

The Receipt of Care and Depressive Symptoms in Later Life

by

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In memory of my parents,
Byungdon Kwak and Sookran Choi

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ABSTRACT

Apace with the rapid increase in the aging population and steep reductions in federal funding for long-term care in the U.S., caregiving is emerging as an important issue for many families. Although caregiving relationships include both a caregiver and a care-recipient, existing research has focused heavily on caregivers and the experiences of care-receiving older adults have been less-well documented. This three-essay dissertation explores how the receipt of care influences depressive symptoms among older adults by analyzing nationally representative data from the Health and Retirement Study.

Based on identity theory, the first essay examines the extent to which self-perceptions of aging explain the relationships among the receipt of care, perceived loss of control, and depressive symptoms among older adults. Structural equation modeling was used. Results indicated that self-perceptions of aging mediated the relationship between receipt of care and perceived loss of control as well as the relationship between receipt of care and depressive symptoms. That is, older adults who received a greater amount of care were more likely to perceive their aging negatively which, in turn, increased perceived loss of control and depressive symptoms.

The second essay investigated whether older adults who receive care from their spouse are more vulnerable to the negative impact of their spouse's physical and mental health than older adults who do not receive care by using a linear mixed model. Results indicated that the receipt of care moderates only the impact of wives' mental health on husbands' depressive symptoms. Husbands who receive care from their wives are more sensitive to their wives' depressive symptoms than husbands who do not receive care.

Finally, the third essay assessed to what extent the effects of positive and negative sup-

port from spouses are stronger for caregiving couples than for non-caregiving couples. Structural equation modeling demonstrated that positive support from spouses is more important for wives who provide or receive care than for those in non-caregiving relationships. No differences in the effects of negative support from spouses were observed between caregiving and non-caregiving couples.

Together, these three essays make contributions to the fields of family caregiving, mental health in later life, identity changes related to impairment and dependency in later life, interrelations of health between spouses, and dyadic analyses based on couples.

CHAPTER I

INTRODUCTION

1.1 Purposes of the Dissertation

Apace with the rapid increase in the aging population and steep reductions in federal funding for long-term care in the U.S., caregiving is emerging as an important issue for many families (Gitlin & Schulz, 2012). Data from the National Long-Term Care Survey suggest that 3.5 million informal caregivers provided assistance related to activities of daily living or instrumental activities of daily living to older adults aged 65 and over (National Institute on Aging and Duke University, 2004). Although families provide extensive care to older adults (Arno et al., 1999), the effects of such arrangements on care recipients is not well understood.

This dissertation aims to understand the relationship between the receipt of care and psychological outcomes. More specifically, this dissertation examines how care-receiving affects depressive symptoms. This dissertation focuses on the following three research aims: (1) to examine the extent to which self-perceptions of aging explain the relationships among the receipt of care, perceived loss of control, and depressive symptoms among older adults; (2) to test whether older adults who receive care from their spouse are more vulnerable to the negative impact of their spouse's physical and mental health than older adults who do not receive care; and (3) to investigate the extent to which caregiving and care-receiving affect the relationship between social support from a spouse (i.e., positive

and negative support) and their partner's depressive symptoms.

1.2 Significance of the Dissertation Topic

As the aging population increases, there are growing demands for care for older adults with chronic illness and disabilities. About 35% of older adults who reside in the community reported limitations of activity because of chronic illness (Rice & Fineman, 2004). By 2030, the number of people with chronic conditions is projected to be 171 million, almost half of the population (Rice & Fineman, 2004). Estimates indicate that roughly 10% of people aged 65 and over receive one or more types of assistance related to self-care (Freedman et al., 2004).

Policies in the United States build upon the ideology of self-help, self-support, and self-sufficiency (Barrett & McIntosh, 1982) and emphasize the primary responsibility of family on supporting individuals with the need for care (Esping-Andersen, 1999). To reduce the health care cost, social policies in the U.S. are structured for individuals who need care to rely heavily on unpaid labor of families, specifically women (Glazer, 1990). Given the cultural beliefs and the structure of social services that place the primary responsibilities on families in caring for sick and old persons (Levitsky, 2008), older adults with needs for care in the United States rely far more on informal sources, such as their families, than formal care sources (Cantor, 1991). Among older adults who reside in community and have functional impairments related to activities of daily living or instrumental activities of daily living, ninety-two percent received informal care, such as help from families while only 13 percent rely on paid long-term care services (Kaye et al., 2010). Estimates show that about 1 in 20 adults in the U.S. provide care or assistance to persons aged 65 and over who live in the same household because of disabilities or chronic illness, and 1 in 10 provide help to older persons who are not in the same household (Marks, 1996).

Changes in health and increasing dependency in later life are closely associated with increased risk for depression among older adults (Fiske et al., 2009; Schieman & Plickert,

2007; Yang & George, 2005; Zeiss et al., 1996). In particular, older adults who need help with their daily activities from others report high rates of depression. Bruce (2002) found that 14% of elderly patients receiving home health care for medical problems were clinically diagnosed with major depression, and among them, 71% were experiencing their first episode of depression¹. Using a nationally representative data over five years, Lin and Wu (2011) found that the receipt of informal care was related to increased depressive symptoms over time. Increased risk for depressive symptoms among care-receiving older adults is particularly problematic because greater depressive symptoms predict poorer health behaviors, greater functional impairment, and worse quality of life (Blazer, 2003). These negative health outcomes resulting from depression ultimately increase risk for institutionalization and mortality (Ganzini et al., 1997; Kron et al., 2003).

The vulnerability of care-receiving older adults to depressive symptoms has been well-established, yet how and why the receipt of care can result in poor mental health outcomes for older adults has received relatively little attention. The topic of the effects of care receipt on mental health has been approached through two different research angles.

First, the literature on social support has found that a variety of types of social support provide benefits for mental health in later life. Existing studies found that anticipated social supports (e.g., a belief that significant others will provide help in the future if help is needed) (Ingersoll-Dayton & Antonucci, 1988; Krause, 1997) and emotional support (e.g., having a confidant)(George et al., 1989; Oxman et al., 1992; Yang, 2006) strongly contribute to enhancing older adults' psychological well-being. However, the impact of instrumental support (i.e., the receipt of informal care) on depressive symptoms among older adults has appeared not to be beneficial as other types of support. Studies found that the effects of instrumental support on older adults are minimal or vary by the amount of care provided (Krause, 1987, 1990; Martire et al., 2002; Silverstein et al., 1996) or have negative

¹The prevalence of major depression in adults aged 65 and older ranges from 1% to 5% in the United States while clinically significant depressive symptoms are found in approximately 8% to 16% of community-dwelling older adults (Blazer, 2003).

effects on older adults' mental health (Cahill et al., 2009; Dyeson, 2000; Lee et al., 1995; Lin & Wu, 2011). Examining why specific types of support, such as instrumental support, do not always provide benefits for support receivers, however, has been overlooked in the literature.

Second, the caregiving literature has studied the effects of care receipt on older adults' mental health. Although caregiving relationships include both caregivers and care recipients, the focus of existing research has been on caregivers. Within existing research on caregiving, the provision of care has often been viewed as a source of physical strain and psychological distress (Pearlin et al., 1990), and caregiving tasks have been regarded as demanding and difficult ones that cause negative effects on caregivers (Deimling & Bass, 1986; Eters et al., 2008; Schulz & Beach, 1999). The belief that caregiving has exclusively adverse effects on caregivers and constitutes a one-sided sacrifice that family members make for their older relatives underlies this primary focus of caregiving research on these negative effects experienced by caregivers.

While such effects on caregivers are important, care recipients are often invisible in caregiving research because they are perceived as passive receivers of help and are assumed to always receive benefits from the receipt of care. There is only a small body of literature that examined the care recipients' perspective on receiving care from their families, compared to a much larger number of studies on caregivers (Brown, 2007; Cox & Dooley, 1996; Newsom, 1999; Ward-Griffin et al., 2006; Wolff & Agree, 2004). In order to attain a more comprehensive picture of caregiving, it is crucial to understand not only how caregiving influences family members who provide assistance for older adults but also how the receipt of care affects older adults who rely on assistance from their families. If the receipt of care has negative effects on older adults' mental health, it is also important to understand when and why the receipt of care is not beneficial for older adults.

