caregiving responsibilities (Bullock, et al., 2003; Covinsky, et al., 2001; Dentinger & Clarkberg, 2002; Spiess & Schneider, 2003; White-Means & Chollet, 1996). Previous studies revealed that less educated caregivers had more negative experiences in the labor force, such as a decline in working hours (Boaz, 1996; C. Chang & White-Means, 1995; Wakabayashi & Donato, 2005),

while higher-educated were less likely to reduce working hours because of greater job flexibility (White-Means & Chollet, 1996).

The extent of caregiving commitments is also related to caregivers' employment. More intensive caregiving commitments tended to have a profound impact on employment (Arber & Ginn, 1995; Berecki-Gisolf, et al., 2008; Carmichael & Charles, 2003; Dentinger & Clarkberg, 2002; Ettner, 1995; Spiess & Schneider, 2003). Carmichael and Charles (1998) showed that informal caregivers who provided less than 20 hours per week of care were more likely to work than those providing a greater amount of care. Further, according to Carmichael and Charles (2003), female caregivers providing more than 10 hours of care per week were significantly less likely to work than non-caregivers.

It is not clear whether caregivers with fewer financial resources are less likely to be in the labor force. Caregivers with lower income levels are likely to reduce work hours or leave the labor force (McDonald, Donahue, & Moore, 1998; Mutschler, 1993; White-Means & Chollet, 1996), whereas caregivers with enough income may have greater flexibility to reduce work hours (C. Chang & White-Means, 1995; Gerstel & Gallagher, 1994). Some studies reported that household income was negatively associated with working hours (C. Chang & White-Means, 1995; Spiess & Schneider, 2003). Berecki-Gisolf, Lucke, Hockey, and Dobson (2008) suggested that woman caregivers who had difficulty managing income were less likely to reduce employment. Low-wage earners from low-income household may be the primary financial providers for their family members. In these instances, individuals with family-related financial responsibilities may remain in the labor force due to the need for their earnings (Clark, Johnson, & McDermed, 1980; Hayward, et al., 1998; Henkens & Tazelaar, 1997; Kingson & O'Grady-LeShane, 1993).

2.3.2 Caregivers' financial well-being

Much attention has been focused on the negative impacts of caregiving on individual well-being, particularly caregivers' physical or emotional well-being. However, relatively little attention has been paid to caregivers' financial well-being, despite the fact that the majority of caregivers have difficulties making ends meet, and may suffer diminished earnings and future benefits. Caregiving can be financially draining, especially if a caregiver is forced to reduce or discontinue employment. Being a caregiver may affect the current financial well-being of individuals, as well as financial security in later life. In the short term, caregiving responsibilities competing with employment result in fewer working hours and decreased earnings (Bittman, et al., 2007; Wakabayashi & Donato, 2005). The concurrent demands of employment and caregiving result in a loss of wages or even substantial wage penalties for some caregivers (Carmichael & Charles, 2003; Heitmueller & Inglis, 2007). As Carmichael & Charles (2003) have documented, caregivers received lower wages than non-caregivers (10% for women and 18% for men).

In the long term, caregiving may affect the accumulation of Social Security or pension entitlements, which may lead to decreased income in retirement (Evandrou & Glaser, 2003; Evandrou, et al., 2002; Kingson & O'Grady-LeShane, 1993; Lai & Leonenko, 2007). More specifically, working part-time or leaving the labor force may affect future wages, pensionable earnings, and future career opportunities (Fast, Eales, & Keating, 2001). King and O'Grady-LeShane (1993) reported that caregiving for family members in earlier life depressed the Social Security benefits among newly retired women. Also, Evandrou and Glaser (2003) found that among British women combining parenting with caregiving, only 30% had contributed to an

occupational or personal pension. As a result, adult children with care responsibilities are significantly more likely to live in poverty than those without caregiving responsibilities.

Previous studies demonstrated that caregiving responsibilities in midlife were associated with old-age poverty among women (Bittman, et al., 2007; Lai & Leonenko, 2007; McNamara, 2004; Wakabayashi & Donato, 2005, 2006). For example, among women who spent 20 hours per week on parental caregiving, 25% were more likely to live in poverty, 27% were more likely to receive public assistance such as Supplemental Security Income, TANF, or food stamps, and 46% were more likely to receive Medicaid than non-caregivers (Wakabayashi & Donato, 2006). McNamara (2004) found that for low-income women, caregiving in midlife was associated with a greater likelihood of being in near poverty in later life and that caregiving activities were more frequent among low-income women than higher-income women. Further, as Wakabayashi and Donato (2005) showed, initiation of caregiving decreased women's earning by \$750 annually relative to non-caregivers, with earnings losses left unrecovered after the termination of care responsibilities. Female caregivers who were older, married, and had a lower level of education were more likely to experience losses in working hours and, consequently, in earnings due to the competition between caregiving and employment compared with their counterparts.

In a study of Chinese caregivers, Lai and Leonenko (2007) assumed that the traditional Chinese culture of filial piety placed caregiving responsibility on family members and examined caregivers' economic costs. They found that caregivers with poor financial status were more likely to have greater levels of economic costs related to caregiving and caregivers working full-time had significantly lower economic costs. They suggested that costs associated with caregiving challenged the financial well-being of family caregivers in the long term and that caregivers with adequate financial resources were more able to alleviate the financial burdens

associated with caregiving. Bittman, Hill, and Thomson (2007) documented a significant relationship between intensive caregiving responsibility and lower annual earnings in Australia. Their findings suggested that caregiving competed with work commitments and thus, caregiving appeared to reduce employment and earnings from the labor market.

Caregiving also affects caregivers' financial well-being in ways other than employment; caregivers may be covering living expenses for care-receivers and other out-of-pocket costs related to caregiving (Fast, Williamson, & Keating, 1999). Paid caregiving can sometimes be purchased by family caregivers (Doty, et al., 1998). Fast, Williamson, and Keating (1999) quantified the economic and non-economic costs of informal care. Economic costs included employment-related costs and out-of-pocket costs related to caregiving, while non-economic costs were comprised of health-related outcomes, such as emotional and physical well-being. Caregivers' concerns regarding the financial impacts of caregiving and emotional or physical outcomes arising from caregiving increased the risk for depression and resulted in mental health care expenses (Do, 2008; Yoon, 2003).

Although most of the studies of caregivers' labor force participation and financial well-being have focused on quantitative analyses of caregivers' experiences, a few qualitative studies provided greater depth of understanding of the caregivers' experiences (Dunham & Dietz, 2003; Secret & Swanberg, 2008). Secret and Swanberg (2008) interviewed 12 focus groups of 96 participants among municipal government employees, and the participants suggested challenges in managing their work and caregiving responsibilities. They reported that elder care frequently conflicted with job responsibilities and that they would not be able to continue working if they were unable to find affordable quality elder care. In addition, Dunham and Dietz (2003) conducted interviews with 26 employed women caregivers, and participants reported the

experience of role strain from taking more responsibilities than they could handle. Participants made adjustments in their work in order to continue to work while providing care to a family member and put careers on hold in order to devote more time to caregiving. Due to these career interruptions and the costs of juggling career and caregiving, interviewees had financial worries. However, they also expressed the importance of work as a respite place from the demands of caregiving.

In summary, while there are many studies about caregivers' physical or emotional well-being, it is rare to examine caregivers' financial well-being. A few studies from the U.S. and other countries showed that caregivers experienced negative financial well-being such as decreased earnings and living in near poverty in later life.

2.3.3 Limitations of previous research

Five major limitations in the previous empirical literature were identified. First, many studies were based on small or non-representative samples. For example, some studies either used a sample restricted to caregivers (Boaz & Muller, 1992; Stone & Short, 1990) or drew their sample from caregivers still in the workforce (Wilson, Van Houtven, Stearns, & Clipp, 2007). However, the use of a sample restricted only to active caregivers does not account for the possible selectivity issue (Boaz & Muller, 1992). In addition, most studies focused on a sample of women. Although there is substantial evidence that women comprise the majority of caregivers and that they are more negatively impacted in the labor market, research excluding men may lead to inappropriate conclusions regarding the relationship among caregiving, labor force participation, and financial well-being.

Second, since most previous research on the consequences of caregiving and labor force participation has used cross-sectional designs, the direction of the relationship between caregiving and labor force participation remains ambiguous. It is unclear whether caregivers leave the labor force due to care demands, or whether unemployment predates the initiation of caregiving, and as a result, unemployed individuals move into caregiving roles. Though a few studies have investigated the reciprocal association between caregiving and employment, and some studies were based on longitudinal design, the results were still inconsistent. Obviously, the relationships between working and caregiving can be so complex that it is hard to discern the direction of causality, but failure to identify the causal relation between the two might result in the overestimation of their relationship (Dautzenberg, et al., 2000).

Third, inconsistency in the previous findings may stem in part from differences in the way caregiving is measured. Some studies confounded the definition of caregiving with living arrangements by operationalizing caregivers as those who co-resided with older adults (Ettner, 1995, 1996). In addition, they assumed co-residing with a disabled parent as the most intensive form of caregiving (Ettner, 1995). Caregiving was usually measured as a binary variable; simply whether or not care was provided may not reflect caregiving intensity and its influence on employment (Ettner, 1995, 1996). Fourth, although financial assistance from family members can be another way of providing care, financial caregiving has received little attention.

Finally, much of the literature has focused on the U.S. and European populations, with only a few studies coming from other countries (Australia, Canada, and China). Just one Korean study has examined family caregivers' labor force participation and financial well-being in Korea, Do (2008) being the exception. To my knowledge, this study is the first work to examine the relationship between caregiving and labor market outcomes using a Korean sample.

However, the study is limited by its cross-sectional design and cannot overcome the limitations of previous studies.

This dissertation study will attempt to overcome the above limitations and fill in the gaps in current research by utilizing nationally representative samples of men and women and by applying longitudinal data analysis to examine the reciprocal relationship between caregiving and labor force participation. Moreover, this study includes both physical caregiving and financial caregiving and also measures physical caregiving responsibilities as the hours of care provided to reflect caregiving intensity. Finally, this dissertation addresses the dearth of research on the Korean population by using a sample of nationally representative Korean men and women.

2.4 RESEARCH QUESTIONS AND HYPOTHESES

This study addresses the following questions and hypotheses. Since there is not enough evidence about the Korean population, hypotheses under the first and the second research questions only apply to the United States case. The third research question will be answered using both the U.S. and Korean populations.

RQ1. Is there a reciprocal relationship between caregiving and labor force participation?

- H1. Physical caregivers have lower probability of labor force participation than non-physical caregivers.
- H2. Those in the labor force are less likely to assume physical caregiving than those not in the labor force.
- H3. Financial caregivers have higher probability of labor force participation than non-financial caregivers.
- H4. Those in the labor force are more likely to assume financial caregiving than those not in the labor force.

RQ2. What is the change over time in family caregivers' financial well-being?

- H5. Physical caregivers experience a significant decrease in their financial well-being over time.
- H6. Financial caregivers experience a significant change in their financial well-being over time.
- H7. The difference in financial well-being between physical and non-physical caregivers will be mediated by labor force participation.
- H8. The difference in financial well-being between financial and non-financial caregivers will be mediated by labor force participation.

RQ3. What are the differences between the United States and Korea in the relationships among caregiving, labor force participation, and financial well-being?

3.0 METHODS

3.1 DATA AND STUDY SAMPLE

This dissertation uses two sources of data from different surveys: Health and Retirement Study (HRS) in the U.S. and Korean Longitudinal Study of Aging (KLoSA). One of the most challenging issues in conducting a cross-national study is to achieve similarity and complementarity in each survey (Davey & Patsions, 1999). The KLoSA is predesigned and developed for conducting international comparative studies by adopting the structure, questionnaire, and measure of the HRS, and as a result, they are almost identical (J. Chang et al., 2008). Thus, the comparison between the U.S. and Korea is relatively free from the differences in the content of dataset that often limit cross-country comparisons.

While the HRS has released data since 1992, KLoSA has a relatively shorter history of conducting surveys but is consistent with HRS. Both data provide a wider variety of individual and household information, demographic characteristics, family characteristics, health status, inter/intra-family transfer in time and money, employment, income, and assets, which are included in the HRS and KLoSA. One of the primary advantages of using the HRS and KLoSA for this study is the availability of intergenerational transfer of financial support and time, specifically between adult children and their parents/parents-in-law. This study uses the data

from 2006, 2008, and 2010 surveys from the HRS. As of March 2012, for KLoSA, only data from 2006 and 2008 are available and this study uses only the data from 2006.

For this study, I restrict the analysis to the sample of adult children with at least one living parent or parent-in-law in order to define a population with a high likelihood of having to provide parent care. Also, I only include the sample of adult children aged 51 or older at Time 1 to ensure the comparability between the HRS and the KLoSA. Table 1 presents an overview of sample selection.

Table 1. Overview of Sample Selection

	HRS 2006 (n= 18,469)	KLoSA 2006 (n= 10,254)
Exclusion criteria		
Age (# of dropped case)	If under 51 (670)	If under 51 (2,102)
Parents (# of dropped case)	If have no living parent (14,258)	If have no living parent (6,491)
Total	n= 3,541	n= 1,661

3.1.1 Health and Retirement Study (HRS)

The HRS consists of data collected from a large representative national probability sample of noninstitutionalized population aged 51 and older in the U.S. Baseline interviews were completed in 1992 for approximately 12,654 (7,608 households) adults born between 1931 and 1941 and their spouses and partners irrespective of age eligibility. The overall response rate was 81.6% for individuals and 82.1% for households. Respondents were interviewed biannually, and age-eligible new sub-samples have been added every six years. Also, RAND HRS data,

produced by the RAND Center for the Study of Aging, with funding from the National Institute on Aging and the Social Security Administration is available. The RAND HRS data contains imputations of all wealth and income related variables using a consistent method across all waves.

3.1.2 Korean Longitudinal Study of Aging (KLoSA)

The KLoSA is a nationally representative longitudinal panel survey. Beginning in 2006, the KLoSA interviewed non-institutionalized Korean population aged 45 or older excluding Jeju Island province. In the first year's survey, 10,254 (6,171 households) individuals were interviewed. They were interviewed every two years. The response rate was 75.4% for individuals and 81.5% for households. The KLoSA includes all questions that the HRS surveyed such as caregiving, labor force participation, and financial well-being. One major difference from the HRS is that KLoSA collects data from population aged 45 or older whereas the HRS includes population aged 51 or older. For comparability with the HRS, this study uses samples of aged 51 or older from 2006 survey². Missing data was less than 5% among all sections, but a few questions regarding income and assets showed 10 to 20% missing data. The KLoSA provides imputed values for missing data. They used preliminary multiple imputation methods and finally selected the hotdeck method based on a modified predictive mean matching (KLoSA, 2007).

A few differences between the two datasets reflect differences in culture and customs between the U.S. and Korea. First, the way of calculating age is different. In Korea, as soon as you are born, you are age one. Therefore there is a year difference between two countries. For example, when there are two 55 years old women from each country, in fact, the Korean women

are one year younger than the American. Second, all financial information in the KLoSA is after-tax, whereas the HRS collects pre-tax information.

3.2 MEASURES

Caregiving. Caregiving is measured as two types: physical caregiving and financial caregiving. Physical caregiving is defined if respondents provided help with ADL during the last 12 months (1= yes; 0= no). Also, a continuous variable measuring the hours they spent on ADL assistance per week is summed up as a physical caregiving variable. Financial caregiving is defined if a respondent gave financial help during the last 12 months (1= yes; 0= no). Additionally, a continuous variable measuring the total amount of money they provided is used as a financial caregiving variable. For KLoSA, since financial support is measured as regular and occasional monetary transfers, the amount of financial caregiving is combined for both types of transfers.

Labor force participation. A binary measure of labor force participation may be too crude to capture the true working lives of caregivers; therefore, I use two measures of labor force participation. First, employment status variable is defined if respondents were in the labor force (1= yes; 0= no). Being in the labor force includes those now working and unemployed and looking for work. Not in the labor force includes those temporarily laid off, on sick or other leave, disabled, retired, and homemakers. Second, working hours is a continuous variable measured as weekly hours worked.

Financial well-being. I use two different indicators of financial well-being: total amount of household income, and total amount of household net assets. Total household income includes income from all sources such as earnings, household capital income, income from employer

pension or annuity, income from Social Security or SSI, income from other government transfers, and the income of all other household members. Total household net assets are calculated as the value of all household assets minus total household liabilities. More specifically, it is the sum of the net value of real estate, vehicles, businesses, IRA/Keogh accounts, stocks, mutual funds, and investment trusts. Additionally, it includes the value of checking, savings, or money market accounts, of CDs, government savings bonds, T-bills, the net value of bonds, bond funds, and the net value of all other savings, minus the value of other debt, including mortgages and other home loans. Household income and household assets variables are log-transformed to correct the extreme skewness of raw data distribution.

Other explanatory variables. As demographic and socioeconomic factors, baseline age, race (US only), education level, marital status, health status, the number of siblings, and parents' health are included. Because of large variance, age is recoded as 1= 51-60; 2= 61-70; 3= 71-80; 4= 81 and above. Race is categorized as 1= White; 2= non-White (African-American and other). Education is measured by the number of years of formal schooling completed (US only), and education level is recoded into categories to enable a comparable interpretation between the U.S. and Korea. Due to the difference in the education system between the two countries, educational level for HRS is divided into the following categories: 1= less than high school; 2= GED and high school; 3= some college; 4= college and above. For KLoSA, it is measured as: 1= less than elementary; 2= middle school; 3= high school; 4= more than college. Marital status is recoded as a binary variable, with 1 indicating married and 0 including separated, divorced, widowed, and never married. Health status is measured as self-rated health for each time point and included as a time-varying covariate. Respondents reported on a five-category ordinal scale: excellent, very good, good, fair, or poor. I will create a binary form: 1= good, very good, or excellent, and 0=

fair to poor. The number of siblings is included as a continuous variable. Due to the inconsistency of survey questions between HRS and KLoSA regarding parents' health, parents' health in HRS is measured if respondents' parents need help with basic personal needs like dressing, eating, or bathing (1= yes; 0= no). On the other hand, parents' health in KLoSA is measured if respondents' parents were unable to carry out activities of daily living (1= yes; 0= no).

3.3 DATA ANALYSIS PLAN

As in previous studies (Huang, et al., 2004), data will be analyzed separately for men and women to examine whether gender differences exist in the relationships and to avoid violating statistical assumptions of independence of data. For preliminary analysis, I will conduct univariate and bivariate analyses using SPSS. For advanced analysis, structural equation modeling (SEM) using EQS software package will be used. Specifically, cross-lagged panel model, latent growth model, and path analysis will be conducted for each research question. For comparison between the U.S. and Korea, the results of univariate analysis are compared. Assumption of multivariate normality is tested.