Understanding factors contributing to depressive symptoms of older adults who receive care is crucial for improving the quality of care for older adults and developing interven-

tions for caregiving families and their care recipients. This dissertation goes beyond the previous work by exploring factors that contribute to poor mental health outcomes for care-receiving older adults, which have been overlooked in the existing literature.

1.3 Organization of the Dissertation

This dissertation investigates how the receipt of care influences depressive symptoms among older adults. Specifically, this dissertation examines three aspects of the relationship between the receipt of care and depressive symptoms, using divergent theoretical frameworks for each aspect. This dissertation is comprised of three separate studies. Each study addresses one of the three research questions.

Based on identity theory (Stets & Turner, 2006), Chapter 2 addresses self-perceptions of aging in order to further explore the relationship between the receipt of care and depression. Identity theory suggests that, since individuals internalize societal values and attitudes toward certain groups they belong to, these values and attitudes affect their sense of self. There are the negative stereotypes of older adults as sick and dependent and aging as an inevitable debilitation of physical and cognitive abilities (Nelson, 2002). These negative stereotypes are internalized by those who are themselves aging and becoming older (Levy, 2009). Thus, when older adults become impaired and are forced to rely on others' help, they may attribute these changes to their own aging, creating a negative view of the self as an older person. This study will shed light on how negative self-perceptions of aging resulting from functional impairment and the receipt of care affect depressive symptoms among older adults.

Chapter 3 builds upon an interactive model of depression (Coyne, 1976) and a life-span developmental model of couples coping with chronic illness (Berg & Upchurch, 2007). These theories emphasize that spouses are influenced by each other's physical and mental health. Older adults who receive care from their spouses may be more likely to be influenced by their spouses' physical and mental health than those who do not, because of the

care recipients' dependency on their caregiving partners. Family caregivers often experience a decline in their own health as a result of their caregiving responsibilities (Pinquart & Sörensen, 2004). Deterioration in caregivers' health not only increases caregiver stress, but it may also impact care on their recipients as they grow concerned about their caregivers and perceive themselves as burdens on their caregivers. I examine whether older adults who receive care from their spouse are more vulnerable to the negative impact of their spouse's physical and mental health than older adults who do not receive care.

Chapter 4 is based on theoretical and empirical work on the impact of positive and negative support on mental health (Berkman et al., 2000). Social support literature suggests that spousal support has greater influences on mental health than do other sources of support (Dean et al., 1990). Interactions with a support provider have been known to be a critical factor in determining the quality of social support as well as the satisfaction with such support (Krause, 1995; Newsom, 1999). In caregiving relationships, positive interactions with spouses may be related to high quality of care provided by the spouses whereas negative interactions may be a source of dissatisfaction with received care. In this chapter, I investigate to what extent positive and negative support from spouses have more protective or harmful effects on caregiving couples compared to non-caregiving couples.

Finally, Chapter 5 summarizes the findings of the dissertation and discusses implications for theory, research, and practice. The chapter also reviews limitations of the dissertation and provides future directions for research and practice.

1.4 Data

To address these research questions, I used the Health and Retirement Study (HRS), a national longitudinal study that conducts surveys every two years on more than 22,000 adults aged 51 and older and their spouses. The sample of the HRS study consists of five subgroups: (1) the original HRS sample includes individuals born between 1931 and 1941; (2) the Asset and Health Dynamics among the Oldest Old (AHEAD) consists of

individuals born before 1923; (3) the Children of the Depression Age (CODA) includes individuals born between 1924 and 1930; (4) the War Baby (WB) consists of those born between 1942 and 1947; and (5) the Early Baby Boomers includes those born between 1948 and 1953 (EBB). Sub-samples used in this study were derived from the Rand HRS data file (version L), which is a cleaned and easy-to-use version of data from eleven waves of HRS data (1992-2010). The Rand HRS data file was merged with raw data in the HRS original files when the Rand HRS file did not include the variables used in this study (i.e., Psychosocial Leave-Behind Participant Lifestyle Questionnaires and helper-level data).

The HRS data are appropriate for addressing the research questions because the HRS provides rich information on older couples' physical and mental health status, helpers for older adults (e.g., spouses, adult children, and friends), the amount and types of help received, and various psychological measures. Thus, this data set helps to examine the effects of receiving care on various psychological outcomes using a large sample of older adults. Furthermore, the HRS data set allows researchers to examine group differences by identifying caregiving and care-receiving respondents and comparing them to individuals who do not provide or receive care. Last, because the HRS collects data from both respondents and their spouses, the data set allows researchers to include both caregiving and care-receiving partners in the same study.

Each of the three chapters will have somewhat different analytic samples. Detailed descriptions of the sample, measures, and analytic plan are discussed within each chapter.

CHAPTER II

SELF-PERCEPTIONS OF AGING, THE RECEIPT OF CARE, AND DEPRESSIVE SYMPTOMS IN LATER LIFE

2.1 Introduction

Although most older adults adjust to the aging process (Blazer, 2010), subgroups of older adults are at risk for depression. The prevalence of clinically significant depressive symptoms is approximately 8% to 16% among community-dwelling older adults (Blazer, 2003). Existing studies suggest that changes in health are key sources of increased depressive symptoms in later life (Fauth et al., 2011; Schieman & Plickert, 2007). Increasing dependence on others' help resulting from declines in health can be another source of depressive symptoms (Lin & Wu, 2011). Despite the fact that receiving care from people with whom they have a close relationship is beneficial for older adults in general, the receipt of care may erode older adults' sense of independence and competence, which may increase their risk of depressive symptoms. Several studies have documented care recipients' negative reactions to being helped (Clark & Stephens, 1996; Newsom & Schulz, 1998; Wolff & Agree, 2004). Some care-receiving older adults experience stress because they worry about their caregivers' health and feel indebted, helpless, and incompetent (Newsom, 1999).

To understand the mechanisms by which the receipt of care among older adults with

functional limitations leads to particular psychological outcomes, previous research has focused on the role played by the internal psychological resources of individuals, such as self-esteem and perceived control (Jang et al., 2002; Martire et al., 2002). Such psychological resources may be influenced by how older adults are perceived and judged by others. Research on ageism and stereotypes of older adults suggests that the extent to which older adults internalize stereotypes about aging affects their psychological resources, such as their sense of mastery and control (Nelson, 2002). Moreover, the receipt of care may increase the risk of activating negative stereotypes of older adults which, in turn, intensifies their negative self-perceptions of aging.

This study focuses on the extent to which self-perceptions of aging explain the relationships among the receipt of care, psychological resources (i.e. perceived loss of control) and depressive symptoms among older adults. Although it is likely that increasing dependency in later life influences self-perceptions of aging (Rodin & Langer, 1980), there have been few efforts to study how self-perceptions of aging among older adults who need care is related to their mental health. The present study adds to previous literature by incorporating the construct of self-perceptions of aging to understand mechanisms underlying the relationships linking the receipt of care and depressive symptoms in later life.

2.1.1 Conceptual model

Identity theory provides a useful framework within which to explore the pathways among the receipt of care, self-perception of aging, perceived loss of control and depressive symptoms. Identity theory posits that individuals have multiple identities because identities are constructed by meanings attached to the various roles that individuals hold in society (Stets & Turner, 2006). These identities help individuals define themselves as a member of a certain group and distinguish themselves from others, and activate a sense of self-worth and awareness of self-identity (Stets & Turner, 2006). Identity theory emphasizes the influence of society on the self in that identities are shaped by society and emerge from the

situations and interactions in which individuals are placed (Stets & Turner, 2006). According to identity theory, negative emotions emerge when others do not support a prominent identity of an individual, and that identity is challenged in interactions (Burke, 2006). In care-receiving situations, when older adults who had long maintained their identity as an independent person need to rely on others' assistance for daily living, they may experience negative emotions (Gignac et al., 2000; Kaufman, 1994).