Missing data are a common problem in longitudinal data analysis. Most data analysis procedures are not designed for missing data and require complete data. In SEM, missing data is not a big problem but an understanding of the pattern of missing data is required before utilizing missing data procedures. The degree to which missing data is problematic depends on the pattern of missing data and how much is missing. The pattern of missing data is a more serious problem than the amount of missing. The data are missing completely at random (MCAR), if the

missingness is independent of both the missing values and the observed values of other variables. In order to address missing data, the simplest method of dealing with missing data, pairwise deletion, is used. This made full use of data from respondents who did not respond to all questions, who dropped out of the survey. While a pairwise deletion method is easy to conduct, it assumes that data are MCAR. If the data is not MCAR, then parameters estimated from a pairwise deletion would be biased. This study also will conduct sensitivity analysis to estimate the influence of missing data.

3.3.1 Cross-lagged panel modeling

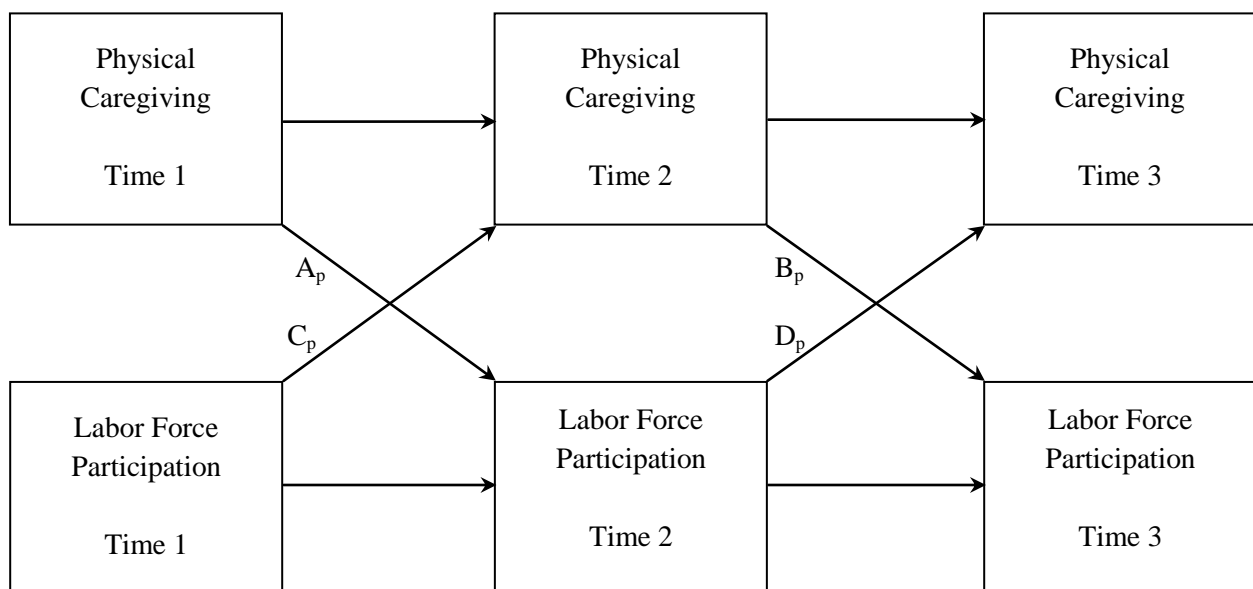
I use SEM to examine the reciprocal relations between caregiving and labor force participation. A cross-lagged panel design applies structural equation modeling in a longitudinal data analysis. The cross-lagged panel model can be used with multiple dependent variables measured repeatedly and thus, this design allows for the examination of both directions of potential causality between variables due to multiple time points (Finkel, 1995; Menard, 1991). This study includes the examination of four different proposed relationships between caregiving and labor force participation across three time periods (Research Question 1). Thus, measures are taken at three points in time, permitting comparisons of responses of individuals at the three time intervals, thereby assessing the extent and direction of any changes that may have occurred over time.

Two separate cross-lagged panel analyses are conducted to explore the order of precedence of change between two variables. First, I examine the reciprocal relationship between physical caregiving and labor force participation using a cross-lagged panel (See Figure 1). The relationships between caregiving and labor force participation are reproduced according to its

particular parameter estimates. The parameters A_p , B_p , C_p , and D_p are expected to be negative. Age, race, education, marital status, income, and the number of siblings are controlled as covariates and also, respondents' health status and parents' health are included as time-varying covariates. The hypotheses tested in a cross-lagged panel model are:

- H1: Physical caregivers have lower probability of labor force participation than non-physical caregivers.
- H2: Those in the labor force are less likely to assume physical caregiving than those not in the labor force.

Figure 1. Cross-Lagged Panel Model of Reciprocal Relationship for Physical Caregiving



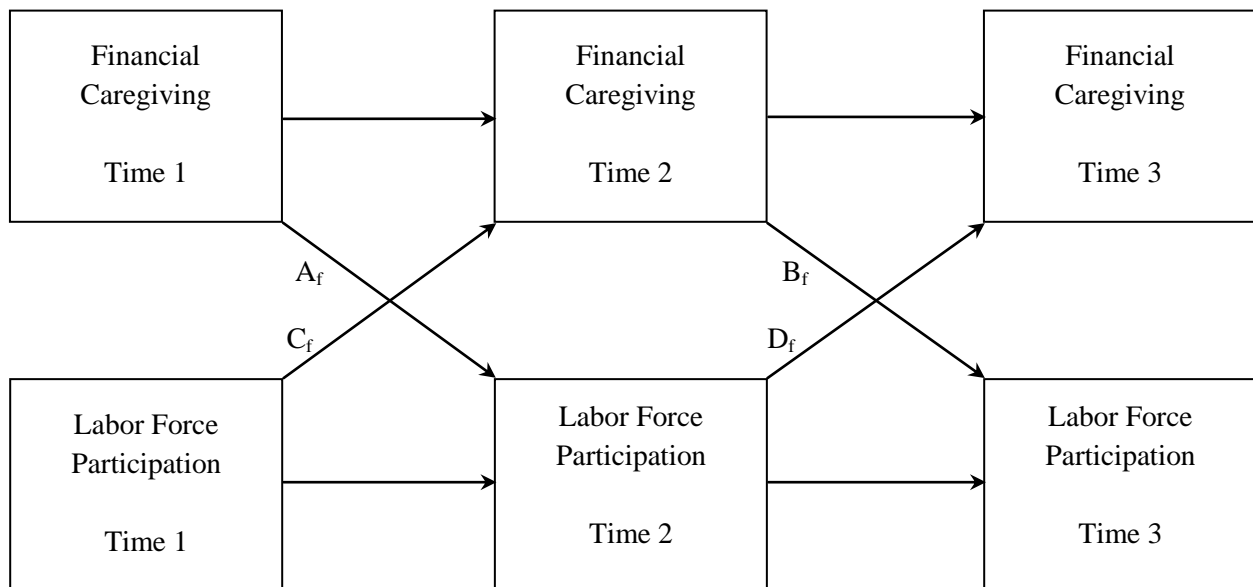
Note: For the simple presentation, control variables (i.e., age, race, education, health status, marital status, parents' health, and household income) were omitted.

Second, I examine the reciprocal relationship between financial caregiving and labor force participation using a cross-lagged panel model (See Figure 2). The relationships between caregiving and labor force participation are reproduced according to its particular parameter estimates. The parameters A_f , B_f , C_f , and D_f are expected to be positive. Age, race, education, marital status, income, and the number of siblings are controlled as covariates and also, respondents' health status and parents' health are included as time-varying covariates. The hypotheses tested in a cross-lagged panel model are:

H3: Financial caregivers have higher probability of labor force participation than non-financial caregivers.

H4: Those in the labor force are more likely to assume financial caregiving than those not in the labor force.

Figure 2. Cross-Lagged Panel Model of Reciprocal Relationship for Financial Caregiving



Note: For the simple presentation, control variables (i.e., age, race, education, health status, marital status, parents' health, and household income) were omitted.

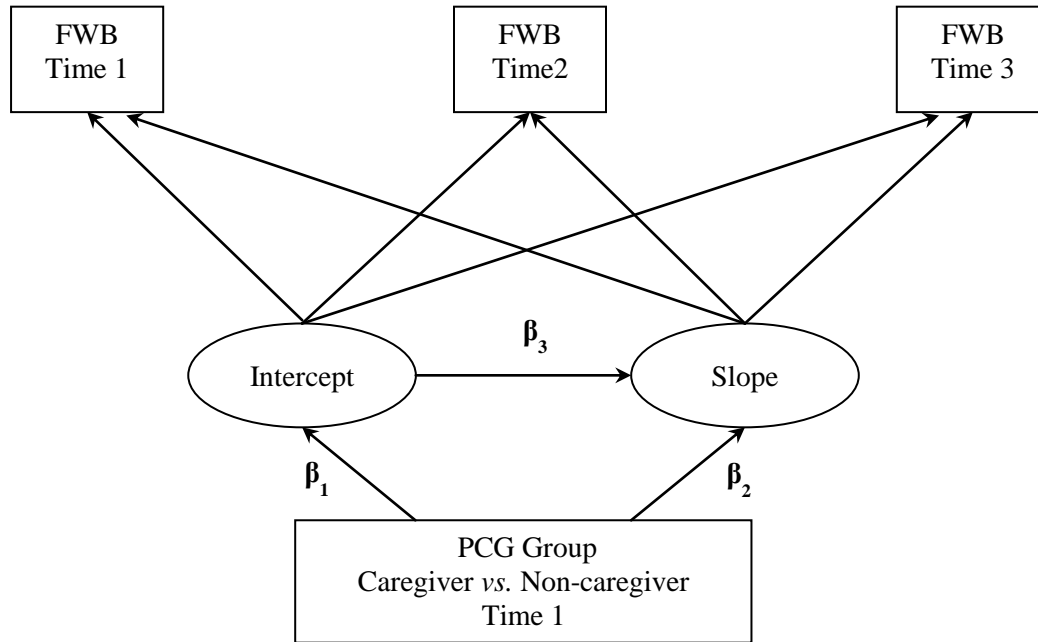
3.3.2 Latent growth curve modeling

I will use growth modeling to examine the patterns of change in financial well-being over time. Generally, growth modeling is used to analyze within individual change over time and between individual differences in patterns of growth. Growth modeling is known as latent growth curve modeling (LGM) in structural equation modeling (SEM). Since I will perform analyses using SEM framework, I will use latent growth curve modeling instead of growth modeling. Unlike within-subjects ANOVA, LGM allows individuals to have different rate of change (i.e., random slope). For example, respondent 1's rate of change of financial well-being over time is allowed to be different than respondent 2's, or that of any other respondents. LGM also can assess the difference in rate of change of financial well-being between groups using a covariate.

In this study, I apply two separate LGM to assess change in financial well-being over time and also to examine individual differences. First, I assess physical caregivers group using a latent growth modeling with covariates (See Figure 3). Here I include physical caregiver group as a covariate and examine individual differences between physical caregivers and non-physical caregivers. Age, race, education, marital status, income, and the number of siblings are controlled as covariates and also, respondents' health status and parents' health are included as time-varying covariates. The hypothesis tested in a latent growth modeling is:

H5. Physical caregivers experience a significant decrease in their financial well-being over time.

Figure 3. Latent Growth Curve Model of Financial Well-Being for Physical Caregiving



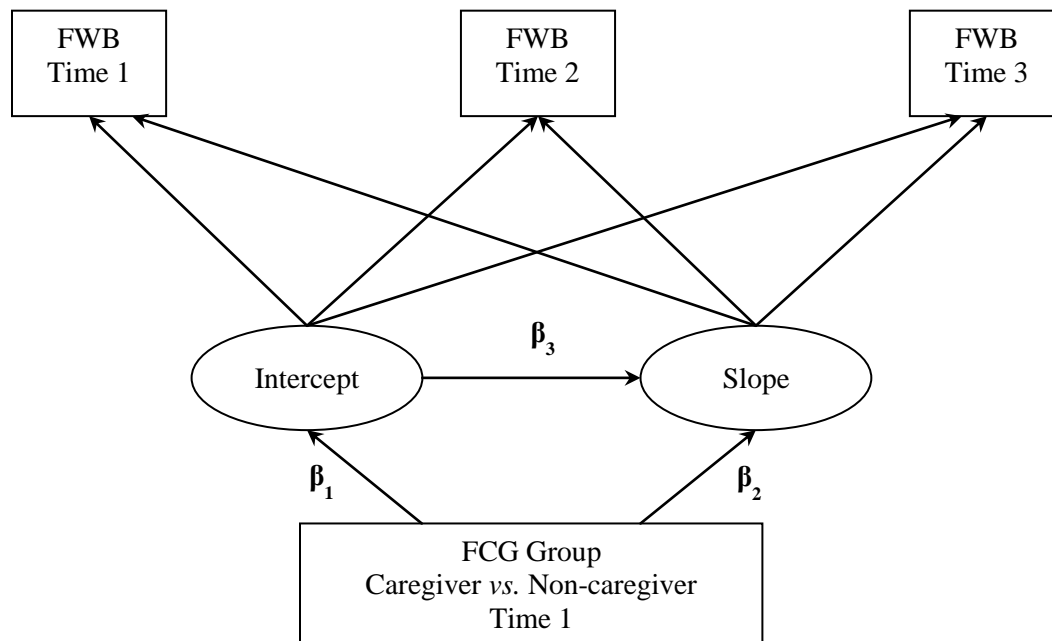
PCG= Physical caretgiver; FWB= Financial well-being

Note: For the simple presentation, control variables (i.e., age, race, education, health status, marital status, parents' health, and household income) were omitted.

Second, I assess the financial caregivers group using a latent growth modeling with covariates (See Figure 4). Here I include the financial caregiver group as a covariate and examine individual differences between financial caregivers and non-financial caregivers. Age, race, education, marital status, income, and the number of siblings are controlled as covariates and also, respondents' health status and parents' health are included as time-varying covariates. The hypothesis tested in a latent growth modeling is:

H6. Financial caregivers experience a significant change in their financial well-being over time.

Figure 4. Latent Growth Curve Model of Financial Well-Being for Financial Caregiving



FCG= Financial caretgiver; FWB= Financial well-being

Note: For the simple presentation, control variables (i.e., age, race, education, health status, marital status, parents' health, and household income) were omitted.

3.3.3 Path analysis

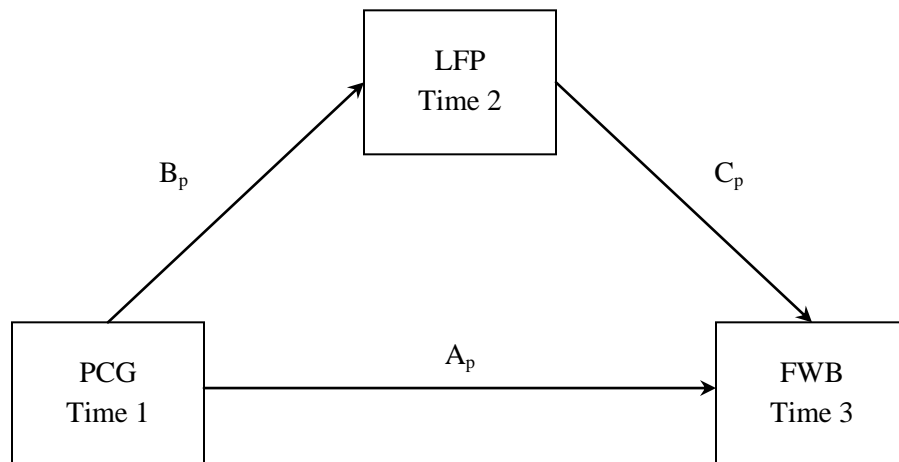
I use a path analysis model to examine if there is an indirect effect of labor force participation on caregivers' financial well-being. That is, labor force participation can be both a dependent variable, predicted by caregiving responsibility, and a predictor variable, predicting financial well-being. In SEM a variable can serve both as a dependent variable and as an independent variable at the same time (K. Kim & Bentler, 2006). Path analysis requires a few discrete steps to identify the indirect effects. First, the direct effect of caregiving and financial well-being can be checked by examining the total effects of caregiving on financial well-being. Second, the direct effect of caregiving on labor force participation is examined. Third, the direct effect of labor

force participation on financial well-being after adjusting for caregiving is examined. Last, the indirect effect of caregiving on financial well-being is examined.

Two separate path analyses are conducted to examine the mediation effect of labor force participation on the relationship between caregiving and financial well-being. First, I examine physical caregivers using a path analysis with mediation (See Figure 5). I assume that physical caregiving has both negative direct and negative indirect effects on financial well-being. Path coefficients of A_p , B_p , and C_p are used to judge if there is a mediation effect. Age, gender, marital status, education, income, and the number of siblings are controlled as covariates and also, health status and parents' health are included as time-varying covariates. The hypothesis tested in a path analysis is:

H7. The difference in financial well-being between physical and non-physical caregivers will be mediated by labor force participation.

Figure 5. Path Analysis Model with Mediation for Physical Caregiving

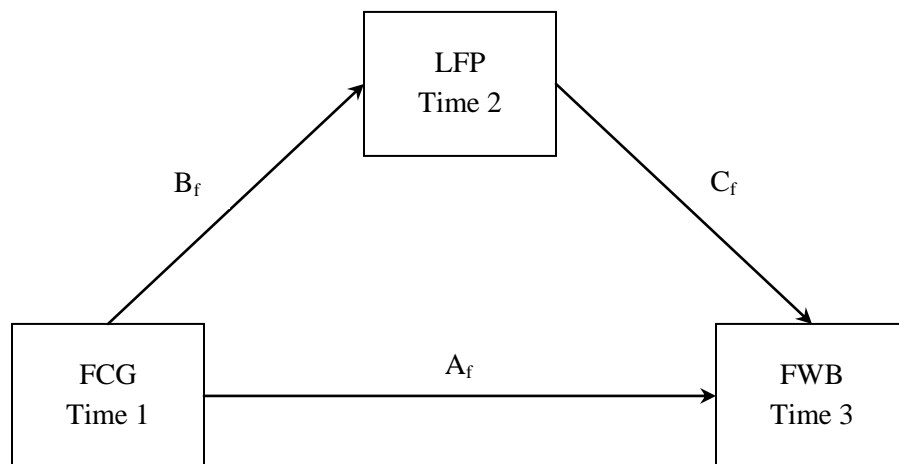


PCG= Physical caregiving; LFP= Labor force participation; FWB= Financial well-being

Second, I examine financial caregivers using a path analysis with mediation (See Figure 6). I assume that financial caregiving has positive indirect effects on financial well-being. Path coefficients of A_f , B_f , and C_f are used to judge if there is a mediation effect. Age, gender, marital status, education, income, and the number of siblings are controlled as covariates and also, health status and parents' health are included as time-varying covariates. The hypothesis tested in a path analysis is:

H8. The difference in financial well-being between financial and non-financial caregivers will be mediated by labor force participation.

Figure 6. Path Analysis Model with Mediation for Financial Caregiving



FCG= Financial caregiving; LFP= Labor force participation; FWB= Financial well-being

Model Fit and Test Statistics

There are several different methods to evaluate a model fit. Typically, most of the methods to evaluate a model fit utilize the residual matrix, which is to calculate the difference between

model covariance matrix and observed covariance matrix. The χ^2 statistic is calculated to evaluate the model fit. However, χ^2 test is sensitive to the sample size and is known to be biased against sample size (MacCallum, Widaman, Preacher, & Hong, 2001). With a large sample, the χ^2 statistic will be significant even though a difference might be negligible. To evaluate a model fit that is less sensitive to the sample size, several different fit indices, such as *CFI* (Comparative Fit Index) and *RMSEA* (Root Mean Square Error of Approximation) tests are used. The *CFI* measures the improvement in fit over a nested baseline model and a model with a *CFI* value of .95 or more is considered a good model. The *RMSEA* assesses how well a model reproduces a sample covariance matrix and the *RMSEA* value of .06 or less is considered a good fit. While the model test statistics and fit indices evaluate an overall model fit, a *z*-test evaluates each parameter. There are several estimation methods that are used in SEM. The most popular method is maximum likelihood (ML), and S-B Scaled χ^2 was introduced by Satorra and Bentler to correct the test statistic and standard errors for non-normality (Satorra & Bentler, 1994).

4.0 RESULTS

4.1 PRELIMINARY ANALYSIS

Missing due to drop out was 6.3%; an additional 13.0% of the sample was lost by the final wave of the study. To test whether attrition at Time 2 and Time 3 were random, independent-samples t-test and two-way chi-square tests were performed. Two independent variables were created indicating missing at Time 2 and Time 3 (yes, no). The dependent variables were physical caregiving, caregiving hours, financial caregiving, amount of financial care, labor force participation, weekly hours worked, household income, and household assets. According to the analysis results, there were no significant differences between observed and missing cases at two time points and thus, the data was considered missing completely at random (MCAR) [See Appendix A].

Regarding the normality, the skewness and kurtosis of each variable were examined. Since the data showed non-normality, χ^2 and fit indices of maximum likelihood (ML) estimation method are biased and thus, an estimation method that adjust for non-normality is used, and the S-B Scaled χ^2 and robust fit indices are reported. Especially, the household income showed large

variance and the outliers were diagnosed. Three respondents with the highest household income¹ were excluded and the total sample of 3,534 was included in the analysis.

To include respondents' health status, marital status, and household income and parents' health as time-varying covariates, McNemar's test and repeated measure ANOVA were conducted. McNemar's test is basically a paired sample t-test for categorical variables with 2 levels. Here, what I want to test is whether health status, marital status, household income, and parents' health are significantly changed among 2006, 2008, and 2010. The results showed that there was not significant change among the three waves on household income (See Appendix B). Also, though there was a significant change in marital status among three waves, the variable did not change that much between years (3% between 2006 and 2008; 6% between 2006 and 2010). When the marital status was included as a time-varying covariate in a model, it would have an issue of the multicollinearity. On the other hand, there was significant change among the three waves on parents' health and respondents' health (male only) and thus, the final cross-lagged panel model only included respondents' health status and parents' health as time-varying covariates.

¹ There were two respondents with household incomes of \$25,360,026 and one respondent with household incomes of \$5,081,760.

4.2 THE UNITED STATES

4.2.1 Descriptive analysis

To provide an overview of the study samples, I present several tables for key variables. First, descriptive statistics for the sample at baseline are provided in Table 2. There were 3,534 respondents who met inclusion criteria for the study and the average age of the sample was 59.05 (SD= 5.80). About 59.2% of respondents were female (n= 2,093) and 40.8% were male (n= 1,441). There were 2,760 White (78.1%) and 521 African American (14.7%) and other races were 253 (7.2%). The average number of years of formal education was 13.17 (SD= 3.02). About 32.7% of respondents were high school graduates or had a GED equivalent (n= 1,156); 54.2% had completed at least some college (n= 955) and above (n= 958); 13.1% had less than high school education (n= 463). About 75.4% of the sample was married (n= 2,666), with the additional 24.6% either divorced or widowed or never married (n= 868). 78.0% of respondents' health status was either good or excellent (n= 2,755) and 22.0% was either fair or poor (n= 779). Respondents had an average 3.15 (SD= 2.36) of siblings and 28.6% of respondents' parents needed help with basic personal needs like dressing, eating, or bathing (n= 1,000). In addition, approximately 57.0% of the sample was in the labor force (n= 2,015) and their weekly work hours were 39.08 (SD= 14.69). With regard to annual household income, the average was \$81,753 and the median was \$55,108. In addition, the average annual household assets were \$549,433 and the median was \$210,650. Among respondents, 9.6% provided physical caregiving to their parents (n= 340) and the mean caregiving hours the physical caregivers provided was 13.53 hours per week (SD= 24.16). With financial caregiving, 17.1% of respondents provided

financial support to their parents (n= 601) and the average amount of money financial caregivers provided was \$3,590 per year and the median was \$1,500.

As shown in Table 2, there were a few significant differences by gender on these basic characteristics. Male respondents in this sample were more likely to be more educated (13.31 vs. 13.08 years), married (83% vs. 70%), in the labor force (64% vs. 52%), have more weekly hours worked (42.44 vs. 36.39 hours), and earn more household income (\$62,655 vs. \$50,256) than their female counterparts. Also, female respondents were more likely to provide physical caregiving (12% vs. 6%), have more weekly hours of caregiving (15.83 vs. 8.14 hours), and male respondents were more likely to provide financial caregiving (18% vs. 16%) to their parents and parent-in-laws.

Table 2. Demographic Characteristics of Total Sample at Baseline (USA)

	Total (N= 3,534)	Male (N= 1,441)	Female (N= 2,093)	<i>p</i>
Age				
Mean (SD)	59.05 (5.80)	59.21 (5.97)	58.94 (5.69)	.188
Race				
White/Caucasian	2,760 (78.1%)	1,140 (41.3%)	1,620 (58.7%)	.123
African American	521 (14.7%)	192 (36.9%)	329 (63.1%)	
Other	253 (7.2%)	109 (43.1%)	144 (56.9%)	
Education				
Mean (SD)	13.17 (3.02)	13.31 (3.12)	13.08 (2.95)	.031
Less than high school	463 (13.1%)	201 (43.4%)	262 (56.6%)	< .001
GED; high school	1,156 (32.7%)	406 (35.1%)	750 (64.9%)	
Some college	955 (27.1%)	387 (40.5%)	568 (59.5%)	
College and above	958 (27.1%)	445 (46.5%)	511 (53.5%)	
Marital Status				
Married	2,666 (75.4%)	1,200 (83.3%)	1,466 (70.0%)	< .001
Divorced; widowed; never married	868 (24.6%)	241 (16.7%)	627 (30.0%)	
Health status				
Excellent; very good; good	2,755 (78.0%)	1,142 (79.3%)	1,613 (77.1%)	.067
Poor; fair	779 (22.0%)	229 (20.7%)	480 (22.9%)	
Sibling				
Mean (SD)	3.15 (2.36)	3.07 (2.31)	3.20 (2.39)	.111
Parents' Health				
Need personal help	1,000 (28.6%)	387 (27.2%)	613 (29.5%)	.069
No need personal help	2,499 (71.4%)	1,037 (72.8%)	1,462 (70.5%)	
Employment Status				
In the labor force	2,015 (57.0%)	922 (64.0%)	1,093 (52.2%)	< .001
Not in the labor force	1,519 (43.0%)	519 (36.0%)	1,000 (47.8%)	
Weekly hours worked	39.08 (14.69)	42.44 (14.29)	36.39 (14.44)	< .001
Household Income				
Mean	\$81,753	\$90,094	\$76,009	< .001
Median	\$55,108	\$62,655	\$50,256	< .001
Household Assets				
Mean	\$549,433	\$616,968	\$502,937	.174
Median	\$210,650	\$205,600	\$212,000	.709
Physical Caregiving				
Yes	340 (9.6%)	86 (6.0%)	254 (12.1%)	< .001
No	3,190 (90.4%)	1,353 (94.0%)	1,837 (87.9%)	
Caregiving hours	13.53 (24.16)	8.14 (11.30)	15.83 (27.63)	.009
Financial Caregiving				
Yes	601 (17.1%)	267 (18.6%)	334 (16.0%)	.023
No	2,923 (82.9%)	1,167 (81.4%)	1,756 (84.0%)	
Financial caregiving amount				
Mean	\$3,590	\$4,094	\$3,187	.162
Median	\$1,500	\$2,000	\$1,500	.032

Description for the main study variables from 2006 to 2010 is presented in Table 3. About 9.6% of respondents were physical caregivers at Time 1 and it increased every two years to 13.2% at Time 2 and 15.4% at Time 3. The average number of hours of physical caregiving was 13.53 at Time 1, 10.69 at Time 2, and 13.05 at Time 3. 17.1% of respondents were financial caregivers at Time 1 and it was consistent over time (17.4% at Time 2 and 17.1% at Time 3). The average amount of money of financial caregiving was \$3,590 at Time 1 and it increased to \$4,108 at Time 2 and \$4,829 at Time 3, even though the median was consistent over time (\$1,500). About 57.0% were in the labor force at Time 1 and it declined over time to 51.0% at Time 2 and 43.1% at Time 3. Also, weekly working hours declined over time from 39.08 hours at Time 1, 38.16 at Time 2 to 36.61 at Time 3. The average household income was \$81,753 at Time 1 and it slightly increased at Time 2 (\$86,112) and declined again at Time 3 (\$80,705). However, the average household assets were \$549,433 at Time 1 and it declined at a constant rate to \$490,344 at Time 2 and \$445,414 at Time 3.

Table 3. Descriptive Statistics for the Main Study Variable by Wave

Variable	2006 (n= 3,534)	2008 (n= 3,311)	2010 (n= 3,073)
Physical Caregiver	340 (9.6%)	434 (13.2%)	389 (15.4%)
Physical Caregiving Hours (SD)	13.53 (24.16)	10.69 (19.19)	13.05 (22.54)
Financial Caregiver	601 (17.1%)	569 (17.4%)	431 (17.1%)
Financial Caregiving Amount (mean)	\$3,590	\$4,108	\$4,829
Median	\$1,500	\$1,500	\$2,000
Labor Force Participation	2,015 (57.0%)	1,690 (51.0%)	1,325 (43.1%)
Work Hours (SD)	39.08 (14.68)	38.16 (13.74)	36.61 (15.47)
Household Income (mean)	\$81,753	\$86,112	\$80,705
Median	\$55,108	\$57,920	\$52,188
Household Assets (mean)	\$549,433	\$490,344	\$445,414
Median	\$210,650	\$207,050	\$191,000

For males, as shown in Table 4, about 6.0% of respondents were physical caregivers at Time 1 and it increased every two years to 8.6% at Time 2 and 11.6% at Time 3. The average number of hours of physical caregiving was 8.14 at Time 1, 9.50 at Time 2, and 7.83 at Time 3. 18.6% of respondents were financial caregivers at Time 1 and it was consistent over time (18.8% at Time 2 and 19.5% at Time 3). The average amount of money of financial caregiving was \$4,094 at Time 1 and it increased to \$4,789 at Time 2 and \$5,243 at Time 3, even though the median was consistent both at Time 1 and at Time 2 (\$1,500) and increased to \$2,000 at Time 3. About 64.0% were in the labor force at Time 1 and it declined over time to 57.2% at Time 2 and 48.1% at Time 3. Also, the hours of worked declined over time from 42.44 hours at Time 1, 41.61 at Time 2 to 39.04 at Time 3. The average household income was \$90,094 at Time 1 and it increased at Time 2 (\$97,952) and declined again at Time 3 (\$90,392). However, the average household assets were \$616,968 at Time 1 and it declined at a constant rate to \$517,910 at Time 2 and \$481,255 at Time 3.

Table 4. Descriptive Statistics for the Main Study Variable by Wave (Male)

Variable	2006 (n= 1,441)	2008 (n= 1,340)	2010 (n= 1,236)
Physical Caregiver	86 (6.0%)	114 (8.6%)	119 (11.6%)
Physical Caregiving Hours (SD)	8.14 (11.30)	9.50 (22.76)	7.83 (11.34)
Financial Caregiver	267 (18.6%)	249 (18.8%)	200 (19.5%)
Financial Caregiving Amount (mean)	\$4,094	\$4,789	\$5,243
Median	\$1,500	\$1,500	\$2,000
Labor Force Participation	922 (64.0%)	767 (57.2%)	595 (48.1%)
Work Hours (SD)	42.44 (14.29)	41.61 (13.67)	39.04 (15.22)
Household Income (mean)	\$90,094	\$97,952	\$90,392
Median	\$62,655	\$65,986	\$58,800
Household Assets (mean)	\$616,968	\$517,910	\$481,255
Median	\$205,600	\$212,350	\$199,750

For females, as shown in Table 5, about 12.1% of respondents were physical caregivers at Time 1 and it increased every two years to 16.4% at Time 2 and 18.1% at Time 3. The average number of hours of physical caregiving was 15.83 at Time 1, 11.26 at Time 2, and 15.52 at Time 3. About 16.0% of respondents were financial caregivers at Time 1 and it was consistent over time (16.4% at Time 2 and 15.5% at Time 3). The average amount of money of financial caregiving was \$3,187 at Time 1 and it increased to \$3,613 at Time 2 and \$4,483 at Time 3, even though the median was consistent both at Time 1 and at Time 2 (\$1,500) and increased to \$2,000 at Time 3. About 52.2% were in the labor force at Time 1 and it declined over time to 46.8% at Time 2 and 39.7% at Time 3. Also, the hours of worked declined over time from 36.39 hours at Time 1, 35.36 at Time 2 to 34.65 at Time 3. The average household income was \$76,009 at Time 1 and it increased at Time 2 (\$78,061) and declined again at Time 3 (\$74,188). However, the average household assets were \$502,937 at Time 1 and it declined at a constant rate to \$471,603 at Time 2 and \$421,298 at Time 3.

Table 5. Descriptive Statistics for the Main Study Variable by Wave (Female)

Variable	2006 (n= 2,093)	2008 (n= 1,971)	2010 (n= 1,837)
Physical Caregiver	254 (12.1%)	320 (16.4%)	270 (18.1%)
Physical Caregiving Hours (SD)	15.83 (27.63)	11.26 (17.26)	15.52 (25.88)
Financial Caregiver	334 (16.0%)	320 (16.4%)	231 (15.5%)
Financial Caregiving Amount (mean)	\$3,187	\$3,613	\$4,483
Median	\$1,500	\$1,500	\$2,000
Labor Force Participation	1,093 (52.2%)	823 (46.8%)	730 (39.7%)
Work Hours (SD)	36.39 (14.44)	35.36 (13.15)	34.65 (15.40)
Household Income (mean)	\$76,009	\$78,061	\$74,188
Median	\$50,256	\$51,424	\$48,526
Household Assets (mean)	\$502,937	\$471,603	\$421,298
Median	\$212,000	\$205,600	\$185,000

There were 245 of males and 582 of females who provided physical caregiving at least once during four years (Table 6). Among male caregivers, 74.7% was physical caregivers one time, 20.4% was twice, and 4.9% was three times. On the other hand, among female caregivers, 64.8% was caregivers one time, 26.8% was twice, and 8.4% was three times. Regarding financial caregiving, there were 420 of males and 528 of females who provided financial caregiving at least once during four years. Among male caregivers, 50.2% provided financial care one time, 29.0% provided twice, 20.7% provided three times. On the other hand, among female caregivers, 50.0% provided financial care one time, 32.3% provided twice, 17.6% provided three times.

Table 6. The Extent of Caregiving among 3 Waves

	Physical Caregiving		Financial Caregiving	
	Male (n= 245)	Female (n= 582)	Male (n= 420)	Female (n= 528)
1 time caregivers	183 (74.7%)	377 (64.8%)	211 (50.2%)	264 (50.0%)
2 times caregivers	50 (20.4%)	156 (26.8%)	122 (29.0%)	171 (32.3%)
3 times caregivers	12 (4.9%)	49 (8.4%)	87 (20.7%)	93 (17.6%)

4.2.2 Bivariate analysis

First, independent-samples t-test and two-way chi-square test were conducted to assess the mean and proportion differences by physical caregivers and non-caregivers for each gender. Also, the Mann-Whitney U test was conducted to assess the median difference. Male physical caregivers were more likely to be older with an average age of 60.56 and to have parents who need help with basic personal needs like dressing, eating, or bathing (81% vs. 23%) than non-caregivers. They were less likely to be in the labor force (52% vs. 64%) and to have less weekly hours

worked (37.28 vs. 42.74 hours) than their non-caregiver counterparts. Also, 5.1% of white, 8.4% of African American, and 11.0% of other races were physical caregivers (Table 7). For female, physical caregivers were more likely to be older with an average age of 59.80 and to have parents who need help with basic personal needs (79% vs. 22%). They were less likely to be in the labor force (38% vs. 54%) and to have less weekly hours worked than their non-caregiver counterparts (Table 8).

Second, independent-samples t-test and two-way chi-square test were conducted to assess mean and proportion differences by financial caregivers and non-caregivers. Likewise, the Mann-Whitney U test was conducted to assess the median difference. Male financial caregivers were more likely to have more siblings (3.52 vs. 2.96), to have parents who need help with basic personal needs (31% vs. 26%), to earn more household income (\$71,032 vs. \$61,114) and to have more household assets (\$245,000 vs. \$194,400) than their non-caregiver counterparts. Also, 15.1% of white, 28.9% of African American, and 38.0% of other races were financial caregivers (Table 9). For female, financial caregivers were more likely to be more educated (13.38 vs. 13.03 years), to have parents who need help with ADL (35% vs. 28%), to earn more household income (\$52,972 vs. \$50,004), and to have more household assets (\$262,850 vs. \$202,750) than their non-caregiver counterparts. They were less likely to be married (65% vs. 70%) than non-caregivers. Also, 13.8% of white, 22.9% of African American, and 25.0% of other races were financial caregivers (Table 10).