Identity theory further suggests that individuals categorize themselves and others to draw meaningful distinctions between people or subgroups (Stryker & Burke, 2000). These categories of people are differentially valued in society (Stryker & Burke, 2000). By internalizing values and attitudes toward certain groups in society, these values and attitudes become a part of the self (Stryker & Burke, 2000). With respect to social attitudes toward older people, there are positive and negative views of older people (Hummert et al., 1994). On the one hand, older adults are viewed positively, such as being friendly and warm. On the other hand, they are often perceived as incompetent in maintaining their own lives and as dependent on others (Stone, 2003). These negative stereotypes and prejudice against older adults are a part of ageism – the discrimination against individuals based on their age, which is widespread in the U.S. society (Nelson, 2002).

Moreover, these stereotypes may have been internalized by individuals and then directed toward themselves in their later adulthood. Once individuals have internalized negative stereotypes of older adults, their negative attitudes toward older people can be reflected in their perceptions of their own aging as they become older (Levy et al., 2002). Being sick and dependent is a major theme within stereotypes of older adults (Nelson, 2002). It is possible that, if older adults who have internalized stereotypes of older adults become impaired and need care, they may attribute increasing dependency to their old age (Gignac et al., 2006) and perceive their aging negatively.

The present study attempts to capture the complex interweaving dynamics described above in formulating a conceptual model, illustrated in Figure 2.1 below, that includes the

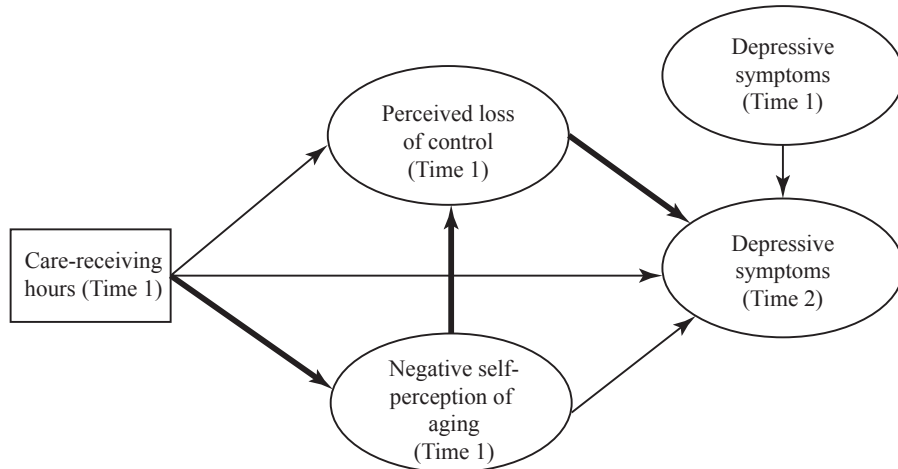


Figure 2.1: A conceptual model

following linkages: (1) older adults who receive more care will be more likely to perceive their aging negatively; (2) older adults who perceive their aging more negatively will be more likely to perceive greater loss of control in their own lives; (3) older adults who perceive greater loss of control will be more likely to be depressed.

These linkages will be discussed in detail in the literature review.

2.1.2 The receipt of care and self-perceptions of aging

When older adults become impaired and need care, they often turn to their families and friends to receive help with daily living (Davey & Patsios, 1999). Although the receipt of help may be necessary, there are negative aspects of being helped. Older adults who receive care may be at risk for developing negative self-perceptions of aging. Self-perceptions of aging refer to an individuals' evaluation of their own aging, such as feeling less happy or more useless as they get older (Moser, 2011). Such self-perceptions can vary in the extent to which they internalize stereotypes of older adults (Levy et al., 2002). Individuals develop negative stereotypes of older adults through media portrayals and daily interactions (Levy & Langer, 1994). When negative stereotypes of aging have been developed over the life span, these stereotypes are more engrained and resistant to change than are positive ones

(Cuddy et al., 2005). In particular, negative stereotypical beliefs and attitudes toward older adults are focused on older adults who rely on others' help (Cohen, 1988). For instance, when older adults need assistance from others, this need is viewed more as a reflection of being helpless and more dependent than is the case when their younger counterparts have needs for assistance (Morse & Adams-Price, 2009). The receipt of care may activate pre-existing stereotypes about aging and facilitate negative self-perceptions of aging.

2.1.3 Self-perceptions of aging and perceived loss of control

Although self-perceptions of aging may influence depressive symptoms in various ways, this study specifically examines the role that perceived loss of control plays in this process. Perceived loss of control is defined as the extent to which one believes there are barriers beyond one's control to achieving life goals (Pearlin & Schooler, 1978). Older adults with positive attitudes toward their own aging may be more likely to perceive gains and benefits as they get older (Brandtstadter et al., 1993) and do not experience declines in their sense of control (Lachman, 2006). Existing studies also found that self-perceptions of aging were associated with older adults' objective competence in a variety of intellectual and physical performances (Hess et al., 2003; Levy, 2003). These types of competence may help older adults perceive their potential to achieve valued goals and raise their level of perceived control. The relationship between self-perceptions of aging and perceived loss of control is examined in a longitudinal study by Levy et al. (2002). Levy and her colleagues found that more positive self-perceptions of aging predicted greater perceived control four years later. Reviewing several experimental studies, Rodin & Langer (1980) concluded that stereotypes and stigmatization of older adults lowered their sense of control.

2.1.4 Perceived loss of control and depressive symptoms

Perceived control is defined as the extent to which individuals believe they have the ability to change aspect of their lives and the environment in which they live (Pearlin &

Schooler, 1978). Perceived control is a psychological resource that has been found to help people cope with stressful events (Bandura, 1989). If individuals believe they are not able to achieve valued goals and tasks in everyday life, they can feel distressed and depressed. Since belief in one's inability to achieve desired goals negatively influences self-esteem and sense of security, individuals who perceive a loss of control over their lives manifest lower life satisfaction and may experience depressive symptoms (Bandura, 1989). Several studies have demonstrated that older adults who perceive a loss of control in their lives are more likely to feel depressed (Jang et al., 2002; Mirowsky, 1992).

Drawing on these areas of past research, the present research contributes to our understanding of the care-receiving experiences in later life in several important ways. First, this study examines negative consequences of care-receiving experiences among older adults. Although the extensive body of literature focuses on caregivers, relatively few studies focus on care recipients. Second, the small body of research examining negative consequences of receiving care has limited generalizability because it is based on small samples and samples with specific types of diseases (Clark & Stephens, 1996; Martire et al., 2002; Newsom & Schulz, 1998). Using a national probability sample of older adults, the current study allows us to generalize our findings. Third, the present study adds to the previous literature by examining the mediating role of self-perceptions of aging in the relationship between the receipt of care and depressive symptoms. By investigating self-perceptions of aging as a key mediator, this study sheds light on the mechanisms by which the receipt of care is related to depressive symptoms in later life.

2.2 Methods

2.2.1 Sample

This study relies on a sample that examines the 2008 and 2010 waves of the Health and Retirement Study (HRS). The Health and Retirement Study (HRS) is a national longi-

tudinal study that conducts surveys every two years on more than 22,000 older adults and their spouses, and the Leave-Behind Participant Lifestyle Questionnaires was given to half of the non-institutionalized respondents, who were randomly pre-selected for an enhanced face-to-face interview at each wave. This enhanced face-to-face interview was conducted in order to collect information related to physical performance, biomarkers, and psychosocial topics in addition to the core survey.

In this study, the 2008 and 2010 HRS surveys are referred to as Time 1 and Time 2, respectively. The analytic sample used in this study consists of 6,576 people who have completed the 2008 HRS Leave-Behind Participant Lifestyle Questionnaires. From this original sample, 146 cases were dropped because the respondents' age was under age 51 at Time 1. In addition, 27 cases were dropped since there were missing values on exogenous variables (i.e. age, gender, race, education, and functional impairment); 6,403 respondents were included in the final analysis.