Table 7. Demographic Characteristics of Physical Caregivers at Time 1 (Male)

	Non-Caregivers (n= 1,353)	Caregivers (n= 86)	<i>p</i>	Cohen's d Cramer's V
Age	59.13 (5.97)	60.56 (5.91)	.031	0.240
Race				
White	94.9%	5.1%		
African American	91.6%	8.4%	.015	0.077
Other	89.0%	11.0%		
Education				
Years	13.32 (3.12)	13.20 (3.08)	.749	0.036
Less than high-school	93.5%	6.5%	.556	0.038
GED; high-school	94.3%	5.7%		
Some college	92.8%	7.2%		
College and above	95.5%	5.0%		
Marital status				
Married	83.2%	84.9%	.412	0.011
Health status				
Good-Excellent	79.4%	76.7%	.321	0.015
# of living siblings	3.10 (2.31)	2.66 (2.36)	.087	0.190
Parents need help	23.8%	81.2%	< 0.001	0.306
Labor force participation				
In the labor force	64.8%	52.3%	.014	0.062
Weekly hours worked (worker only)	42.74 (14.10)	37.28 (16.61)	.007	0.383
All	28.79 (23.69)	21.75 (23.34)	.008	0.298
Household Income				
Mean	\$91,154	\$75,489	.199	0.143
Median	\$63,980	\$51,143	.070	
Household Assets				
Mean	\$611,705	\$713,097	.760	0.034
Median	\$203,800	\$273,700	.255	

Table 8. Demographic Characteristics of Physical Caregivers at Time 1 (Female)

	Non-Caregivers (n= 1,837)	Caregivers (n= 254)	<i>p</i>	Cohen's d Cramer's V
Age	58.83 (5.65)	59.80 (5.87)	.011	0.171
Race				
White	88.1%	11.9%		
African American	85.7%	14.3%	.380	0.030
Other	89.6%	10.4%		
Education				
Years	13.04 (2.96)	13.37 (2.85)	.097	0.111
Less than high-school	90.0%	10.0%	.613	0.029
GED; high-school	88.1%	11.9%		
Some college	87.3%	12.7%		
College and above	86.9%	13.1%		
Marital status				
Married	70.4%	67.7%	.212	0.019
Health status				
Good-Excellent	77.5%	74.4%	.157	0.024
# of living siblings	3.23 (2.40)	2.96 (2.25)	.091	0.113
Parents need help	22.5%	79.9%	< 0.001	0.412
Labor force participation				
In the labor force	54.2%	38.6%	< 0.001	0.102
Weekly hours worked (worker only)	36.56 (14.28)	34.91 (15.78)	.269	0.114
All	20.78 (21.56)	15.33 (21.15)	< .001	0.253
Household Income				
Mean	\$76,520	\$72,652	.557	0.039
Median	\$51,200	\$46,410	.152	
Household Assets				
Mean	\$496,881	\$550,559	.529	0.042
Median	\$212,000	\$215,500	.980	

Table 9. Demographic Characteristics of Financial Caregivers at Time 1 (Male)

	Non-Caregivers (n= 1,167)	Caregivers (n= 267)	<i>p</i>	Cohen's d Cramer's V
Age	59.17 (5.94)	59.42 (6.12)	.538	0.042
Race				
White	84.9%	15.1%		
African American	71.1%	28.9%	< .001	0.186
Other	62.0%	38.0%		
Education				
Years	13.40 (2.91)	12.95 (3.87)	.078	0.143
Less than high-school	74.7%	25.3%	.011	0.088
GED; high-school	85.7%	14.3%		
Some college	80.1%	19.9%		
College and above	81.4%	18.6%		
Marital status				
Married	83.5%	82.4%	.367	0.011
Health status				
Good-Excellent	79.6%	77.5%	.249	0.020
# of living siblings	2.96 (2.24)	3.52 (2.51)	.001	0.240
Parents need help	26.1%	31.8%	.034	0.051
Labor force participation				
In the labor force	63.8%	64.8%	0.413	0.008
Weekly hours worked (worker only)	42.24 (13.62)	43.35 (16.85)	0.402	0.078
All	28.04 (23.38)	29.72 (25.21)	0.303	0.071
Household Income				
Mean	\$86,250	\$108,034	0.030	0.199
Median	\$61,114	\$71,032	0.087	
Household Assets				
Mean	\$593,240	\$732,560	0.495	0.046
Median	\$194,400	\$245,000	0.003	

Table 10. Demographic Characteristics of Financial Caregivers at Time 1 (Female)

	Non-Caregivers (n= 1,756)	Caregivers (n= 334)	<i>p</i>	Cohen's d Cramer's V
Age	58.90 (5.72)	59.14 (5.53)	.482	0.042
Race				
White	86.2%	13.8%		
African American	77.1%	22.9%	< .001	0.120
Other	75.0%	25.0%		
Education				
Years	13.03 (2.92)	13.38 (3.07)	.046	0.120
Less than high-school	87.0%	13.0%	.069	0.058
GED; high-school	85.8%	14.2%		
Some college	82.9%	17.1%		
College and above	81.2%	18.8%		
Marital status				
Married	70.8%	65.9%	.041	0.040
Health status				
Good-Excellent	77.2%	76.9%	.490	0.002
# of living siblings	3.21 (2.41)	3.12 (2.26)	.514	0.039
Parents need help	28.4%	35.3%	.007	0.056
Labor force participation				
In the labor force	51.9%	53.9%	.276	0.014
Weekly hours worked (worker only)	36.21 (14.25)	37.40 (15.26)	.282	0.083
All	19.85 (21.45)	21.45 (22.24)	.219	0.074
Household Income				
Mean	\$74,279	\$84,963	.069	0.109
Median	\$50,004	\$52,972	.019	
Household Assets				
Mean	\$474,902	\$652,696	.039	0.140
Median	\$202,750	\$262,850	.001	

Pearson correlations were conducted to examine the relationship between caregiving and parents' health. As shown in Table 11, providing physical care to parents was related to parents' need for help with ADL for both males and females. Providing physical care was positively correlated with the parents' need for help with ADL. However, Pearson's correlations between providing financial caregiving and parents' health identified inconsistent patterns and were almost close to 0 (Table 12).

Table 11. Pearson's *r* Bivariate Correlations of Physical Caregiving and Parents' Health

Male	PCG T1	PCG T2	PCG T3	PAH T1	PAH T2	PAH T3
PCG T1	1					
PCG T2	.298***	1				
PCG T3	.212***	.280***	1			
PAH T1	.306***	.162***	.081**	1		
PAH T2	.248***	.268***	.139***	.562***	1	
PAH T3	.166***	.176***	.298***	.375***	.566***	1
Female	PCG T1	PCG T2	PCG T3	PAH T1	PAH T2	PAH T3
PCG T1	1					
PCG T2	.399***	1				
PCG T3	.266***	.359***	1			
PAH T1	.412***	.252***	.133***	1		
PAH T2	.316***	.424***	.223***	.601***	1	
PAH T3	.316***	.300***	.422***	.414***	.558***	1

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

Note: PCG= Physical caregiving; PAH= Parents' health

Table 12. Pearson's r Bivariate Correlations of Financial Caregiving and Parents' Health

Male	FCG T1	FCG T2	FCG T3	PAH T1	PAH T2	PAH T3
FCG T1	1					
FCG T2	.540 ^{***}	1				
FCG T3	.461 ^{***}	.538 ^{***}	1			
PAH T1	.051 [*]	.007	.054 [*]	1		
PAH T2	.036	.017	.031	.562 ^{***}	1	
PAH T3	.007	.003	.060 [*]	.375 ^{***}	.566 ^{***}	1
Female	FCG T1	FCG T2	FCG T3	PAH T1	PAH T2	PAH T3
FCG T1	1					
FCG T2	.496 ^{***}	1				
FCG T3	.452 ^{***}	.512 ^{***}	1			
PAH T1	.056 ^{**}	.016	-.003	1		
PAH T2	.033	.034	-.007	.601 ^{***}	1	
PAH T3	.081 ^{**}	.053 [*]	.019	.414 ^{***}	.558 ^{***}	1

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

Note: FCG= Financial caregiving; PAH= Parents' health

4.2.3 Cross-lagged panel model

This model was designed to test whether there is a reciprocal relationship between caregiving and labor force participation separately for males and females. Following hypotheses were tested using cross-lagged panel model:

- H1. Physical caregivers have lower probability of labor force participation than non-physical caregivers.
- H2. Those in the labor force are less likely to assume physical caregiving than those not in the labor force.
- H3. Financial caregivers have higher probability of labor force participation than non-financial caregivers.
- H4. Those in the labor force are more likely to assume financial caregiving than those not in the labor force.

Reciprocal Relations of Physical Caregiving and Labor Force Participation

First, as shown in Table 13, for males, there was a significant difference between the observed and model covariance matrices, scaled S-B Scaled χ^2 (87, $N= 1,441$)= 301.793, $p < .001$. However, there was a good fit, $CFI= .948$, $RMSEA= .041$. Table 13 presents the relationship among variables. Specifically, white ($\beta= -.094$) provided less physical caregiving than minorities and the number of siblings ($\beta= -.076$) were negatively associated with providing physical caregiving at Time 1, whereas respondents' good health status at Time 3 ($\beta_{T3}= .056$) and parents' need for help with ADL ($\beta_{T1}= .309$; $\beta_{T2}= .183$; $\beta_{T3}= .227$) were positively associated with providing physical caregiving. On the other hand, regarding labor force participation, older age was negatively associated with labor force participation at Time 1 ($\beta= -.457$) and household income ($\beta= .170$) and good health status ($\beta_{T1}= .197$; $\beta_{T2}= .084$; $\beta_{T3}= .052$) were positively associated with labor force participation.

Second, for females, there was a significant difference between the observed and model covariance matrices, S-B Scaled χ^2 (87, $N= 2,093$)= 495.535, $p < .001$. However, there was a good fit, $CFI= .947$, $RMSEA= .047$ (See Table 14). Table 14 presents the relationship among variables. Specifically, more educated ($\beta= .051$) and parents' need for help with ADL ($\beta_{T1}= .420$; $\beta_{T2}= .229$; $\beta_{T3}= .328$) were positively associated with physical caregiving at Time 1, whereas age was negatively associated with providing physical care ($\beta= -.039$). Regarding labor force participation, age ($\beta= -.334$), being married ($\beta= -.108$), and parents' need for help with ADL ($\beta_{T1}= -.055$; $\beta_{T2}= -.056$) were negatively associated with labor force participation. Also, more educated ($\beta= .038$), household income ($\beta= .221$) and good health status ($\beta_{T1}= .174$; $\beta_{T2}= .067$; $\beta_{T3}= .044$) were positively associated with labor force participation over the time.

Table 13. Cross-lagged Panel Model of Physical Caregiving (Male)

Model		S-B χ^2	<i>df</i>	<i>p</i>	<i>CFI</i>	<i>RMSEA</i>
Final model of physical caregiving		301.793	87	< .001	.948	.041
Path		<i>B</i>	β	<i>z</i>	<i>p</i>	<i>R</i> ²
PCG T1	← Age	-.007	-.016	-.689	.491	.105
	← Race	-.055	-.094	-3.036	.002	
	← Education	.001	.019	.856	.392	
	← Marital status T1	.004	.007	.311	.756	
	← Household income	-.001	-.004	-.219	.827	
	← Sibling	-.008	-.076	-2.909	.004	
	← Health status T1	.002	.004	.149	.882	
	← Parents' need T1	.167	.309	8.248	< .001	
PCG T2	← LFP T1	-.032	-.055	-2.110	.035	.115
	← PCG T1	.298	.253	5.265	< .001	
	← Health status T2	-.010	-.015	-.662	.508	
	← Parents' need T2	.113	.183	5.773	< .001	
PCG T3	← LFP T2	-.033	-.050	-1.678	.093	.117
	← PCG T2	.251	.219	4.800	< .001	
	← Health status T3	.041	.056	2.317	.021	
	← Parents' need T3	.154	.227	7.025	< .001	
LFP T1	← Age	-.372	-.457	-24.087	< .001	.297
	← Race	.029	.025	1.055	.291	
	← Education	-.005	-.032	-1.604	.109	
	← Marital status T1	.019	.015	.645	.519	
	← Household income	.080	.170	5.000	< .001	
	← Sibling	.004	.021	.963	.336	
	← Health status T1	.239	.197	7.473	< .001	
	← Parents' need T1	-.010	-.009	-.413	.680	
LFP T2	← PCG T1	.003	.002	.077	.939	.556
	← LFP T1	.752	.731	38.863	< .001	
	← Health status T2	.096	.084	6.117	< .001	
	← Parents' need T2	-.038	-.036	-1.982	.047	
LFP T3	← PCG T2	-.027	-.015	-.823	.411	.556
	← LFP T2	.742	.736	39.023	< .001	
	← Health status T3	.059	.052	3.622	< .001	
	← Parents' need T3	-.026	-.025	-1.238	.216	

Note: PCG= Physical caregiving; LFP= Labor force participation

Table 14. Cross-lagged Panel Model of Physical Caregiving (Female)

Model		S-B χ^2	df	p	CFI	RMSEA
Final model of physical caregiving		495.535	87	< .001	0.947	0.047
Path		B	β	z	p	R ²
PCG T1	← Age	-.023	-.039	-1.984	.047	.178
	← Race	-.023	-.029	-1.399	.162	
	← Education	.006	.051	3.346	.001	
	← Marital status T1	-.005	-.007	-.314	.754	
	← Household income	-.001	-.003	-.133	.894	
	← Sibling	-.004	-.032	-1.752	.080	
	← Health status T1	.003	.004	.171	.864	
	← Parents' need T1	.304	.420	15.095	< .001	
PCG T2	← LFP T1	.029	.039	1.959	.050	.235
	← PCGT1	.359	.319	10.385	< .001	
	← Health status T2	-.021	-.024	-1.601	.109	
	← Parents' need T2	.241	.229	11.604	< .001	
PCG T3	← LFP T2	-.002	-.002	-.094	.925	.199
	← PCGT2	.256	.246	7.612	< .001	
	← Health status T3	.000	.000	.029	.977	
	← Parents' need T3	.268	.328	11.180	< .001	
LFP T1	← Age	-.296	-.334	-20.096	< .001	.229
	← Race	-.034	-.029	-1.493	.135	
	← Education	.006	.038	2.344	.019	
	← Marital status T1	-.117	-.108	-5.377	< .001	
	← Household income	.111	.221	8.672	< .001	
	← Sibling	.007	.036	1.919	.055	
	← Health status T1	.211	.174	8.384	< .001	
	← Parents' need T1	-.060	-.055	-2.726	.006	
LFP T2	← PCGT1	.008	.006	.337	.736	.567
	← LFPT1	.735	.740	46.063	< .001	
	← Health status T2	.078	.067	6.494	< .001	
	← Parents' need T2	-.061	-.056	-3.631	< .001	
LFP T3	← PCG T2	-.054	-.042	-2.543	.011	.564
	← LFP T2	.728	.742	44.695	< .001	
	← Health status T3	.052	.044	4.269	< .001	
	← Parents' need T3	-.017	-.016	-.900	.368	

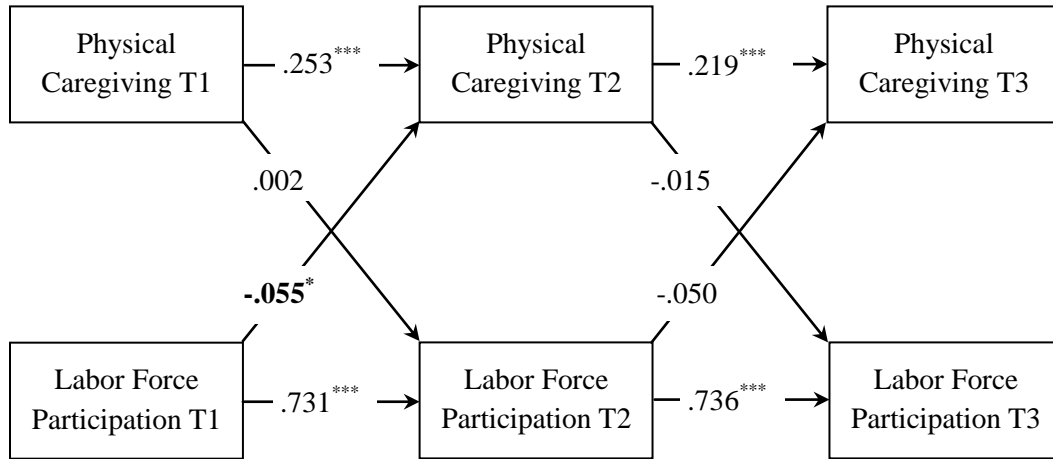
Note: PCG= Physical caregiving; LFP= Labor force participation

Summary

Regarding the dynamics between physical caregiving and labor force participation, a reciprocal relationship was not found for males between physical caregiving and labor force participation at Time 1, Time 2, and Time 3. As indicated in Figure 7, labor force participation at Time 1 significantly and negatively predicted providing physical care to parents and parent-in-laws at Time 2 ($\beta_{T1} = -.055$), but labor force participation at Time 2 did not have effects on physical caregiving at Time 3. In addition, providing physical care at Time 1 and Time 2 did not significantly predict labor force participation at Time 2 and Time 3 for males.

Likewise, a reciprocal relationship was not found for females between physical caregiving and labor force participation at Time 1, Time 2, and Time 3. As indicated in Figure 8, providing physical care to parents and parent-in-laws at Time 2 significantly and negatively predicted labor force participation at Time 3 ($\beta_{T1} = -.042$), whereas labor force participation at Time 1 and Time 2 did not significantly predict providing physical care at Time 2 and Time 3 for females.

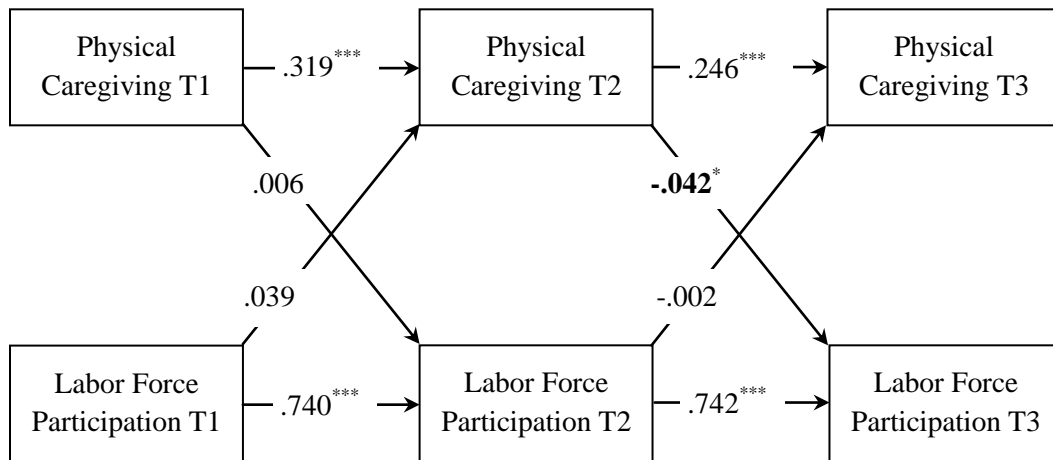
Figure 7. Standardized Parameters for Physical Caregiving and Labor Force Participation (Male)



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

Note: Covariates of age, race, education, marital status, and the number of siblings were included. Health status and parents' health were included as time-varying covariates. For simplicity, the covariates were not displayed here.

Figure 8. Standardized Parameters for Physical Caregiving and Labor Force Participation (Female)



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

Note: Covariates of age, race, education, marital status, and the number of siblings were included. Health status and parents' health were included as time-varying covariates. For simplicity, the covariates were not displayed here.

Additional cross-lagged panel model was examined to test whether there was a reciprocal relationship between the hours of spending on physical care and the weekly hours worked. For this analysis, only respondents who provided physical care at least one among four years were included (male= 245; female= 582). For cross-lagged panel model, the hours of physical caregiving were categorized as following due to extreme skewness and sparseness of data: 0= 0; 1= 0.01-9.99; 2= 10.00-19.99; 3= 20.00 or more (Table 15).

Table 15. Weekly Hours of Physical Caregiving

Weekly hour	2006		2008		2010	
	Male (n= 244)	Female (n= 582)	Male (n= 234)	Female (n= 563)	Male (n= 182)	Female (n= 405)
0	198 (81.1)	460 (79.0)	170 (72.6)	409 (72.6)	102 (56.0)	230 (56.8)
0.01 – 9.99	35 (14.3)	84 (14.1)	47 (20.1)	113 (20.1)	64 (35.2)	117 (28.9)
10.00 – 19.99	5 (2.0)	20 (3.4)	13 (5.6)	23 (4.1)	6 (3.3)	28 (6.9)
20.00 or more	6 (2.5)	18 (3.1)	4 (1.7)	18 (3.2)	10 (5.5)	30 (7.4)

First, as shown in Table 16, for males, there was a significant difference between the observed and model covariance matrices, scaled S-B Scaled χ^2 (87, $N= 245$)= 121.485, $p= .008$. However, there was a good fit, $CFI= .986$, $RMSEA= .040$. However, no significant relationship was found between the hours of spending on physical care and the weekly hours worked for males. Second, for females, there was a significant difference between the observed and model covariance matrices, scaled S-B Scaled χ^2 (87, $N= 582$)= 182.006, $p < .001$ (Table 17). However, there was a good fit, $CFI= .971$, $RMSEA= .043$. However, no significant relationship was found between the hours of spending on physical care and the weekly hours worked for females.

Table 16. Cross-lagged Panel Model of Physical Caregiving Hours (Male)

Model	S-B χ^2	<i>df</i>	<i>p</i>	<i>CFI</i>	<i>RMSEA</i>
Final model of physical caregiving	121.485	87	.008	.986	.040
Path	<i>B</i>	β	<i>z</i>	<i>p</i>	<i>R</i> ²
PCG T2 ← LFP T1	-.021	-.031	-.512	.609	.096
← PCG T1	.068	.063	.605	.545	
PCG T3 ← LFP T2	-.037	-.045	-.648	.517	.054
← PCG T2	-.085	-.071	-.955	.340	
LFP T2 ← PCG T1	-.043	-.028	-.673	.501	.566
← LFP T1	.716	.743	14.790	< .001	
LFP T3 ← PCG T2	-.057	-.042	-.755	.450	.555
← LFP T2	.692	.734	12.086	< .001	

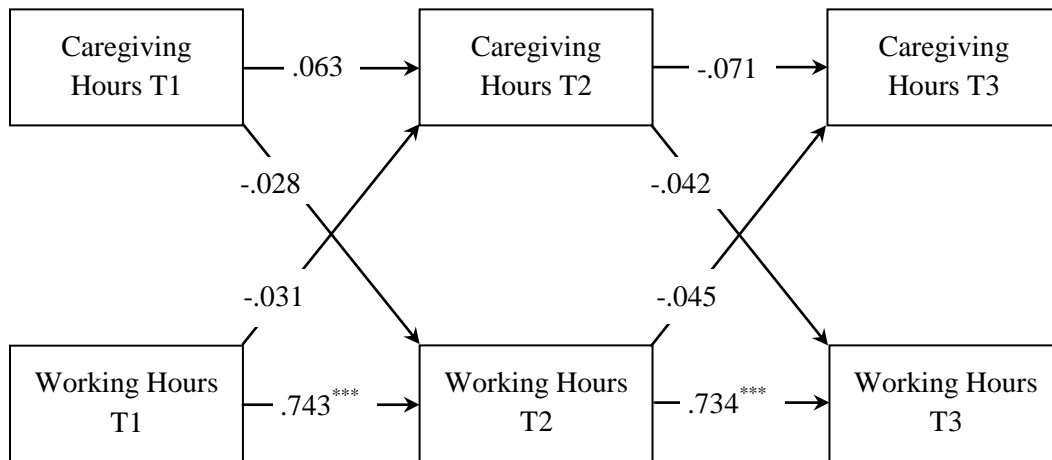
Note: PCG= Physical caregiving; LFP= Labor force participation

Table 17. Cross-lagged Panel Model of Physical Caregiving Hours (Female)

Model	S-B χ^2	<i>df</i>	<i>p</i>	<i>CFI</i>	<i>RMSEA</i>
Final model of physical caregiving	182.006	87	< .001	.971	.043
Path	<i>B</i>	β	<i>z</i>	<i>p</i>	<i>R</i> ²
PCG T2 ← LFP T1	.048	.067	1.360	.174	.067
← PCG T1	.095	.091	1.715	.086	
PCG T3 ← LFP T2	.082	.083	1.579	.114	.043
← PCG T2	.022	.018	.296	.767	
LFP T2 ← PCG T1	.004	.003	.125	.901	.523
← LFP T1	.657	.717	16.882	< .001	
LFP T3 ← PCG T2	.043	.035	.936	.349	.541
← LFP T2	.696	.723	15.984	< .001	

Note: PCG= Physical caregiving; LFP= Labor force participation

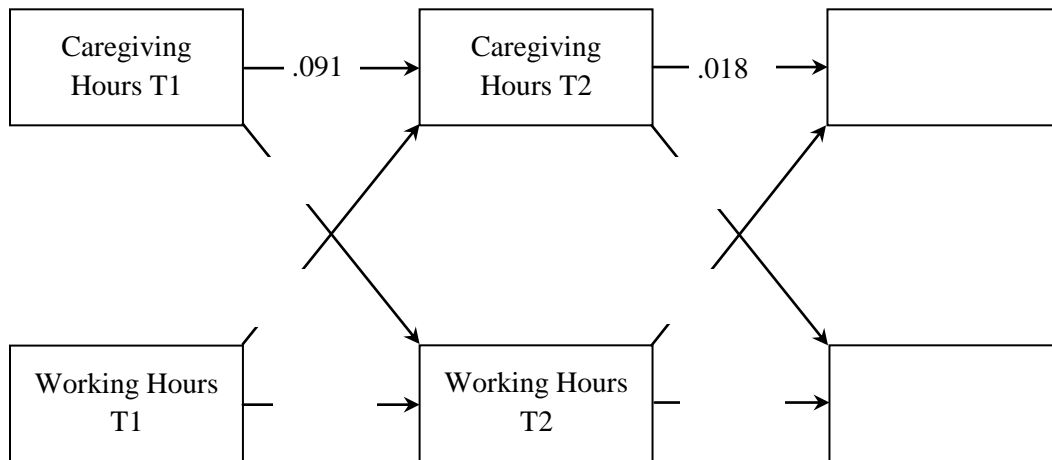
Figure 9. Standardized Parameters for Physical Caregiving Hours and Working Hours (Male)



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

Note: Covariates of age, race, education, marital status, and the number of siblings were included. Health status and parents' health were included as time-varying covariates. For simplicity, the covariates were not displayed here.

Figure 10. Standardized Parameters for Physical Caregiving Hours and Working Hours (Female)



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

Note: Covariates of age, race, education, marital status, and the number of siblings were included. Health status and parents' health were included as time-varying covariates. For simplicity, the covariates were not displayed here.

Reciprocal Relations of Financial Caregiving and Labor Force Participation

A same model was applied to test whether there was a reciprocal relationship between financial caregiving and labor force participation separately for males and females². As shown in Table 18, for males, there was a significant difference between the observed and model covariance matrices, scaled S-B Scaled χ^2 (87, $N= 1,441$)= 323.316, $p < .001$. However, there was a good fit, $CFI= .949$, $RMSEA= .043$. Table 18 presents the relationship among variables. Specifically, while white ($\beta= -.169$) provided less physical caregiving at Time 1 than minorities, parents' need for help with ADL at Time 3 ($\beta_{T3}= .055$) was positively associated with providing financial caregiving at Time 3. Regarding labor force participation, age ($\beta= -.457$) and parents' need for help with ADL at Time 2 ($\beta_{T2}= -.036$) were negatively associated with labor force participation. Household income ($\beta= .170$) and health status ($\beta_{T1}= .197$; $\beta_{T2}= .085$; $\beta_{T3}= .053$) were positively associated with labor force participation over time.

Second, for females, there was a significant difference between the observed and model covariance matrices, S-B Scaled χ^2 (87, $N= 2,093$)= 526.463, $p < .001$. However, there was a good fit, $CFI= .942$, $RMSEA= .049$. Table 19 presents the relationship among variables. Specifically, more educated ($\beta= .036$), household income ($\beta= .058$), and parents' need for help with ADL at Time 1 ($\beta_{T1}= .059$) were positively associated with financial caregiving at Time 1, whereas white provided less financial care ($\beta= -.129$) than minorities. Regarding labor force participation, age ($\beta= -.334$), being married ($\beta= -.108$), and parents' need for help with ADL ($\beta_{T1}= -.055$; $\beta_{T2}= -.027$) were negatively associated with labor force participation. Also, more

² Analyses were conducted for both categorical variables and continuous variables. Since the results of both analyses were identical, here I only report the result with categorical variables.

educated ($\beta = .038$), household income ($\beta = .221$) and health status ($\beta_{T1} = .174$; $\beta_{T2} = .045$; $\beta_{T3} = .045$) were positively associated with labor force participation over the time.

Table 18. Cross-lagged Panel Model of Financial Caregiving (Male)

Model		S-B χ^2	<i>df</i>	<i>p</i>	<i>CFI</i>	<i>RMSEA</i>
Final model of financial caregiving		323.316	87	< .001	0.949	0.043
Path		<i>B</i>	β	<i>z</i>	<i>p</i>	<i>R</i> ²
FCG T1	← Age	.006	.008	.343	.732	.038
	← Race	-.162	-.169	-5.362	< .001	
	← Education	-.002	-.013	-.578	.563	
	← Marital status T1	-.013	-.013	-.469	.639	
	← Household income	.013	.035	.992	.321	
	← Sibling	.008	.049	1.179	.238	
	← Health status T1	.009	.009	.310	.757	
	← Parents' need T1	.041	.047	1.165	.244	
FCG T2	← LFP T1	-.005	-.006	-.261	.794	.291
	← FCG T1	.542	.539	16.888	< .001	
	← Health status T2	.015	.017	.924	.355	
	← Parents' need T2	-.001	-.002	-.071	.943	
FCG T3	← LFP T2	.004	.005	.180	.857	.295
	← FCG T2	.547	.539	14.180	< .001	
	← Health status T3	-.028	-.030	-1.349	.177	
	← Parents' need T3	.047	.055	2.130	.033	
LFP T1	← Age	-.372	-.457	-24.087	< .001	.297
	← Race	.029	.025	1.055	.291	
	← Education	-.005	-.032	-1.604	.109	
	← Marital status T1	.019	.015	.645	.519	
	← Household income	.080	.170	5.000	< .001	
	← Sibling	.004	.021	.963	.336	
	← Health status T1	.239	.197	7.473	< .001	
	← Parents' need T1	-.010	-.009	-.413	.680	
LFP T2	← FCG T1	.012	.010	.540	.589	.556
	← LFP T1	.751	.731	38.850	< .001	
	← Health status T2	.096	.085	6.084	< .001	
	← Parents' need T2	-.038	-.036	-2.048	.041	
LFP T3	← FCG T2	.016	.013	.619	.536	.556
	← LFP T2	.743	.737	39.070	< .001	
	← Health status T3	.061	.053	3.635	< .001	
	← Parents' need T3	-.030	-.029	-1.450	.147	

Note: FCG= Financial caregiving; LFP= Labor force participation

Table 19. Cross-lagged Panel Model of Financial Caregiving (Female)

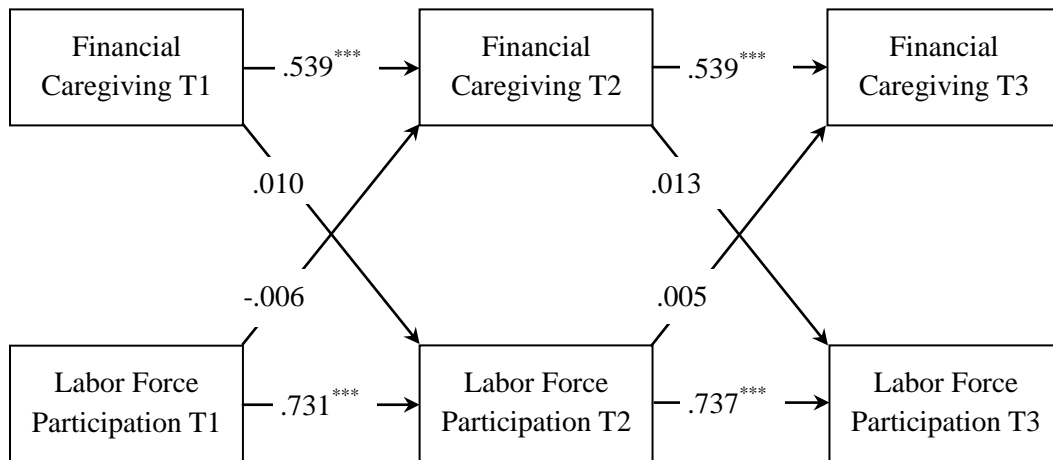
Model		S-B χ^2	df	p	CFI	RMSEA
Final model of financial caregiving		526.463	87	< .001	0.942	0.049
Path		B	β	z	p	R ²
FCG T1	← Age	.004	.006	.292	.770	.023
	← Race	-.113	-.129	-5.211	< .001	
	← Education	.005	.036	2.224	.026	
	← Marital status T1	-.030	-.037	-1.573	.116	
	← Household income	.022	.058	2.092	.036	
	← Sibling	-.006	-.039	-1.939	.053	
	← Health status T1	-.006	-.007	-.293	.770	
	← Parents' need T1	.048	.059	2.559	.010	
FCG T2	← LFP T1	.004	.005	.288	.773	.252
	← FCG T1	.506	.501	17.462	< .001	
	← Health status T2	.018	.021	1.405	.160	
	← Parents' need T2	.016	.020	.972	.331	
FCG T3	← LFP T2	.017	.023	1.042	.297	.266
	← FCG T2	.502	.514	14.708	< .001	
	← Health status T3	.012	.014	.861	.389	
	← Parents' need T3	-.004	-.005	-.206	.837	
LFP T1	← Age	-.296	-.334	-20.096	< .001	.229
	← Race	-.034	-.029	-1.493	.135	
	← Education	.006	.038	2.344	.019	
	← Marital status T1	-.117	-.108	-5.377	< .001	
	← Household income	.111	.221	8.672	< .001	
	← Sibling	.007	.036	1.919	.055	
	← Health status T1	.211	.174	8.384	< .001	
	← Parents' need T1	-.060	-.055	-2.726	.006	
LFP T2	← FCG T1	.024	.018	1.123	.261	.567
	← LFP T1	.735	.739	45.924	< .001	
	← Health status T2	.078	.045	6.440	< .001	
	← Parents' need T2	-.059	-.027	-3.818	< .001	
LFP T3	← FCG T2	-.009	-.007	-.407	.684	.565
	← LFP T2	.732	.744	45.074	< .001	
	← Health status T3	.054	.045	4.326	< .001	
	← Parents' need T3	-.028	-.027	-1.611	.107	

Note: FCG= Financial caregiving; LFP= Labor force participation

Summary

Regarding the dynamics between financial caregiving and labor force participation, a reciprocal relationship was not found for males between financial caregiving and labor force participation at Time 1, Time 2, and Time 3. As indicated in Figure 11, providing financial care did not significantly predict labor force participation over time as well as labor force participation did not have effects on providing financial care over time. Likewise, any significant reciprocal relationship was not found for females (See Figure 12).

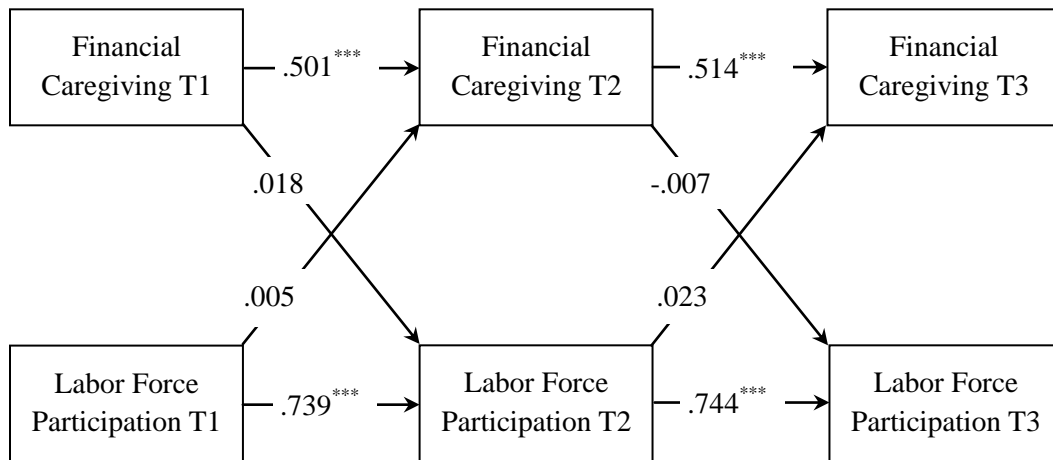
Figure 11. Standardized Parameters for Financial Caregiving and Labor Force Participation (Male)



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

Note: Covariates of age, race, education, marital status, and the number of siblings were included. Health status and parents' health were included as time-varying covariates. For simplicity, the covariates were not displayed here.

Figure 12. Standardized Parameters for Financial Caregiving and Labor Force Participation (Female)



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

Note: Covariates of age, race, education, marital status, and the number of siblings were included. Health status and parents' health were included as time-varying covariates. For simplicity, the covariates were not displayed here.

4.2.4 Latent growth curve model

This model was designed to examine the patterns of change in financial well-being over time.

Following hypotheses were tested using latent growth curve model:

H5. Physical caregivers experience a significant decrease in their financial well-being over time.

H6. Financial caregivers experience a significant change in their financial well-being over time.

The unconditional model (without covariates) was examined to describe the statistical significance of intercept/slope of mean and intercept/slope of variance of log-transformed household income and household assets separately for males and females. First, as shown in Table 20, the household income for males, there was not a significant difference between the observed and model covariance matrices, scaled S-B Scaled χ^2 (2, $N= 1,441$)= 1.908, $p= .385$. Also, there was a good fit, $CFI= 1.000$, $RMSEA= .000$. The average level of household income at the initial level was not significantly different from zero ($p= .604$) and also, respondents' household income did not change significantly over time ($p= .076$). Although there were significant individual variations in the initial level of household income ($p < .001$), there was not a significant variability in the rate of change of household income ($p= .090$).