In the analytic sample, 60% were women, 83% were White/Caucasian, 13% were Black/African American, and 4% were categorized as other race. The average age was 69.5 at Time 1, with ages ranging from 51 to 107. The average years of education were 12.6. 21.2% had functional limitations in at least one area of activities of daily living (ADL) or instrumental activities of daily living (IADL). Those who received care comprised 11% of the sample and the mean of care-receiving hours per month was 15.66 hours (range 0 – 1488 hours).

2.2.2 Measures

The receipt of care. The receipt of care was measured by the amount of time that older adults had received assistance related to ADL or IADL from others in the past month at Time 1 (2008). The care-receiving hours were assessed by ascertaining how many days older adults reported that they had received help from others during the past month and how many hours of care the helpers had provided to older adults during those days. Care-

receiving hours over that past month were calculated by multiplying the number of days by the number of hours each day. If older adults had multiple helpers, the hours received by each helper were added together. Since care-receiving hours were significantly positively skewed, the measure was transformed for analysis using a square root transformation.

Self-perceptions of aging. Self-perceptions of aging were measured by five items ($\alpha = .72$) using the Attitude Toward Own Aging subscale of the Philadelphia Geriatric Center Morale Scale (Lawton, 1975), which were collected at Time 1 (2008). These items are based on the following questions: “Things keep getting worse as I get older”; “I have as much pep as I did last year”; “The older I get, the more useless I feel”; “I am as happy now as I was when I was younger”; “As I get older, things are better than I thought they would be”. These items used a 6-point scale from 1 (strongly disagree) to 6 (strongly agree). By reverse coding items related to positive attitudes, higher scores in all of the items represent more negative perceptions of one’s own aging.

Perceived loss of control. Perceived loss of control was measured by five items related to perceived constraints ($\alpha = .86$) collected at Time 1 (2008) (Pearlin & Schooler, 1978). Using a 6-point scale from 1 (strongly disagree) to 6 (strongly agree), the measure for perceived constraints consisted of 5 items. The questions for feelings of loss of control were the following: “I often feel helpless in dealing with the problems of life”; “Other people determine most of what I can and cannot do”; “What happens in my life is often beyond my control”; “I have little control over the things that happen to me”; and “There is really no way I can solve the problems I have.” Higher scores represent higher levels of perceived loss of control.

Depressive symptoms. Depressive symptoms were measured by eight items from the shortened version of the Center for Epidemiologic Studies Depression Scale (CES-D) at Time 1 (2008) and Time 2 (2010) ($\alpha = .81$). Six of the eight indicators measure whether the respondent experienced the following negative sentiments all or most of the time: depression, everything being an effort, restless sleep, feeling alone, feeling sad, and feeling

unable to get going. The other two indicators measure positive feelings, such as whether the respondent felt happy and enjoyed life, all or most of the time. The indicators of positive feelings were reverse coded.

An item-parceling strategy is used for creating sub-indices for the latent construct of depressive symptoms. Item parceling involves the averaging or summing of items into subsets, and those subsets are used as indicators of latent constructs (Bandalos & Finney, 2001). The combination of items into subsets helps generate more normally distributed data than are the items from which they are aggregated. By obtaining continuous and normally distributed data, the Maximum Likelihood estimation method can be used to estimate the analytic model (Kline, 2011).

Because observed variables for depressive symptoms in the study are dichotomous and fail to meet the multivariate normality assumption, item parceling is employed to create indicators for the latent construct (Bandalos & Finney, 2001). In the analyses, the latent construct for depressive symptoms was indicated by the sum of two 4-item sub-indices generated from the 8-item scales. Generally, more than two items are needed to calculate the measurement errors for latent constructs, so two 4-item sub-indices were used in this study instead of one 8-item sub-index. To create these sub-indices of depressive symptoms, once dichotomous items were randomly assigned to one of two sub-indices, those dichotomous items that indicate whether or not individuals have experienced specific depressive symptoms were summed for each sub-index. Each sub-index represents the number of depressive symptoms, ranging from 0 to 4. Cronbach's alpha coefficient of the two sub-indices was calculated to compare with the reliability of the original measure and showed similar levels of alpha coefficient.

Functional impairment. Functional impairment was included to control for respondents' health characteristics that affect latent constructs in the analytic model. I assess functional impairment by using two indicators – ADL score and IADL score at Time 1 (2008). The ADL and IADL scores were based on the number of areas in which an older

adult had difficulties. The ADL items included whether or not the respondent had difficulties in: (1) bathing, (2) eating, (3) dressing, (4) walking across a room, (5) getting in or out of bed, and (6) using the toilet. The IADL items included whether or not the respondent had difficulties in: (1) using the phone, (2) managing money, (3) taking medications, (4) shopping for groceries, and (5) preparing hot meals. These eleven items are added up to construct a functional impairment score, ranging from 0 to 11 with a higher score representing more difficulties.

Demographic variables. Respondents' age, gender (0=male, 1=female), race (0=non-white, 1=White), and years of education were included as control variables. These four demographic variables have been found to be related to self-perceptions of aging, perceived loss of control and depressive symptoms (Blazer, 2003; Levy et al., 2002).

2.2.3 Analytic plan

The structural equation modeling (SEM) analysis in the present study was conducted in two steps (Bollen, 1989). First, I tested a measurement model to examine the relationships between observed variables and latent constructs. The measurement model was tested by confirmatory factor analyses (CFA) using MPLUS. This step helps to assess the adequacy of the measurement model (Bollen, 1989). To improve the measurement model fit, the initial measurement model was revised by incorporating two pairs of correlated measurement errors as suggested by the modification index (Liang & Bollen, 1983). Second, the structural relationships among latent variables presented in the conceptual model of this study were analyzed after controlling for demographic variables (i.e. age, gender, race, and education level) and functional impairment. In order to evaluate mediated effects, the significance test of indirect effects was conducted by using the Sobel test (Preacher & Hayes, 2008). This study investigates the following: 1) an indirect effect of perceived loss of control in the relationships among the receipt of care and depressive symptoms, and 2) the indirect effects of self-perceptions of aging in the pathways from the receipt of

care to perceived loss of control and depressive symptoms. Since the analytic model included multiple mediators, this study used the causal steps approach suggested by Preacher and Hayes(2008). Several specific indirect effects of each mediating variable were first estimated, and then the total indirect effects were calculated by summing up all specific indirect effects using Mplus. The significance of each of the specific indirect effects and total indirect effects was also tested using Mplus (Preacher & Hayes, 2008).

The following criteria were used to assess the model fit of the structural model: (1) the Comparative Fit Index (CFI); (2) the root mean square error of approximation (RMSEA); and (3) the Standardized Root Mean Square Residual (SRMR). CFI values greater than .9 indicate an acceptable fit, and RMSEA values less than .06 and an SRMR value less than .08 indicate a good fit (Kline, 2011). Although generally used as a primary standard by which to assess the model fit, the χ^2 goodness-of-fit test is sensitive to sample size (Kline, 2011). Therefore, I used CFI, RMSEA, and SRMR to evaluate the model fit. Last, analyses were conducted to examine missing data. 16.4% (1053 respondents) had missing data on dependent variables or on the one of the observed variables for mediators. 657 individuals had missing values in the measure of care-receiving hours, 253 in one of the indicators for self-perceptions of aging, and 244 in one of the indicators for perceived loss of control. Also, 398 individuals died after Time 1. At Time 2, 219 individuals did not respond to the survey, and 332 responses related to depression at Time 2 had missing values because proxy persons were interviewed (n=199) or individuals refused to participate in the second wave of the study (n=133). Instead of deleting observations, using a full-information maximum likelihood estimator (FIML) allows for estimation of the model that includes missing data, as implemented in Mplus (Enders, 2010; Muthén & Muthén, 2010). With FIML, the analytic model is estimated using all available data from all respondents. FIML partitions the cases in the sample into subsets with the same patterns of missing observations. The means and variances extracted from each subset are used in calculating parameter estimates and standard errors in the analysis (Kline, 2011). FIML does not impute missing

values but takes into account missing patterns of the data from all respondents in estimating parameters and standard errors. FIML has been shown to be less biased and more efficient than other methods of handling missing data, such as listwise deletion or pairwise deletion (Enders, 2010). In addition, HRS has a complex sampling design. Sampling weights were taken into account in analyses to correct for oversampling African America, Hispanics, and Floridians.