Regarding the household assets, there was not a significant difference between the observed and model covariance matrices, scaled χ^2 (2, $N= 1,441$)= .685, $p= .709$. Also, there was a good fit, $CFI= 1.000$, $RMSEA= .000$. The average level of household assets at the initial level was not significantly different from zero ($p= .988$) and also, respondents' household assets did not change significantly over time ($p= .617$). Although there were significant individual

variations in the initial level of household assets ($p < .001$), there was not a significant variability in the rate of change of household assets. ($p = 1.000$)

Table 20. Parameter Estimates of Change in Financial Well-Being over Time (Male)

Model	S-B χ^2	<i>df</i>	<i>p</i>	<i>CFI</i>	<i>RMSEA</i>
Household income	1.908	2	.385	1.000	.000
	<i>B</i>	<i>z</i>	<i>p</i>		
Mean					
Intercept	.013	.519	.604		
Slope	-.026	-1.772	.076		
	<i>s</i> ²	<i>z</i>	<i>p</i>		
Variance					
Intercept	.442	7.577	< .001		
Slope	.051	1.697	.090		
Model	S-B χ^2	<i>df</i>	<i>p</i>	<i>CFI</i>	<i>RMSEA</i>
Household assets	.685	2	.709	1.000	.000
	<i>B</i>	<i>z</i>	<i>p</i>		
Mean					
Intercept	.000	.015	.988		
Slope	.004	.500	.617		
	<i>s</i> ²	<i>z</i>	<i>p</i>		
Variance					
Intercept	.714	8.734	< .001		
Slope	.000	.000	1.000		

Second, as shown in Table 21, the household income for females, there was a significant difference between the observed and model covariance matrices, scaled S-B Scaled χ^2 (2, $N = 2,093$) = 11.847, $p = .002$. Also, there was a good fit, $CFI = .998$, $RMSEA = .049$. The average level of household income at the initial level was not significantly different from zero ($p = .861$). However, there was a significant linear trend in the household income, i.e., the rate of household

income decreased over time ($p = .039$). Though there were significant individual variations in the initial level of household income ($p < .001$), there was not a significant variability in the rate of change of household income ($p = .665$).

Regarding the household assets, there was a significant difference between the observed and model covariance matrices, scaled χ^2 (2, $N = 2,093$) = 8.171, $p = .016$. However, there was a good fit, $CFI = .994$, $RMSEA = .038$. The average level of household assets at the initial level was not significantly different from zero ($p = .077$). However, there was a significant linear trend in the household assets, i.e., the rate of household assets decreased over time ($p = .037$). Although there were significant individual variations in the initial level of household assets ($p < .001$), there was not a significant variability in the rate of change of household assets ($p = 1.000$).

Table 21. Parameter Estimates of Change in Financial Well-Being over Time (Female)

Model	S-B χ^2	<i>df</i>	<i>p</i>	<i>CFI</i>	<i>RMSEA</i>
Household income	11.847	2	.002	.998	.049
	<i>B</i>	<i>z</i>	<i>p</i>		
Mean					
Intercept	.004	.175	.861		
Slope	-.024	-2.066	.039		
	<i>s</i> ²	<i>z</i>	<i>p</i>		
Variance					
Intercept	.546	9.547	< .001		
Slope	.011	.433	.665		
Model	S-B χ^2	<i>df</i>	<i>p</i>	<i>CFI</i>	<i>RMSEA</i>
Household assets	8.171	2	.016	.994	.038
	<i>B</i>	<i>z</i>	<i>p</i>		
Mean					
Intercept	.026	1.771	.077		
Slope	-.014	-2.085	.037		
	<i>s</i> ²	<i>z</i>	<i>p</i>		
Variance					
Intercept	.184	10.837	< .001		
Slope	.000	.000	1.000		

Summary

Since there was no significant variability in the rate of change of household income and household assets for both males and females, no further model was conducted to reveal the impact of covariates such as physical caregiving and financial caregiving on financial well-being.

4.2.5 Path analysis

Path analysis was conducted to examine if there is a mediation of labor force participation on caregivers' financial well-being. Two separate path analyses were conducted for physical caregiving and financial caregiving. Following hypotheses were tested using path analysis:

H7. The difference in financial well-being between physical and non-physical caregivers will be mediated by labor force participation.

H8. The difference in financial well-being between financial and non-financial caregivers will be mediated by labor force participation.

Mediation Effect on Physical Caregivers' Financial Well-Being

For males, there was no significant prediction of household income at Time 3 by physical caregiving at Time 1, $B = -.207$, $p = .234$ (Table 22). There was a significant negative prediction of labor force participation at Time 2 by physical caregiving at Time 1, $B = -.117$, $p = .032$. There was a significant positive prediction of household income at Time 3 by labor force participation at Time 2 after adjusting physical caregiving at Time 1, $B = .534$, $p = .003$. There was no significant prediction of household income at Time 3 by physical caregiving at Time 1 after adjusting labor force participation at Time 2, $B = -.145$, $p = .361$. Since there was no significant prediction of household income by physical caregiving, there was no mediation effect of labor force participation on the prediction of household income by physical caregiving for males.

Similarly, there was no significant prediction of household assets at Time 3 by physical caregiving at Time 1, $B = -.051$, $p = .677$ (Table 22). There was a significant negative prediction

of labor force participation at Time 2 by physical caregiving at Time 1, $B = -.117$, $p = .032$. There was no significant prediction of household assets at Time 3 by labor force participation at Time 2 after adjusting physical caregiving at Time 1, $B = -.024$, $p = .838$. There was no significant prediction of household assets at Time 3 by physical caregiving at Time 1 after adjusting labor force participation at Time 2, $B = -.053$, $p = .637$. Since there was no significant prediction of household income by physical caregiving, there was no mediation effect of labor force participation on the prediction of household income by physical caregiving for males.

Table 22. Parameter Estimates of Mediation Model for Physical Caregiving (Male)

Household income	B	β	z	p
Total effect of PCG→FWB	-.207	-.046	-1.191	.234
Direct effect of PCG→LFP	-.117	-.056	-2.143	.032
Direct effect of LFP→FWB after adjusting for PCG	.534	.246	2.958	.003
Direct effect of PCG→FWB after adjusting for LFP	-.145	-.032	-.914	.361
Household assets	B	β	z	p
Total effect of PCG→FWB	-.051	-.013	-.417	.677
Direct effect of PCG→LFP	-.117	-.056	-2.143	.032
Direct effect of LFP→FWB after adjusting for PCG	-.024	-.013	-.205	.838
Direct effect of PCG→FWB after adjusting for LFP	-.053	-.014	-.472	.637

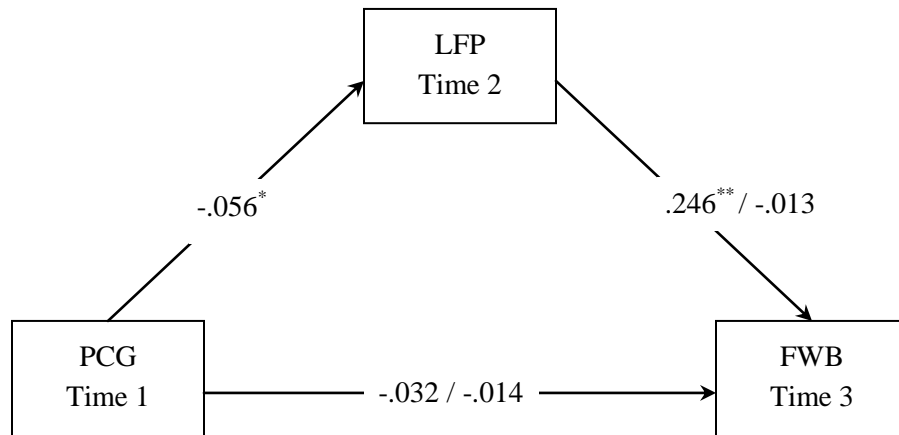
For females, there was no significant prediction of household income at Time 3 by physical caregiving at Time 1, $B = -.059$, $p = .841$ (Table 23). There was a significant negative prediction of labor force participation at Time 2 by physical caregiving at Time 1, $B = -.131$, $p < .001$. There was no significant prediction of household income at Time 3 by labor force participation at Time 2 after adjusting physical caregiving at Time 1, $B = .470$, $p = .154$. There was no significant prediction of household income at Time 3 by physical caregiving at Time 1 after adjusting labor force participation at Time 2, $B = .002$, $p = .993$. Since there was no significant prediction of household income by physical caregiving, there was no mediation effect of labor force participation on the prediction of household income by physical caregiving for females.

Similarly, there was no significant prediction of household assets at Time 3 by physical caregiving at Time 1, $B = .041$, $p = .838$ (Table 23). There was a significant negative prediction of labor force participation at Time 2 by physical caregiving at Time 1, $B = -.131$, $p < .001$. There was no significant prediction of household assets at Time 3 by labor force participation at Time 2 after adjusting physical caregiving at Time 1, $B = -.032$, $p = .893$. There was no significant prediction of household assets at Time 3 by physical caregiving at Time 1 after adjusting labor force participation at Time 2, $B = .036$, $p = .830$. Since there was no significant prediction of household income by physical caregiving, there was no mediation effect of labor force participation on the prediction of household income by physical caregiving for females.

Table 23. Parameter Estimates of Mediation Model for Physical Caregiving (Female)

Household income	<i>B</i>	β	<i>z</i>	<i>p</i>
Total effect of PCG→FWB	-.059	-.018	-.201	.841
Direct effect of PCG→LFP	-.131	-.086	-4.866	< .001
Direct effect of LFP→FWB after adjusting for PCG	.470	.214	1.425	.154
Direct effect of PCG→FWB after adjusting for LFP	.002	.001	.009	.993
Household assets	<i>B</i>	β	<i>z</i>	<i>p</i>
Total effect of PCG→FWB	.041	.028	.204	.838
Direct effect of PCG→LFP	-.131	-.086	-4.866	< .001
Direct effect of LFP→FWB after adjusting for PCG	-.032	-.034	-.135	.893
Direct effect of PCG→FWB after adjusting for LFP	.036	.025	.215	.830

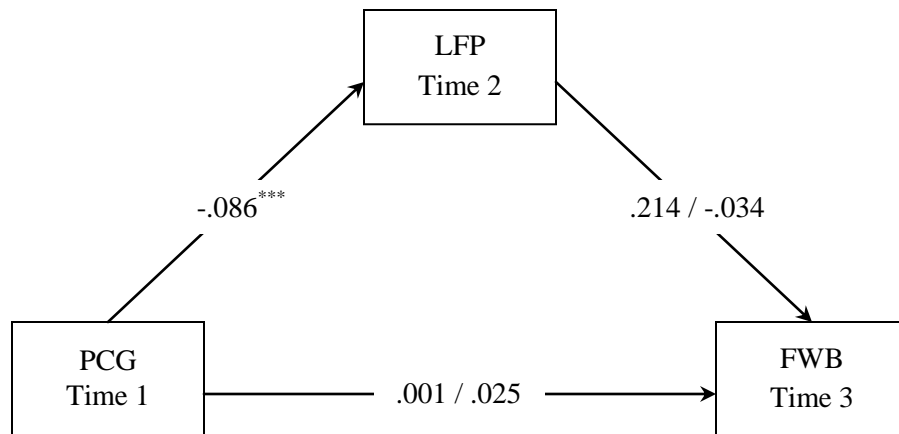
Figure 13. Path Analysis Model of Physical Caregiving with Mediation for Household Income/Assets (Male)



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

Note: PCG= Physical caregiving; LFP= Labor force participation; FWB= Financial well-being

Figure 14. Path Analysis Model of Physical Caregiving with Mediation for Household Income/Assets (Female)



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

Note: PCG= Physical caregiving; LFP= Labor force participation; FWB= Financial well-being

Mediation Effect on Financial Caregivers' Financial Well-Being

Regarding financial caregiving, as shown in Table 24, there was no significant prediction of household income at Time 3 by financial caregiving at Time 1 for males, $B = -.028$, $p = .778$. There was no significant prediction of labor force participation at Time 2 by financial caregiving at Time 1, $B = .012$, $p = .690$. There was a significant positive prediction of household income at Time 3 by labor force participation at Time 2 after adjusting financial caregiving at Time 1, $B = .538$, $p = .001$. There was no significant prediction of household income at Time 3 by financial caregiving at Time 1 after adjusting labor force participation at Time 2, $B = -.035$, $p = .727$. Since there was no significant prediction of household income by financial caregiving, there was no mediation effect of labor force participation on the prediction of household income by financial caregiving for males.

Similarly, there was no significant prediction of household assets at Time 3 by financial caregiving at Time 1, $B = .010$, $p = .900$ (Table 24). There was no significant prediction of labor force participation at Time 2 by financial caregiving at Time 1, $B = .012$, $p = .690$. There was no significant prediction of household assets at Time 3 by labor force participation at Time 2 after adjusting financial caregiving at Time 1, $B = -.023$, $p = .803$. There was no significant prediction of household assets at Time 3 by financial caregiving at Time 1 after adjusting labor force participation at Time 2, $B = .010$, $p = .897$. Since there was no significant prediction of household income by financial caregiving, there was no mediation effect of labor force participation on the prediction of household income by financial caregiving for males.

Table 24. Parameter Estimates of Mediation Model for Financial Caregiving (Male)

Household income	<i>B</i>	β	<i>z</i>	<i>p</i>
Total effect of FCG→FWB	-.028	-.010	-.282	.778
Direct effect of FCG→LFP	.012	.010	.399	.690
Direct effect of LFP→FWB after adjusting for FCG	.538	.248	3.271	.001
Direct effect of FCG→FWB after adjusting for LFP	-.035	-.013	-.349	.727
Household assets	<i>B</i>	β	<i>z</i>	<i>p</i>
Total effect of FCG→FWB	.010	.004	.126	.900
Direct effect of FCG→LFP	.012	.010	.399	.690
Direct effect of LFP→FWB after adjusting for FCG	-.023	-.012	-.250	.803
Direct effect of FCG→FWB after adjusting for LFP	.010	.004	.129	.897

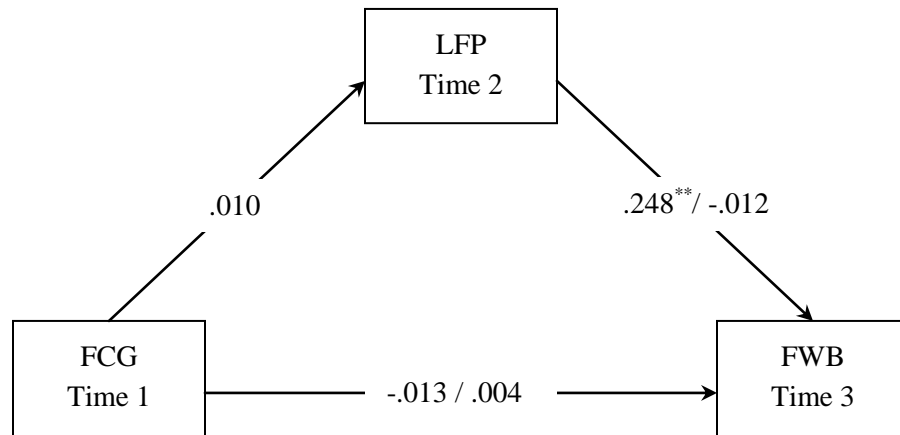
For females, there was no significant prediction of household income at Time 3 by financial caregiving at Time 1 for, $B = .033$, $p = .886$ (Table 25). There was no significant prediction of labor force participation at Time 2 by financial caregiving at Time 1, $B = .037$, $p = .149$. There was no significant prediction of household income at Time 3 by labor force participation at Time 2 after adjusting financial caregiving at Time 1, $B = .470$, $p = .226$. There was no significant prediction of household income at Time 3 by financial caregiving at Time 1 after adjusting labor force participation at Time 2, $B = .016$, $p = .948$. Since there was no significant prediction of household income by financial caregiving, there was no mediation effect of labor force participation on the prediction of household income by financial caregiving for females.

Similarly, there was no significant prediction of household assets at Time 3 by financial caregiving at Time 1, $B = .064$, $p = .775$ (Table 25). There was no significant prediction of labor force participation at Time 2 by financial caregiving at Time 1, $B = .037$, $p = .149$. There was no significant prediction of household assets at Time 3 by labor force participation at Time 2 after adjusting financial caregiving at Time 1, $B = -.036$, $p = .927$. There was no significant prediction of household assets at Time 3 by financial caregiving at Time 1 after adjusting labor force participation at Time 2, $B = .065$, $p = .784$. Since there was no significant prediction of household income by financial caregiving, there was no mediation effect of labor force participation on the prediction of household income by financial caregiving for females.

Table 25. Parameter Estimates of Mediation Model for Financial Caregiving (Female)

Household income	<i>B</i>	β	<i>z</i>	<i>p</i>
Total effect of FCG→FWB	.033	.011	.143	.886
Direct effect of FCG→LFP	.037	.027	1.444	.149
Direct effect of LFP→FWB after adjusting for FCG	.470	.214	1.211	.226
Direct effect of FCG→FWB after adjusting for LFP	.016	.005	.065	.948
Household assets	<i>B</i>	β	<i>z</i>	<i>p</i>
Total effect of FCG→FWB	.064	.049	.286	.775
Direct effect of FCG→LFP	.037	.027	1.444	.149
Direct effect of LFP→FWB after adjusting for FCG	-.036	-.037	-.091	.927
Direct effect of FCG→FWB after adjusting for LFP	.065	.050	.274	.784

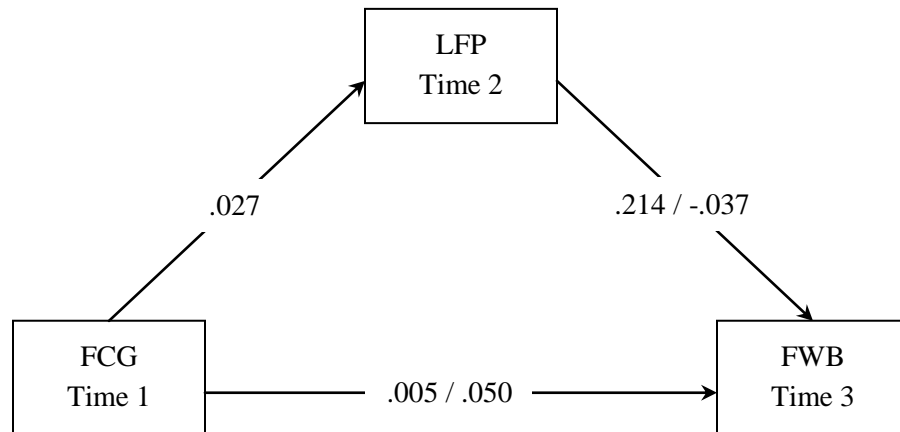
Figure 15. Path Analysis Model of Financial Caregiving with Mediation for Household Income/Assets (Male)



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

Note: FCG= Financial caregiving; LFP= Labor force participation; FWB= Financial well-being

Figure 16. Path Analysis Model of Financial Caregiving with Mediation for Household Income/Assets (Female)



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

Note: FCG= Financial caregiving; LFP= Labor force participation; FWB= Financial well-being

4.3 KOREA

4.3.1 Descriptive analysis

To provide an overview of the study samples, I present several tables for key variables. First, descriptive statistics for the sample at baseline are provided in Table 26. 1,661 respondents met inclusion criteria for the study and the average age of the sample was 57.67 (SD= 5.50). About 49.0% of respondents were male (n= 814) and 51.0% were female (n= 847). 35.0% of respondents were less than elementary school graduates (n= 581), 20.6% had completed middle school (n= 341), 32.1% had completed high school, (n= 533), 12.3% had at least some college (n= 204). 86.4% of the respondents were married (n= 1,435), with the additional 13.6% either divorced or widowed or never married (n= 226). 77.7% of respondents' health status was either good or excellent (n= 1,291) and 22.3% was either fair or poor (n= 370). Respondents had an average 3.92 (SD= 1.90) of siblings and 9.9% of respondents' parents were unable to carry out ADL (n= 164). In addition, approximately 50.9% of the respondents were in the labor force (n= 846) and their weekly work hours were 48.95 (SD= 18.52). With regard to annual household income, the average was ₩22,510,000 (\$19,824) and the median was ₩18,000,000 (\$15,852). In addition, the average annual household assets were ₩199,790,000 (\$175,956) and the median was ₩102,500,000 (\$90,272). Among respondents, 3.3% provided physical caregiving to their parents (n= 55) and the mean caregiving hours the physical caregivers provided was 24.21 hours per week (SD= 25.37). With financial caregiving, 37.3% of respondents provided financial support to their parents (n= 619) and the average amount of money financial caregivers provided was ₩1,390,000 (\$1,224) per year and the median was ₩500,000 (\$440).