2.3 Results

2.3.1 Testing the measurement model

Confirmatory factor analysis was conducted to assess the measurement model using Mplus 6.0 with Maximum Likelihood estimation. Factor loadings for the latent constructs displayed in Table 2.1 were statistically significant (ranging from $\lambda = .469$ to $\lambda = .855, p < .001$). The estimated measurement model indicated an acceptable fit to the data: $\chi^2(67, N = 6,403) = 801.111, p < .001$; CFI=.960; RMSEA=.041; SRMR=.041. Therefore, this measurement model was used in testing the full structural model.

2.3.2 Testing the structural model

The overall conceptual model was tested and showed a good fit to the data: $\chi^2(130, N = 6,403) = 1984.896, p < .001$; CFI=.920; RMSEA=.047; SRMR=.077. Table 2.2 presents the standardized path coefficients in the final model. The results indicated that older adults who received greater amounts of care were more likely to perceive their aging more negatively ($\beta = .089, p < .01$). The higher levels of negative self-perceptions of aging were related to greater loss of control ($\beta = .629, p < .001$), and older adults who perceived greater loss of control were more likely to experience more depressive symptoms two years later ($\beta = .098, p < .01$) after controlling for the previous depressive symptoms. This model explained 21.3% of the variance of negative self-perceptions of aging at Time 1, 45.0% of

Table 2.1: Factor loadings and measurement error terms for multiple item measures (N=6,403)

Items	Factor loading ^a	Measurement error ^b
Perceived loss of control		
Helpless in dealing with problem	.674	.546
Others determine what I can/not do	.646	.583
Life is beyond my control	.834	.304
Little control over things	.831	.309
No way I can solve my problem	.769	.409
Negative perception of aging		
Get worse as I get older	.604	.635
Same pep as last year	.469	.780
Get useless as I get older	.612	.625
Happy as when younger	.598	.642
Better than I thought	.584	.659
Depression		
CESD1 at Time 1	.845	.285
CESD2 at Time 1	.821	.326
CESD1 at Time 2	.855	.269
CESD2 at Time 2	.822	.324

Note. a. Factor loadings are standardized.

b. Measurement error terms are standardized, and all measurement error terms are significant at the .001 level.

the variance of perceived loss of control at Time 1, and 48.7% of the variance of depressive symptoms at Time 2.

Table 2.2: Structural equation model including demographic variables (N=6,403)

Independent variables	Dependent variables									
	Depressive symptoms (Time 1)		Care-receiving hours (Time 1)		Negative perceptions of aging (Time 1)		Perceived loss of control (Time 1)		Depressive symptoms (Time 2)	
Age	-.109	***	.054	***	.093	***	.011		-.036	*
Gender	.049	**	-.005		-.044	*	.026		.058	***
Race	-.044	**	-.015		.002		-.007		-.043	**
Educational level	-.175	***	-.011		-.219	***	-.066	***	-.031	
Functional impairment (Time 1)	.365	***	.806	***	.264	***	.053		.041	
Care-receiving hours (Time 1)					.089	**	-.016		-.028	
Negative perceptions of aging (Time 1)							.629	***	.226	***
Perceived loss of control (Time 1)									.098	**
Depressive symptoms (Time 1)									.543	***
R^2	.198		.671		.213		.450		.487	

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

The results in Table 2.3 show the direct, indirect and total effects of the latent constructs. In particular, Table 2.3 provides the coefficients and significance levels of specific indirect effects so that we can understand which indirect path is statistically significant and to what extent specific indirect effects contribute to overall indirect effects. The findings suggested that care-receiving hours did not have significant direct effects on perceived loss of control ($\beta = -.016$; n.s.) and depressive symptoms ($\beta = -.028$; n.s.). However, as shown in Table 2.3, self-perceptions of aging significantly mediated the relationship between care-receiving hours and perceived loss of control ($\beta = .056$, $p < .01$). The overall indirect effects of care-receiving hours on depressive symptoms that were mediated through negative self-perceptions of aging and perceived loss of control were also significant ($\beta = .024$, $p < .01$). More specifically, the indirect path from care-receiving hours to depressive symptoms that operated through negative self-perceptions of aging was significant ($\beta = .020$, $p < .01$). The indirect effect of care-receiving hours on depressive symptoms that was mediated by negative self-perceptions of aging as well as perceived loss of control was also significant ($\beta = .005$, $p < .05$). Taken together, these findings highlight the negative consequences of the receipt of care. That is, greater amounts of care were associated with higher levels of perceived loss of control and more depressive symptoms via increases in negative self-perceptions of aging. In addition, the findings indicated that self-perceptions of aging played a mediating role in the relationships among the receipt of care, perceived loss of control and depressive symptoms.

The data in Table 2.2 suggest that some of the control variables were significantly associated with dependent variables in the model. As expected, higher levels of functional impairment were significantly associated with more care-receiving hours ($\beta = .806$, $p < .001$), higher levels of negative perceptions of aging ($\beta = .264$, $p < .001$), and more depressive symptoms at Time 1 ($\beta = .365$, $p < .001$). Additionally, most of the results with respect to demographic variables were consistent with previous studies (Blazer, 2003; Levy et al., 2002). Educational attainment was found to be related to favorable outcomes regard-

Table 2.3: Standardized direct, indirect and total effects

Effects from care-receiving hours to perceived loss of control		
Total effect (A+B)	.040	
Direct effect (A)	-.016	
Total indirect effect (B)	.056	**
Specific indirect effect		
Care hours → Neg. Perception of aging → Loss of control	.056	**
Effects from care-receiving hours to depression at Time 2		
Total effect (A+B)	-.004	
Direct effect (A)	-.028	
Total indirect effect (B)	.024	**
Specific indirect effect		
Care hours → Loss of control → Depression	-.002	
Care hours → Neg. Perception of aging → Depression	.020	**
Care hours → Neg. Perception of aging → Loss of control → Depression	.005	*
Effects from negative perceptions of aging to depression at Time 2		
Total effect (A+B)	.287	***
Direct effect (A)	.226	***
Total indirect effect (B)	.061	**
Specific indirect effect		
Neg. Perception of aging → Loss of control → Depression	.061	**

Note. All coefficients are standardized. The total indirect effect is the sum of specific indirect effects while the total effect is the sum of direct and indirect effects. Care hours refers to care-receiving hours, Neg. Perception of aging to negative self-perceptions of aging, Loss of control to perceived loss of control. * $p < .05$, ** $p < .01$, *** $p < .001$

ing negative self-perceptions of aging ($\beta = -.219, p < .001$), perceived loss of control ($\beta = -.066, p < .001$), and depressive symptoms at Time 1 ($\beta = -.190, p < .001$). The findings related to age, however, point out interesting aspects of the relationship between aging and mental health. Age was significantly related to more negative perceptions of aging ($\beta = .093, p < .001$), but more advanced age was associated with fewer depressive symptoms both at Time 1 and Time 2 ($\beta = -.109, p < .001$; $\beta = -.036, p < 0.05$).

2.4 Discussion

Using a nationally representative sample, this paper investigated how the receipt of care from older adults' informal social network is associated with self-perceptions of aging, and how self-perceptions of aging are related to perceived loss of control and depressive symp-

toms among older adults. Findings from this study contribute to the previous literature in two key ways. First, the findings highlight the importance of considering negative aspects of receiving care. Second, results from this study support the notion that self-perceptions of aging, which have been known to reflect self-stereotyping of aging, play a pivotal role in the relationship between the receipt of care and depressive symptoms. More specifically, the results revealed that older adults who received greater amounts of care were more likely to perceive their aging negatively even after controlling for their functional status. Additionally, older adults who perceived their aging negatively were more likely to perceive a greater loss of control over their life, which in turn increased their levels of depressive symptoms two years later.