Table 26. Demographic Characteristics of Total Sample at Baseline (Korea)

	Total (N= 1,661)	Male (N= 814)	Female (N= 847)	<i>p</i>
Age				
Mean (SD)	57.67 (5.50)	57.74 (5.35)	57.60 (5.65)	.608
Education				
Less than elementary school	581 (35.0%)	24 (18.6%)	105 (81.4%)	< .001
Middle school completed	341 (20.6%)	299 (38.5%)	478 (61.5%)	
High school completed	533 (32.1%)	323 (60.8%)	208 (39.2%)	
At least some college enrollment	204 (12.3%)	168 (75.0%)	56 (25.0%)	
Marital Status				
Married	1,435 (86.4%)	762 (93.6%)	673 (79.5%)	< .001
Divorced; widowed; never married	226 (13.6%)	52 (6.4%)	174 (20.5%)	
Health status				
Excellent; very good; good	1,291 (77.7%)	685 (84.2%)	606 (71.5%)	< .001
Poor; fair	370 (22.3%)	129 (15.8%)	241 (28.5%)	
Sibling				
Mean (SD)	3.92 (1.90)	3.76 (1.90)	4.08 (1.89)	.001
Parents' Health				
Unable to carry out ADL	164 (9.9%)	78 (9.6%)	86 (10.2%)	.379
Able to carry out ADL	1,497 (90.1%)	736 (90.4%)	761 (89.8%)	
Employment Status				
In the labor force	846 (50.9%)	596 (73.2%)	250 (29.5%)	< .001
Not in the labor force	815 (49.1%)	218 (26.8%)	597 (70.5%)	
Weekly hours worked	48.95 (18.52)	49.14 (17.18)	48.40 (22.03)	< .675
Household Income				
Mean	₩22,510,000	₩23,020,000	₩22,010,000	.372
Median	₩18,000,000	₩20,000,000	₩15,000,000	.008
Household Assets				
Mean	₩199,790,000	₩217,000,000	₩183,010,000	.071
Median	₩102,500,000	₩110,000,000	₩92,000,000	.004
Physical Caregiving				
Yes	55 (3.3%)	30 (3.7%)	25 (3.0%)	.242
No	1,606 (96.7%)	784 (96.3%)	822 (97.0%)	
Caregiving hours	24.21 (25.37)	24.33 (28.28)	24.08 (21.95)	.971
Financial Caregiving				
Yes	619 (37.3%)	295 (36.2%)	324 (38.3%)	.213
No	1,042 (62.7%)	519 (63.8%)	523 (61.7%)	
Financial caregiving amount				
Mean	₩1,390,000	₩2,020,000	₩810,000	< .001
Median	₩500,000	₩700,000	₩300,000	< .001

As shown in Table 26, there were a few significant differences by gender on these basic characteristics. Male respondents in this sample were more likely to be more educated, married (93.6% vs. 79.5%), healthier (84.2% vs. 71.5%), in the labor force (73.2% vs. 29.5%), have less siblings, (3.76 vs. 4.08) and earn more household income (\$17,614 vs. \$13,210), and had more household assets (\$96,877 vs. \$80,025) than their female counterparts. Also, male respondents were more likely to provide more amount of financial caregiving to their parents and parent-in-laws than females (\$616 vs. \$264).

4.3.2 Bivariate analysis

Independent-samples t-test and two-way chi-square test were conducted to assess mean and proportion differences by financial caregivers and non-caregivers³. Also, the Mann-Whitney U test was conducted to assess the median difference. Male financial caregivers were more likely to be younger (56.62 vs. 58.38 years), married (97.3% vs. 91.5%), healthier (89.2% vs. 81.3%), in the labor force (78.3% vs. 70.3%), earn more household income (\$21,136 vs. \$13,210) and have more household assets (\$241,631 vs. \$88,229) than their non-caregiver counterparts. Also, 8.3% of respondents with less than elementary school, 30.1% of respondents who had completed middle, 38.4% of respondents who had completed high school, and 47.0% of respondents with at least some college enrollment were financial caregivers (Table 27).

For female, financial caregivers were more likely to be younger, married (56.05 vs. 58.45 years), healthier (79.3% vs. 66.6%), in the labor force (33.6% vs. 27.0%), have more siblings (4.43 vs. 3.87), earn more household income (\$17,614 vs. \$10,568), and have more household

³ Independent t-test and chi square test were not conducted to assess mean differences for physical caregiving because there was not enough sample size (male= 30; female= 25).

assets (\$107,411 vs. \$66,053) than their non-caregiver counterparts. Also, 23.8% of respondents with less than elementary school, 38.5% of respondents who had completed middle, 41.8% of respondents who had completed high school, and 50.0% of respondents with at least some college enrollment were financial caregivers (Table 28).

Table 27. Demographic Characteristics of Financial Caregivers at Time 1 (Korea, male)

	Non-Caregivers (N= 519)	Caregivers (N= 295)	<i>p</i>	Cohen's d Cramer's V
Age	58.38 (5.46)	56.62 (4.96)	< .001	0.333
Education				
Less than elementary school	91.7%	8.3%	< .001	0.165
Middle school completed	69.9%	30.1%		
High school completed	61.6%	38.4%		
At least some college enrollment	53.0%	47.0%		
Marital status				
Married	91.5%	97.3%	.001	0.113
Health status				
Good-Excellent	81.3%	89.2%	.002	0.103
# of living siblings	3.67 (1.93)	3.93 (1.82)	.058	0.136
Parents need help	9.2%	10.2%	.377	0.015
Labor force participation				
In the labor force	70.3%	78.3%	.008	0.087
Weekly hours worked (worker only)	49.65 (17.70)	48.39 (16.39)	.397	0.073
All	33.88 (27.37)	37.63 (24.80)	.051	0.142
Household Income				
Mean	₩20,250,000	₩27,840,000	< .001	0.393
Median	₩15,000,000	₩24,000,000	< .001	
Household Assets				
Mean	₩184,110,000	₩274,360,000	.005	0.221
Median	₩100,180,000	₩133,780,000	< .001	

Table 28. Demographic Characteristics of Financial Caregivers at Time 1 (Korea, female)

	Non-Caregivers (N= 523)	Caregivers (N= 324)	<i>p</i>	Cohen's d Cramer's V
Age	58.45 (5.99)	56.05 (4.67)	< .001	0.454
Education				
Less than elementary school	76.2%	23.8%	.003	0.127
Middle school completed	61.5%	38.5%		
High school completed	58.2%	41.8%		
At least some college enrollment	50.0%	50.0%		
Marital status				
Married	75.5%	85.8%	< .001	0.124
Health status				
Good-Excellent	66.7%	79.3%	< .001	0.136
# of living siblings	3.87 (1.96)	4.43 (1.73)	< .001	0.299
Parents need help	10.1%	10.2%	.534	0.001
Labor force participation				
In the labor force	27.0%	33.6%	0.023	0.071
Weekly hours worked (worker only)	48.75 (22.85)	47.95 (21.05)	0.805	0.036
All	10.59 (22.75)	13.23 (24.13)	0.128	0.114
Household Income				
Mean	₩ 19,140,000	₩ 26,480,000	< .001	0.295
Median	₩ 12,000,000	₩ 20,000,000	< .001	
Household Assets				
Mean	₩ 149,740,000	₩ 234,540,000	0.001	0.250
Median	₩ 75,000,000	₩ 121,960,000	< .001	

5.0 DISCUSSION

Although many studies have examined the relationship between caregiving and employment, fewer have examined the reciprocal relationship using a longitudinal data analysis. Even fewer have examined these relationships in a sample of nationally representative men and women. The current study presents data on the relationship among caregiving, labor force participation, and financial well-being. In this study, no formal interaction test made, certain effects occur for only one gender, type of caregiving, and time period. The following chapter discusses the results of this study and provides some justification for study findings. Subsequently, implications for social work policy and practice are presented and suggestions regarding future research are offered followed by a discussion of the study's limitations.

5.1 DISCUSSION OF RESEARCH FINDINGS

This study examined the relationships among caregiving, labor force participation and financial well-being using longitudinal panel data and compared these relationships between the United States and Korea. Findings of three main research questions are discussed. First, this study examined whether there was a reciprocal relationship between caregiving and labor force participation in the United States. Second, this study investigated the change in family caregivers'

financial well-being in the United States. Third, this study compared the United States and Korea in order to investigate the differences in family caregiving.

5.1.1 Reciprocal relationship between caregiving and labor force participation

This study investigated the reciprocal relationship between caregiving and labor force participation. First, it was hypothesized that physical caregivers have lower probability of labor force participation than non-physical caregivers. At the same time, those in the labor force are less likely to assume physical caregiving than those not in the labor force. In order to test the study hypotheses, the model included the following hypothesized relationships: two cross-lagged structural paths from physical caregiving at Time 1 to labor force participation at Time 2 and from physical caregiving at Time 2 to labor force participation at Time 3 (Hypothesis 1), and two cross-lagged structural paths from labor force participation at Time 1 to physical caregiving at Time 2 and labor force participation at Time 2 to physical caregiving at Time 3 (Hypothesis 2). If cross-lagged effects in both directions are significant, the standardized parameters estimates of both cross-lagged effects are compared to identify the causality between physical caregiving and labor force participation.

Second, the same hypothesis but with different direction was applied to financial caregiving. It was hypothesized that financial caregivers have higher probability of labor force participation than non-financial caregivers. At the same time, those in the labor force are more likely to assume financial caregiving than those not in the labor force. In order to test the study hypotheses, the model included the following hypothesized relationships: two cross-lagged structural paths from financial caregiving at Time 1 to labor force participation at Time 2 and from financial caregiving at Time 2 to labor force participation at Time 3 (Hypothesis 3), and

two cross-lagged structural paths from labor force participation at Time 1 to financial caregiving at Time 2 and labor force participation at Time 2 to financial caregiving at Time 3 (Hypothesis 4). If cross-lagged effects in both directions are significant, the standardized parameters estimates of both cross-lagged effects are compared to identify the causality between financial caregiving and labor force participation.

The results showed that female respondents who provided physical care at Time 2 were less likely to be in the labor force at Time 3, whereas females who were in the labor force were not significantly associated with providing physical care. These findings complement the findings of Pavalko and Artis (1997) and Berecki-Gisolf et al. (2008) that women's employment status was not associated with taking on care responsibility, whereas initiation of caregiving was related to labor force withdrawal. Our findings suggest that when women assumed the role of physical care to parents, they stopped working and also, they assumed the care responsibility regardless of their employment status. This result suggests that family care responsibilities may be an important barrier to encourage women to stay in the labor force.

While most studies limited analysis to a female sample, this study used both males and females in order to distinguish the impact of caregiving on males' versus females' labor force participation. The results showed that male respondents who were in the labor force at Time 1 were less likely to provide physical care at Time 2, whereas males who provided physical care were not significantly associated with participating in the labor force. Consistent with prior studies, caregiving responsibilities were more likely to affect females' labor force participation (Henz, 2006; Hirschfeld & Wikler, 2003). The findings suggest that gender plays an important role in the study of family caregiving and labor force participation.

One of the strengths of this study is that using a longitudinal design, it investigated the direction of causality of whether caregivers left the labor force due to care demands, or whether unemployed individuals assumed caregiving. The findings showed that the second hypothesis was partially supported in the male sample and the first hypothesis was partially supported in the female sample. In summary, the results of a cross-lagged panel analysis showed that there was no reciprocal relationship between physical caregiving and labor force participation and there was only unidirectional relationship between the two. Although the findings presented above suggest that there was only a unidirectional relationship between physical caregiving and labor force participation, the consequences of caregiving and employment were different between males and females.

Financial Caregiving

Financial caregiving has received little attention in the literature; this study investigated caregiving in terms of both physical and financial care. Previous studies suggest that a small number of adult children transferred money to their parents in the U.S. (Boaz, et al., 1999; McGarry & Schoeni, 1995) and about 20% provided physical assistance, whereas just 12% gave financial assistance (Freedman, et al., 1991). However, unlike previous findings, this study showed that about 9.6% provided physical care, whereas 17.1% provided financial care. Again, gender differences were identified in terms of types of caregiving. Among males, about 6% provided physical care and 18.6% provided financial care, whereas among females, about 12.1% provided physical care and 16.0% provided financial care.

As with the reciprocal relationship between assuming financial care and labor force participation, unlike physical caregiving, no significant results were found for both males and

females. One of the potential explanations is that it is not a financial burden for wealthier individuals to provide financial care. Findings showed that financial caregivers had higher levels of household income and assets than physical caregivers and the overall sample. That is, they provide financial care because they can afford it and thus, it might not affect their labor force participation. In addition, providing financial care did not change their financial well-being.

However, there are reasons for caution in interpreting the results of financial caregiving. By definition, financial caregiving referred to giving financial support or assistance to parents and respondents were not asked if their parents were functionally impaired. That is, respondents might provide financial care regardless of their parents' needs for help with personal activities. It might be useful to distinguish the differences in the meaning between physical caregiving and financial caregiving.

This study improves upon existing findings of the impact of elder care on employment by using recent national data, multiple observations on each respondent, and applying advanced statistical methodology of cross-lagged panel model. The next section discusses the results of the second research question, what the change over time in family caregivers' financial well-being is and the mediation effect of labor force participation.

5.1.2 Trajectory of financial well-being and mediation effect of labor force participation

This study also investigates the impact of caregiving on the patterns of change in financial well-being over time. First, it is hypothesized that physical caregivers experience a significant decrease in financial well-being over time (Hypothesis 5). Second, it is hypothesized that financial caregivers experience a significant change in the financial well-being over time (Hypothesis 6). Although previous literature revealed that assuming the caregiver role worsened

women's financial well-being (Wakabayashi & Donato, 2006), unfortunately, none of the hypotheses in this study were supported.

One of the reasons could be due to the short measurement period. Caregiving and financial well-being was measured during only four years. This may not be enough time to measure the effect of caregiving on household income and household assets. Previous studies used a longer time span and had significant results. For example, Wabayashi and Donato (2006) investigated whether caregiving affected women's risk of living below the poverty threshold, receiving public assistance, and being covered by Medicaid, and they found a negative impact of caregiving on financial well-being eight years later. Likewise, McNamara (2004)'s study was conducted over an eleven year period to smooth out any fluctuations in midlife characteristics that may occur in individual interview years. The results demonstrated that caregiving in midlife was associated with living in near poverty in later life. As previous studies found (Carmichael & Charles, 2003), this study showed that physical caregivers earned lower household income than non-caregivers (20% for males and 5% for females). However, the household income and household assets were stable over time between 2006, 2008 and 2010. The effects of caregiving on financial well-being might be identified when examined in the long term (Lai & Leonenko, 2007).

Another possibility is that this study examined the relationship without considering financial status. Previous studies demonstrated the relationship between caregiving and living in poverty using low-income women or with poor financial status (Lai & Leonenko, 2007; McNamara, 2004). Since caregivers with adequate financial resources are more able to alleviate the impact of caregiving on financial well-being (Lai & Leonenko, 2007), a study that does not distinguish the level of financial status might hide the actual financial impacts of caregiving. As

Van Houtven et al. (2010) suggested, caregiver men with lower wages drop out of the labor force and higher paid men are still in the labor force, so the average wage increases among workers.

Finally, one possible explanation for this lack of evidence which financial well-being has changed over time may be that this study measured financial well-being using household income and assets. Therefore, though individuals' financial well-being might change over time even within a four year time span, it might not have an impact on the household income and assets because it was compensated by other household members.

5.1.3 Comparison of the United States and Korea

This study compared caregiving, labor force participation, and financial well-being in the U.S. and Korea to examine how two diverse cultures were approaching the provision of care for the older adults. In the process of addressing family care in the U.S. and Korea, a number of interesting findings emerged. Previous research has pointed to underdevelopment of formal service in Korea relative to the U.S. as evidence that families provide more support to parents in a country without universally available formal services. This study suggests that cultural and policy differences are important in understanding cross-national differences in terms of family care. Generally, about 75% of Americans were married, while 86.4% of Koreans were married; 57% of Americans were in the labor force, whereas 50.9% of Koreans were in the labor force. Examined by gender, 64% of males and 52% of females were in the labor force in the U.S., whereas 73% of males and 29% of females were in the labor force in Korea. About 9% of Americans provided physical care to their parents, while 3% of Koreans provided physical care. By gender, 6% of males and 12% of females were physical caregivers in the U.S. For Korean physical caregivers, 3.7% of males and 3.0% of females provided physical care to their parents.

Another cultural difference found was that Korean caregivers provided more financial support. About 17% of Americans provided financial care, whereas 37% of Koreans made such transfers. This supports the findings of Kim (2009) that at least 40% of caregivers gave financial transfers to their parents in Korea, whereas only 17% of American caregivers provided financial support. Due to differences in filial responsibility, which serves as a moral basis for family care and influences individual behaviors as well as eldercare policy in Korea, Korean caregivers perceive and react to the caregiving responsibility differently than Americans. That is, Koreans assume financial care as well as physical care as their responsibility and thus, the degree of responsibility might be different between Korean and American caregivers. Adult children are expected to repay their parents for the care received in their youth by providing financial support. On the other hand, in the United States, social norms like filial piety are not as explicit as in Korea but family members are still the primary providers of parental care.