One of the major study findings concern the negative consequences of the receipt of care on self-perceptions of aging. Although receiving care can be a source of support that buffers adverse effects of stressful events, such as illness and disabilities, it also can trigger negative perceptions of the self as an older person. For example, Lustbader's (1991) book on older adults' experiences of receiving care discusses the complexity of emotions related to asking and receiving help for older adults. Help, Lustbader notes, is more difficult to provide "to the right extent, at the right time, for the right reason, and in the right way" than is usually thought to be the case, despite helpers' good intention to provide assistance to older adults (Lustbader, 1991, p. 17). Older adults often experience feelings of guilt, helpless, dependency, and resentment resulting from the receipt of care, notwithstanding experiencing feelings of gratefulness as well (Cahill et al., 2009; Ward-Griffin et al., 2006). Moreover, the receipt of care from families can be interpreted by older adults as signifying a loss of autonomy and independence (Kasser & Ryan, 1999; Roe et al., 2001). Since the aged are widely stereotyped as being sick and dependent on others (Cohen, 1988; Nelson, 2002), older adults who have been exposed to this stereotypical belief may experience challenges to their sense of self when facing increasing dependency and negative experiences related to being helped. As a result, older adults who receive care may have more difficul-

ties in perceiving themselves positively. The findings from this study provide support for this relationship.

Another key finding is the complex picture of the nature of how older adults respond to increasing dependency. Existing research on the effects of the receipt of care on older adults focuses on psychological resources that older adults have, such as self-esteem and sense of control (Jang et al., 2002; Martire et al., 2002). This study has identified a key mechanism which helps account for findings from previous studies. Results from this study show that psychological resources (i.e. perceived loss of control) can be influenced by how older adults perceive their own aging. As noted above, older adults who rely on others' help may perceive their aging negatively. Older adults who perceive their aging negatively tend to impose unnecessary limitations on their cognitive and physical abilities in various domains (Hess et al., 2003; Levy, 2003) and perceive that they are not able to change the environment or achieve goals and tasks in their lives (Barker, 2007; Levy et al., 2002). If individuals believe that they do not have the ability to control their lives, they are more likely to experience feelings of being overwhelmed and helpless. Such feelings can, in turn, lead to depressive symptoms (Jang et al., 2002; Lachman, 2006; Mirowsky, 1992). In sum, while prior studies focused on individuals' internal psychosocial resources or the quality of care in explaining the effects of receiving care on depressive symptoms among older adults, the current study goes beyond the existing literature by including age-related identity in explaining the relationship between the receipt of care and depressive symptoms.

Despite significant indirect effects of the receipt of care on depressive symptoms, this finding should be interpreted with caution. The magnitude of the effects of the receipt of care is relatively small compared to the direct effects of functional impairment on perceived loss of control and depressive symptoms. Functional impairment has harmful effects on various areas in life (Bisschop et al., 2004; Yang, 2006), so it is not surprising that the direct effects of functional impairment are much larger than the specific indirect effects of the receipt of care. Nonetheless, one of the contributions made by this study is to show that

the receipt of care itself has indirect effects on depressive symptoms via self-perceptions of aging in spite of the great impact of functional impairment.

Findings concerning the effects of demographic factors on key study variables indicate that age appears to be a particularly significant factor that predicts the dependent variables. These findings indicate that older adults are likely to have more negative self-perceptions of aging as they become older. At advanced old age, adults often become more aware of age-related challenges, so they experience increasingly negative perceptions of their own aging (Kleinspehn-Ammerlahn, 2008). In contrast to the findings concerning the adverse effects of age on self-perceptions of aging, the results also show that, as older adults' age increases, they are less likely to experience depressive symptoms. The beneficial impacts of age on depressive symptoms may result from older adults' increasing abilities to handle their emotions (Carstensen et al., 2000). Carstensen et al. (2000) found that older adults tend to optimize the experience of positive affect as they focus on emotionally meaningful goals in their life in light of increasing constraints on longevity. Inconsistency in the impact of age on different domains of mental health of older adults warrants further attention. Future research should further explore how age has different effects on sense of self and mental health of older adults.

Despite the constellation of significant findings, there are several limitations in the present study that must also be considered. First, due to the availability of different variables across waves, this study was not able to investigate longitudinal changes in self-perceptions of aging in relation to the receipt of care, perceived loss of control, and depressive symptoms. In particular, since these three key variables were measured at the same wave, it is possible that the direction of hypothesized relationships is reversed. The proposed model in this study is based solely on theoretical considerations and previous research. Using longitudinal data that have a complete set of the study variables at each wave would provide a more complete picture of the causal relationships of the proposed model in this study. Second, since identity theory suggests that self-perceptions of aging can be

largely affected by social attitudes and values toward older people (Nelson, 2002), it would be helpful to articulate the relationship between the receipt of care and self-perceptions of aging if future studies use data that collect a measure of older adults' internalized ageist attitudes prior to measures of the receipt of care. Last, the current study did not distinguish the source of care provided to older adults. It would be informative if future study examine how the relationship between the receipt of care and depressive symptoms may change depending on older adults' relationship with caregivers (e.g., spouse and children).

In sum, based on a nationally representative sample, this study contributes to our understanding of older adults' experiences of receiving care by disentangling a complex picture of care, identity and mental health in later life. The findings from this study have important implications for future research and practice. First, the results from this study emphasize the negative consequences of care-receiving experiences for older adults. Because older adults who receive greater amounts of care are more likely to perceive their aging negatively, practitioners should focus on the effects that receiving care has on older adults' sense of their aging self. Practitioners can implement interventions that may reduce older adults' negative assessment of their own aging while receiving care. For example, using life review or reminiscence therapy, practitioners may help older adults reframe meanings of negative life events, such as increasing dependency, and re-interpret those events, which may lead to developing a new set of positive beliefs of the self (Bohlmeijer et al., 2007). In addition, by reviewing their life with the help of a practitioner, older adults identify sources of self-worth and maintain continuity of their personal identity while going through changes in physical health. By achieving more positive attitudes toward the aging self, older adults may experience improvement in other dimensions of mental health, such as perceived control and depression. Future research that addresses the issues that have emerged from this study will be fruitful in expanding our understanding of psychological well-being in older adulthood.

CHAPTER III

THE RECEIPT OF CARE, SPOUSAL HEALTH, AND DEPRESSIVE SYMPTOMS IN LATER LIFE

3.1 Introduction

Marital relationships have an important influence on older adults' mental health. On the one hand, being married generally provides benefits to partners. For example, those who are married report greater positive health outcomes, such as fewer depressive symptoms and higher quality of life, than do those who are unmarried (Chipperfield & Havens, 2001; Williams & Umberson, 2004). This is because spouses, in general, tend to become a primary source of social support for older adults in times of need (Wolff & Kasper, 2006). On the other hand, a marital relationship can contribute to the development of depressive symptoms in one spouse, particularly when his or her partner suffers from depressive symptoms (Holahan et al., 2007; Hoppmann & Gerstorf, 2009; Townsend et al., 2001) or deterioration of physical health (Ayotte et al., 2010; Peek et al., 2006; Strawbridge et al., 2007). There is a growing body of literature that has investigated reciprocal influences of physical and mental health between spouses (Ayotte et al., 2010; Hoppmann et al., 2011; Kouros & Cummings, 2010). However, existing research has paid less attention to the factors that make some couples more vulnerable to the negative effects of one spouse's physical and mental health on the other spouse.

Studies suggest that reciprocal influences between spouses may be stronger for couples in stressful situations than those who are not experiencing stress (Hatfield et al., 1994; Kouros & Cummings, 2010). One common stressful event for older couples is health-related problems (Lyons et al., 1995). Considerable research has found that care recipients' physical and mental health significantly influences caregiving partners' depressive symptoms (Goodman & Shippy, 2002; Neundorfer et al., 2001). However, compared to the body of research on the impact of care recipients' health on caregivers (Pinquart & Sörensen, 2004; Pruchno et al., 2009), few studies have focused on the impact of caregivers' physical and mental health on care recipients' depressive symptoms. Older adults who receive care from spouses also may be affected by the caregivers' health. In care-receiving situations, care recipients experience increasing dependency on their partners (Rolland, 1994). Perhaps care recipients are more likely to be sensitive to changes in their caregiving partner's physical health and psychological moods than individuals who do not receive care.

The goal of the present study is to understand how receiving care from spouses influences the impact of physical and mental health of one spouse on the depressive symptoms of the other spouse. This study adds to the current knowledge of the associations between husbands' and wives' physical and mental health by examining the extent to which care recipients are vulnerable to their spousal caregivers' physical and mental health. Understanding the factors that contribute to care recipient's depressive symptoms is important in designing and developing programs and services for caregiving couples.

3.1.1 Spouses' physical health and the receipt of care from spouses

A theoretical perspective that helps explain possible mechanisms by which one spouse's physical health is associated with depressive symptoms in the other partner is a life-span developmental model of couples coping with chronic illness (Berg & Upchurch, 2007). The life-span developmental model suggests that illness and other health problems in one spouse affect both partners: the older person with illness and their spouse. Patients and

their spouses influence each other's appraisal of illness, coping strategies, and adjustment to illness (Berg & Upchurch, 2007; Holahan et al., 2007). Since chronic illness is frequent in late life and both partners are likely to have multiple chronic illnesses (Berg & Upchurch, 2007; Hoffman et al., 1996), the relationship between physical health in one spouse and depressive symptoms in the other spouse may be more complex in older couples. It is more often the case with older couples, for example, compared to younger ones, that spouses may themselves have health problems even while they provide care for their partners.

Findings from prior research have highlighted how one spouse's physical health can contribute to the depressive symptoms of the other spouse (Ayotte et al., 2010; Peek et al., 2006; Strawbridge et al., 2007). However, previous studies have not addressed other contextual factors, such as caregiving and care receipt between spouses, that could influence processes by which one spouse's health affects the other's depressive symptoms. When one spouse needs help for his or her daily activities from the other partner, it may change roles, responsibilities, and expectations in the marital relationship (Lyons et al., 2002). Thus, whether or not one spouse with illness needs and receives care from their partner may have a great impact on both partners. In addition, with increases in longevity, caring for spouses is more common in late-life marriage (Greenberg et al., 2002) and needs to be considered as an important social context for older couples (Roberto & Jarrott, 2008). Finally, studies of caregiving couples have focused exclusively on the negative effects of care recipients' physical health on their caregiver's depressive symptoms (Pinquart & Sörensen, 2004; Pruchno et al., 2009). There is a dearth of research specifically examining the influence of caregivers' physical health on their care recipient's depressive symptoms.

When caregiving spouses' physical health declines, care-receiving spouses may be likely to perceive themselves as a burden on their caregiving spouse and feel guilty about their own health problems (Cahill et al., 2009). These feelings of guilt and concern may increase depressive symptoms among care-receiving spouses. Moreover, caregivers' physical health is closely related to whether or not spouses are able to continue to provide care

(Gaugler et al., 2001). As caregiving spouses' health declines, perhaps they are not able to provide the same amount or types of care as they provided before. In such cases, caregiving work is re-arranged, and caregiving couples try to find new resources, such as assistance from other family members or professionals (Feld et al., 2005). Perhaps care-receiving spouses feel anxious and worried about their ability to continue to function if their caregiving spouse's health problems and functional limitations increase. These feelings may contribute to greater depressive symptoms. Mui's (1995) study supports these possible pathways; using a national survey of spousal caregivers, she found that caregiving spouses' poor health was significantly associated with care recipients' unmet needs and depressive symptoms; however, Mui's (1995) study did not examine to what extent the effects of caregiving partners' physical health are stronger than those of non-caregiving spouses' health.

3.1.2 Spouses' mental health and the receipt of care from spouses

A theoretical framework that pertains to the pathways by which one spouse's mental health affects the other partner's depressive symptoms is the interactive model of depression (Coyne, 1976). The interactive model of depression suggests that exchanges of negative emotions between spouses contribute to developing and maintaining depressive symptoms (Joiner & Coyne, 1999). Depressed partners seek reassurance and support from their spouses. Non-depressed spouses may at first provide support to depressed spouses, but later, over time, may respond with negative reactions, such as hostility, depression, and frustration (Coyne, 1976). The interactive model of depression explains negative interactions and communication between spouses as a way in which one spouse's depressive symptoms are transmitted to another partner, leading them to develop depressive symptoms (Joiner & Coyne, 1999). A related framework, the emotional contagion model, also supports the notion that depressive symptoms in one spouse affect the other spouse's depressive symptoms. The model of emotional contagion posits that people tend to adopt one another's emotions by mimicking and receiving feedback from each other (Hatfield et al.,

1994). One person's emotion is transferred to another person through interactions between them.

The mutual influence of one spouse's depressive symptoms on the other may intensify in caregiving situations as both members in the couple are in highly stressful situations. Within the caregiving context, some couples experience a decrease in mutual giving as caregiving tasks dominate the relationship and change interactions between the spouses (Lyons et al., 2002). Since reciprocity is a defining characteristic of marriage, the changes in roles and relationships between spouses resulting from illness and disabilities may have an impact on both members in couples. Caregiving partners are often distressed, anxious, frustrated and depressed because of the burdens associated with caregiving (Pinquart & Sörensen, 2004). Care recipients may at first respond to caregivers' distress and depressive symptoms by showing appreciation and emotional support for their partner's efforts. However, over time, care recipients may become less supportive of their caregiving partner because they become resentful of their partners' negative emotions and because care recipients struggle with their own illness. These exchanges of negative emotions may contribute to the development of care recipients' depressive symptoms. Pruchno et al. (2009) studied older patients with end-stage renal disease and their spouses and found that caregiver burdens had a significant effect on both caregiver and patient negative affect, such as being worried and being depressed.

The effect of one spouse's mental health on the other may be particularly salient when one spouse is caring for the other. However, a large body of research on caregiving couples focused on the effects of care recipients' depressive symptoms on caregivers' symptoms to understand caregiving stress (Goodman & Shippy, 2002; Neundorfer et al., 2001). Studies that examined the effects of caregiver burden on care recipients focused on care recipients' physical health outcomes, such as mortality and levels of disabilities (Kuzuya et al., 2011; Lam et al., 2009). The impact of caregivers' depressive symptoms on care recipients' levels of depression has received less attention.

3.1.3 The role of gender differences

Studies on a general population of older adults have found gender differences in the impact of one spouse's physical and mental health on the other (Ayotte et al., 2010; Hagedoorn et al., 2001; Hoppmann et al., 2011; Kouros & Cummings, 2010). Regarding the effects of spouse's physical health on depressive symptoms in the other partner, women are found to be more sensitive to their spouses' physical health than men (Bookwala & Schulz, 1996; Hagedoorn et al., 2001; Tower & Kasl, 1996). Ayotte, Yang, and Jones (2010) examined the relationship between chronic health conditions and depressive symptoms in older couples and found that husbands' strokes and high blood pressure were related to increased depressive symptoms among wives, whereas husbands were not so influenced by wives' health conditions. Additionally, with respect to effects of spouses' mental health, women tend to report greater depressive symptoms than men (Townsend et al., 2001) and are more likely to be influenced by their spouses' mental health than are men (Kouros & Cummings, 2010; Peek et al., 2006). Husbands' depressive symptoms have a greater impact on wives' symptoms than vice-versa. Using longitudinal data on middle-aged couples, Kouros and Cummings (2010) reported that higher levels of husbands' depressive symptoms predicted elevations in wives' depressive symptoms over time, although wives' depressive symptoms were not associated with changes in husbands' symptoms.