The response rate of physical caregiving in Korea was too low and thus, comparison of physical caregivers between two countries was impossible with the current data. Perceptions of caregiving are likely to be influenced by cultural factors such as customs, values, and attitudes (Hernandez, 1991). Culturally, Koreans may have considerably different values and beliefs about families, and they might take providing care for granted and do not consider it as an extra responsibility. Therefore, they might not have given an appropriate answer to this question. Also, given the high rate of people living with adult children, Koreans might not consider their living arrangement as a behavior of caregiving even though they are already caregivers. Therefore, though both surveys of the U.S. and Korea asked the same questions to measure caregiving, it can be argued that the validity of the measurement may be questionable in a cross-cultural comparison of caregivers.

The comparative and cross-national perspective promotes a broader view of the eldercare and can provide insight and possibilities that may be modified and exchanged between the two countries. As the United States may benefit from Korea's strong emphasis on family care as a component of policy, Korea may benefit by incorporating the United States' experiences in developing the eldercare services and systems for both caregivers and care receivers.

5.2 IMPLICATIONS FOR SOCIAL WORK POLICY AND PRACTICE

These empirical findings have significant implications for social work policy and practices. First, these findings emphasize the importance of supporting the family caregiver, especially females. Despite females' unemployment due to assuming the role of caregiver, family caregiving is still not recognized as a social work policy. In the long term, the substantial earnings loss for female caregivers raises a question about their retirement income because Social Security is largely determined by earnings, and female caregivers accumulate fewer future Social Security benefits. Moreover, women leaving the labor force may lose their employer-sponsored health insurance. This might contribute to poverty among elderly females. Actually, for about 20% of older adults, primarily women, Social Security is the only source of income. The poverty rate is highest among older women, and 13% of women age 65 and over are poor compared to 7% of men (Administration on Aging, 2009). Especially because women already experience a break in employment due to childcare, they might be particularly vulnerable to not being able to accumulating wealth in later life. In addition, given that females age 65 and older are three times more likely to be widowed than their males counterparts (Administration on Aging, 2009), females might live on their own in later life.

Second, there is the need to develop public policies and programs aimed at assisting caregivers in the labor market and improving caregiving outcomes. Specifically, increased availability of publicly supported home care systems and caregiving leave has most influenced flexibility in workplace and increased the possibility of remaining in the labor force (Pavalko & Henderson, 2006). Family and Medical Leave (FMLA), which was passed in 1993, may be an option for some family caregivers to combine caregiving responsibilities and employment (Fredriksen-Goldsen & Scharlach, 2001). It allows workers to return to their jobs after a caregiving leave of up to 12 weeks during a 12-month period. However, it offers only unpaid leave except in California and is available only among workers who work in larger companies with 50 or more employees.

Third, as Neal and Hammer (2007) suggested, the workplace can be a primary arena for supporting working caregivers to manage care and work responsibilities. Given that employed caregivers are more likely to use caregiver support services than non-employed caregivers (Scharlach, et al., 2007), several programs or policies at the workplace benefit the employed caregivers. Family-friendly or work-family policies by employers had a positive effect on caregivers in balancing work and caregiving (Bowen, 1995; Lambert, 2006; Perry-Smith & Blum, 2000; Solomon, 1994). A lack of flexibility in work schedules leads to role conflict of caregivers and workers. While workplace supports including flexible work schedules, paid leave, or supportive supervisors, and co-workers positively influence family caregivers' employment outcome by reducing stress and role strain and meeting caregiving responsibilities (Allen, 2001; Allen, et al., 2000; Kossek, Colquitt, & Noe, 2001; Swanberg, 2006), limited job flexibility and fewer workplace supports have been shown to have a negative impact on employed caregivers by increasing absenteeism, being late for the office, taking time off without pay and thus

decreasing productivity (Fredriksen & Scharlach, 1997; Scharlach, 1994; Scharlach, Sobel, & Roberts, 1991).

5.3 LIMITATIONS AND FUTURE RESEARCH

Despite the numerous strengths of the current study, there are several limitations that should be addressed. First, there are several measurement issues that need to be acknowledged as limitations of the current study design. The reliance on self-reported data for several central study variables including physical caregiving and financial caregiving is a cause for concern. The use of self-reported data can be problematic because of a number of issues including possible response distortions such as over or under reporting. Additionally, the low response rate to the number of hours of care provided and the amount of money given was a limitation. Another measurement issue concerns the variables used to assess physical and financial caregiving. There exists the possibility that the results of the current study were biased because of the lack of objective measures of caregiving. Caregiving is defined as “if respondents provided help with ADL during the last 12 months” in the survey, but depending on the personal perspective, respondents might not consider their behaviors an extra responsibility. Especially, in Korean culture, since people take caring for their parents for granted, the response of caregiving might not reflect the reality correctly, as reflected in the lower response rate of physical caregiving in Korea.

The current study indicated that there were no significant changes in financial well-being over time. The three wave longitudinal panel designs with 2 year intervals might be too short for research on caregivers’ household income and household assets, and future research should

attempt a replication of this study using longer time intervals, such as 5 or 10 years apart. In addition, the size of households supported by household income and assets was not addressed. Therefore, there is the possibility of both overestimation and underestimation on the household income and assets.

To overcome the above limitations, the current study has a number of implications for further research in the field. Many hypotheses in the current study were either partially supported or not supported. There is still a great deal to be learned about the reciprocal relationship between caregiving and labor force participation as well as financial well-being. It is imperative that the relationship among these variables be further examined in larger studies including more caregivers across various subgroups by race and financial status.

Additional research is needed to examine the racial/ethnic differences and focus on the experience of African Americans, Asians, and Latinos assuming more care responsibilities and putting more values on filial piety, as suggested previous literature (Dilworth-Anderson, et al., 2002; Napoles, et al., 2010). Future research also should examine the socioeconomic differences, specifically the difference in financial status. Poor caregivers are more likely to take on heavy responsibilities and have the most difficulty meeting the expense of hiring caregivers for the parents and thus, might leave the labor force to take on caregiving roles. Therefore, caregivers might have a different impact on labor force participation and financial well-being according to their financial status. Additionally, it would have been informative to include a measure of parents' health reported by the parents rather than caregivers.

Finally, it was not possible to compare between the U.S. and Korea in terms of the impact of caregiving on labor force participation and financial well-being because of the unavailability of Korean data. Longitudinal data of Korean population can make it possible to examine the

reciprocal relationship between caregiving and labor force participation as well as the change in financial well-being. With this analysis, the comparison of culture and policy between two countries will be possible.

5.4 CONCLUSIONS

The current study examined the reciprocal relationship between caregiving and labor force participation to clarify previous equivocal findings. Results suggest that while caregiving had a negative impact on women's labor force participation, employment status was not related to assume the role of physical caregiver. In addition, men's labor force participation had a negative impact on taking on the physical care, whereas the role of physical caregiver was not related to their employment status. However, the impact of caregiving on change in financial well-being and the mediation effect of employment on financial well-being were not identified. Findings from this study provide a greater understanding of gender differences in the relationship between caregiving and labor force participation. Pressures on families likely will rise in the near future as the number of older adults increases and as women's labor force participation continues to grow. The results of this study will aid to prepare the aging population and provide evidence and rationales for social policy to support family caregivers.

APPENDIX A

MISSING ANALYSIS RESULTS

Missing by year and gender

	2006	2008	2010
Total	0	223(6.3%)	461 (13.0%)
Male	0	101 (7.0%)	205 (14.2%)
Female	0	122 (5.8%)	256 (12.2%)

Demographic Characteristics of observed and missing case at Time 2 (Total)

	observed	missing	<i>p</i>	Cohen's d Cramer's V
Time 1 (2006)				
Physical caregiving	320 (9.7%)	20 (9.0%)	.434	0.005
Caregiving hours	8.06	9.93	.700	0.089
Financial caregivers	567 (17.2%)	34 (15.5%)	.292	0.011
Amount of caregiving	3,621	3,039	.686	0.083
Median	1,500	1,000	.654	
Labor force participation	1,887 (57.0%)	128 (57.4%)	.482	0.002
Weekly hours worked	39.00	40.60	.226	0.109
Household Income				
Mean	\$81,426	\$86,602	.469	0.050
Median	\$55,168	\$53,820	.343	
Household Assets				
Mean	\$545,643	\$605,711	.687	0.028
Median	\$210,000	\$228,600	.335	

Demographic Characteristics of observed and missing case at Time 3 (Total)

	observed	missing	<i>p</i>	Cohen's d Cramer's V
Time 1 (2006)				
Physical caregiving	299 (9.7%)	41 (8.9%)	.322	0.009
Caregiving hours	7.98	9.52	.663	0.073
Financial caregivers	532 (17.4%)	69 (15.1%)	.125	0.020
Amount of caregiving	3,453	4,797	.207	0.192
Median	1,500	2,000	.083	
Labor force participation	1,767 (57.5%)	248 (53.8%)	.074	0.025
Weekly hours worked	39.12	38.95	.854	0.012
Household Income				
Mean	\$81,690	\$82,167	.926	0.005
Median	\$55,400	\$54,809	.476	
Household Assets				
Mean	\$556,469	\$502,536	.616	0.025
Median	\$213,096	\$188,000	.133	
Time 2 (2008)				
Physical caregiving	398 (13.3%)	36 (12.4%)	.374	0.007
Caregiving hours	6.91	3.12	.002	0.231
Financial caregivers	526 (17.6%)	43 (14.9%)	.142	0.020
Amount of caregiving	4,124	3,909	.879	0.028
Median	1,500	2,000	.155	
Labor force participation	1,549 (51.3%)	141 (48.0%)	.148	0.019
Weekly hours worked	38.17	38.15	.989	0.001
Household Income				
Mean	\$86,855	\$78,482	.395	0.052
Median	\$58,717	\$51,690	.128	
Household Assets				
Mean	\$495,921	\$433,112	.410	0.050
Median	\$210,000	\$179,000	.050	

Demographic Characteristics of observed and missing case at Time 2 (Male)

	observed	missing	<i>p</i>	Cohen's d Cramer's V
Time 1 (2006)				
Physical caregiving	80 (6.0%)	6 (6.1%)	.551	0.001
Caregiving hours	8.28	0.67	< .001	0.523
Financial caregivers	244 (18.3%)	23 (23.5%)	.128	0.034
Amount of caregiving	4,192	3,043	.232	0.156
Median	2,000	1,000	.432	
Labor force participation	864 (64.5%)	58 (57.4%)	.095	0.038
Weekly hours worked	42.36	43.76	.466	0.098
Household Income				
Mean	\$89,838	\$93,493	.747	0.033
Median	\$63,000	\$57,004	.100	
Household Assets				
Mean	\$627,948	\$471,294	.613	0.052
Median	\$209,500	\$167,580	.070	

Demographic Characteristics of observed and missing case at Time 3 (Male)

	observed	missing	<i>p</i>	Cohen's d Cramer's V
Time 1 (2006)				
Physical caregiving	76 (6.2%)	10 (4.9%)	.303	0.018
Caregiving hours	7.00	13.44	.367	0.443
Financial caregivers	229 (18.6%)	39 (19.0%)	.517	0.001
Amount of caregiving	3,922	5,262	.377	0.370
Median	2,000	2,500	.142	
Labor force participation	806 (65.2%)	118 (57.0%)	.011	0.063
Weekly hours worked	42.44	42.42	.986	0.028
Household Income				
Mean	\$90,267	\$89,051	.883	0.174
Median	\$63,000	\$61,048	.703	0.212
Household Assets				
Mean	\$644,482	\$451,078	.393	0.105
Median	\$210,900	\$185,200	.258	0.109
Time 2 (2008)				
Physical caregiving	103 (8.6%)	11 (8.7%)	.543	0.001
Caregiving hours	9.36	3.53	.382	0.278
Financial caregivers	228 (19.0%)	21 (16.5%)	.289	0.019
Amount of caregiving	4,857	4,088	.717	0.092
Median	1,500	2,500	.423	
Labor force participation	699 (57.8%)	68 (52.3%)	.135	0.033
Weekly hours worked	41.68	40.81	.611	0.064
Household Income				
Mean	\$99,025	\$87,972	.593	0.049
Median	\$65,986	\$64,488	.827	
Household Assets				
Mean	\$527,217	\$431,275	.411	0.076
Median	\$212,350	\$201,250	.179	

Demographic Characteristics of observed and missing case at Time 2 (Female)

	observed	missing	<i>p</i>	Cohen's d Cramer's V
Time 1 (2006)				
Physical caregiving	240 (12.2%)	14 (11.4%)	.476	0.005
Caregiving hours	7.9	13.90	.348	0.258
Financial caregivers	323 (16.4%)	12 (9.8%)	.016	0.047
Amount of caregiving	3,192	3,028	.604	0.024
Median	1,500	1,100	.528	
Labor force participation	1,023 (51.9%)	70 (56.9%)	.140	0.026
Weekly hours worked	36.28	38.05	.311	0.123
Household Income				
Mean	\$75,707	\$80,896	.572	0.053
Median	\$50,200	\$53,650	.930	
Household Assets				
Mean	\$489,687	\$716,991	.250	0.179
Median	\$210,500	\$285,000	.718	

Demographic Characteristics of observed and missing case at Time 3 (Female)

	observed	missing	<i>p</i>	Cohen's d Cramer's V
Time 1 (2006)				
Physical caregiving	223 (12.2%)	31 (12.1%)	.540	0.000
Caregiving hours	8.32	8.25	.988	0.003
Financial caregivers	303 (16.5%)	32 (12.5%)	.043	0.039
Amount of caregiving	3,100	4,200	.471	0.150
Median	1,500	2,000	.444	
Labor force participation	961 (52.3%)	132 (51.4%)	.437	0.005
Weekly hours worked	36.43	36.07	.778	0.030
Household Income				
Mean	\$75,920	\$76,654	.911	0.177
Median	\$50,436	\$49,388	.409	
Household Assets				
Mean	\$497,250	\$543,742	.584	0.173
Median	\$215,000	\$194,500	.313	
Time 2 (2008)				
Physical caregiving	295 (16.4%)	25 (15.3%)	.407	0.008
Caregiving hours	6.05	2.94	.302	0.215
Financial caregivers	298 (16.7%)	22 (13.7%)	.192	0.022
Amount of caregiving	3,607	3,718	.953	0.015
Median	1,500	2,000	.290	
Labor force participation	850 (47.0%)	73 (44.5%)	.295	0.014
Weekly hours worked	35.33	35.79	.763	0.035
Household Income				
Mean	\$78,706	\$70,959	.328	0.080
Median	\$52,399	\$43,074	.044	
Household Assets				
Mean	\$474,965	\$434,567	.688	0.033
Median	\$207,300	\$165,150	.147	

APPENDIX B

MCNEMAR TEST AND REPEATED-MEASURE ANOVA RESULTS

Total Population

Health status	2006	2008			2008	2010			2006	2010		
		No	Yes	<i>P</i>		No	Yes	<i>P</i>		No	Yes	<i>P</i>
		No	507	197		< .001	No	472		221	.562	No
		Yes	280	2,326		Yes	208	2,115		Yes	260	2,117
Marital status	2006	2008			2008	2010			2006	2010		
		No	Yes	<i>P</i>		No	Yes	<i>P</i>		No	Yes	<i>P</i>
		No	768	37		< .001	No	734		48	.001	No
		Yes	94	2,411		Yes	89	2,145		Yes	163	2,161
Parents need help	2006	2008			2008	2010			2006	2010		
		No	Yes	<i>P</i>		No	Yes	<i>P</i>		No	Yes	<i>P</i>
		No	1,794	322		< .001	No	1,274		301	< .001	No
		Yes	123	478		Yes	72	359		Yes	90	257
Household income	Mean	2006	2008	<i>P</i>	Mean	2008	2010	<i>P</i>	Mean	2006	2010	<i>P</i>
		\$81,753	\$86,112	.222		\$86,112	\$80,705	.314		\$81,753	\$80,705	1.000
		\$55,108	\$57,920	< .001		\$57,920	\$52,188	< .001		\$55,108	\$52,188	.273

Male

		2008				2010				2010					
		No	Yes	<i>P</i>			No	Yes	<i>P</i>			No	Yes	<i>P</i>	
Health status	2006	No	195	72	< .001	2008	No	196	93	.395	2006	No	169	72	< .001
		Yes	135	937			Yes	106	815			Yes	142	853	
		No	Yes	<i>P</i>			No	Yes	<i>P</i>			No	Yes	<i>P</i>	
Marital status	2006	No	208	14	.024	2008	No	193	21	.560	2006	No	179	28	.048
		Yes	30	1088			Yes	26	970			Yes	46	983	
		No	Yes	<i>P</i>			No	Yes	<i>P</i>			No	Yes	<i>P</i>	
Parents need help	2006	No	739	140	< .001	2008	No	518	121	< .001	2006	No	524	176	< .001
		Yes	48	180			Yes	29	147			Yes	36	98	
Household income		2006	2008	<i>P</i>		2008	2010	<i>P</i>		2006	2010	<i>P</i>			
	Mean	\$90,094	\$97,952	.549	Mean	\$97,952	\$90,392	1.000	Mean	\$90,094	\$90,392	1.000			
	Median	\$62,655	\$65,986	.001	Median	\$65,986	\$58,800	.004	Median	\$62,655	\$58,800	.399			

Female

2008						2010					2010							
Health status	2006	No		Yes		<i>P</i>	2008	No		Yes		<i>P</i>	2006	No		Yes		<i>P</i>
		No	Yes	No	Yes			No	Yes	No	Yes							
		No	312	125	< .248			No	276	128	.099			No	270	124	< .748	
		Yes	145	1,389		Yes	102	1,300		Yes	118	1,324						
2008						2010					2010							
Marital status	2006	No		Yes		<i>P</i>	2008	No		Yes		<i>P</i>	2006	No		Yes		<i>P</i>
		No	Yes	No	Yes			No	Yes	No	Yes							
		No	560	23	< .001			No	541	27	< .001			No	501	41	< .001	
		Yes	64	1,323		Yes	63	1,175		Yes	117	1,178						
2008						2010					2010							
Parents need help	2006	No		Yes		<i>P</i>	2008	No		Yes		<i>P</i>	2006	No		Yes		<i>P</i>
		No	Yes	No	Yes			No	Yes	No	Yes							
		No	1,055	182	< .001			No	756	180	< .001			No	764	236	< .001	
		Yes	75	298		Yes	43	212		Yes	54	159						
Household income	Mean	2006		2008		<i>P</i>	Mean	2008		2010		<i>P</i>	Mean	2006		2010		<i>P</i>
		76,009	78,061	78,061	74,188			76,009	74,188									
		50,256	51,424	.002	51,424			48,526	.014	50,256	48,526			.488				

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