One explanation for the existence of gender differences in the effects of one spouse's physical and mental health on the other's depressive symptoms is that marital relationships have a great impact on women's well-being than men's well-being (Kiecolt-Glaser & Newton, 2001). Previous studies also suggest that wives are more strongly influenced by marital experiences and spouse's emotional status than husbands because women are socialized to be more relationship-oriented than are men (Acitelli & Young, 1996). Given wives' general vulnerability to the negative effects of spouses' mental and physical health, care-receiving situations may exacerbate their risk for depressive symptoms. In general, caregivers report higher levels of depressive symptoms, lower levels of well-being, and worse physical

health than non-caregivers (Pinquart & Sörensen, 2003). Increased depressive symptoms and physical strain among caregiving spouses may place care-receiving wives at greater risk for depressive symptoms than care-receiving husbands. These possible gender differences among care recipients have been overlooked even in a handful of studies that examined the effects of caregiver's health on care recipients (Wilson-Genderson et al., 2009). Thus, it has not been well understood whether care receipt from a spouse attenuates or increases gender differences in the way adults respond to their spouses' poor physical and mental health.

3.1.4 Hypotheses

Based on the literature, the following hypotheses are postulated. The first two hypotheses are related to the associations between the spouse's physical health and the focal partner's depressive symptoms. The last two hypotheses are related to the associations between the spouse's mental health and the focal partner's depressive symptoms.

1. The effects of spouses' physical health on older adults' depressive symptoms are stronger for those who receive care from their spouses than for those who do not.
2. Among those who receive care, care-receiving wives are more vulnerable to the negative effect of their spouses' physical health than are care-receiving husbands.
3. The effects of spouses' mental health on older adults' depressive symptoms are stronger for those who receive care from their spouses than for those who do not.
4. Among those who receive care, care-receiving wives are more vulnerable to the negative effect of their spouses' mental health than are care-receiving husbands.

3.2 Method

3.2.1 Sample

This study was based on data from the Health and Retirement Study (HRS). The Health and Retirement Study (HRS) is a national longitudinal study that has conducted surveys every two years since 1992 on more than 22,000 older adults and their spouses. A new cohort was added to the sample every six years.

To obtain a sufficient sample size of older adults who receive care from their spouse and their caregiving spouses to compare them to couples who do not provide or receive care, data were pooled from the HRS waves that were interviewed in 2000, 2002, 2004, 2006, 2008, and 2010. Waves from 1992 to 1998 were not included in this study since they did not include some measures of functional limitations and measures related to hours of care provided by spouses. Due to this inconsistency in key study variables, the present study uses six waves of HRS from 2000 to 2010.

In defining the analytic sample, I used the following four criteria: (1) respondents were married at a given wave (Time i); (2) both respondents and their spouses were interviewed at a given wave (Time i); (3) both respondents and their spouses lived in the community together at a given wave (Time i); and (4) respondents and their spouses were heterosexual couples (this criterion was used in order to distinguish each member of the pair by gender). For example, if a respondent was married at 2000, 2002, and 2004 and then was widowed and remained as single until 2010, I used the data for that respondent only from 2000 to 2004 because the information from both partners is needed to address the research questions. Based on these criteria, 23,583 observations for husbands and 23,583 observations for wives were identified as the analytic sample. The number of observations for husbands and wives is the same because this study was based upon responses from both husbands and wives at a given wave. The resulting sample was made up of 12,453 individuals (6,214 husbands and 6,239 wives). The numbers of husbands and wives are different

because some of the respondents remarried during the 10 years of the survey period, and for remarried respondents, their new spouses were included in the study. Compared to individuals who were excluded from the analytic sample of this study (e.g. individuals who were widowed, divorced, lived in a nursing home, or were married but their spouse was not interviewed), the analytic sample was more likely to be younger and white and to have more years of education, longer duration of marriage, fewer functional limitations, and fewer health problems.

3.2.2 Measures

Depressive symptoms. Depressive symptoms were measured by the shortened version of the Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977). The CESD score, which ranges from 0 to 8, is the sum of eight indicators. Six of the eight indicators measure whether the respondent experienced the following negative sentiments all or most of the time during the past week: depression, everything is an effort, sleep is restless, feel alone, feel sad, and cannot get going. The other two indicators measure positive feelings, such as whether the respondent felt happy and enjoyed life, all or most of the time. The indicators of positive feelings were reverse-coded. Thus, the higher the CESD scores, the more negative the respondent's feelings in the past week.

Functional limitations. Functional limitations were measured by two indicators: (1) the activities of daily living (ADL) score and (2) the instrumental activities of daily living (IADL) score. The ADL and IADL scores were based on the number of areas in which an older adult has difficulties, ranging from 0 to 6 and from 0 to 5, respectively. The ADL items included whether or not the respondent had some difficulties in (1) bathing, (2) eating, (3) dressing, (4) walking across a room, (5) getting in or out of bed, and (6) using the toilet. The IADL items included whether or not the respondent had some difficulties in (1) using the phone, (2) managing money, (3) taking medications, (4) shopping for groceries, and (5) preparing hot meals.

Health conditions. Health conditions were measured by summing indicators of whether a doctor had ever told the respondent that he or she had any of eight diseases. The diseases were: high blood pressure, diabetes, cancer, lung disease, heart disease, stroke, psychiatric problems, and arthritis. Higher scores represent a greater number of diseases that respondents had.

The receipt of care from spouses. The receipt of care from spouses was obtained from a self-report by the respondent of whether or not they had received help with any ADLs or IADLs from their spouses during the past month. If a spouse provided help with any of the ADLs or IADLs, it was coded as 1, and if a spouse provided no help, it was coded as 0.

Control variables. Respondents' socioeconomic characteristics, such as age, years of education, and race, were included as control variables. These variables have been found to be relevant to depression (Blazer, 2003; Fiske et al., 2009). Length of marriage and number of children were also controlled because these characteristics were related to the effects of one spouse's mental and physical health on the other (Gerstorf et al., 2009; Hoppmann et al., 2011).

3.2.3 Analysis plan

Descriptive statistics including means, standard deviations, and correlations were calculated for study variables. To explore whether or not care-receiving older adults' depressive symptoms are more likely to be influenced by spouses' mental and physical health than are the symptoms of those who do not receive care from spouses, the moderating effects of the receipt of care from spouses were tested using four interaction terms: (1) The receipt of care from spouse X Spouse's ADLs; (2) The receipt of care from spouse X Spouse's IADLs; (3) The receipt of care from spouse X Spouse's health conditions; and (4) The receipt of care from spouse X Spouse's depressive symptoms. The analyses were separately conducted for husbands and wives to investigate gender differences in the moderating effects of care receipt on the associations between the spouse's physical and mental health

and the focal partner's depressive symptoms. An alternative way to investigate gender differences is to pool wives and husbands together and test three-way interactions among the receipt of care, spouse's health and the gender of the respondent. However, such a strategy is not possible because the number of depressive symptoms was only an available measure for spousal mental health.

Since caregiving couples constitute only a small proportion of the overall HRS sample (8-10% of the total sample across waves), I used multiple waves to gain a sample size that was sufficiently large for caregiving couples, which helped improve statistical power. In the pooled analytic sample, most respondents appeared multiple times. 28.5% of respondents appeared in six waves, 11.3% in five waves, 17.2% in four waves, 13.3% in three waves, 12.9% in two waves, and 16.8% in one wave. I used a linear mixed model with random intercept in Stata 12 (*xtmixed* function) because this statistical approach has the advantage of adjusting standard errors for the non-independence of repeated observations from the same individuals.

In the data, repeated measures of the study variables are nested within subjects. Thus, the model includes two levels: within-subject (Level 1) and between-subject (Level 2). At Level 1, the model is specified with variables changing across time points within individuals (time-variant variables), such as functional limitations and depressive symptoms, and at Level 2, the model is specified with variables differing between individuals but not changing over time (time-invariant variables), such as gender and race. Coefficients on time-varying variables are estimated by using information about changes between subjects as well as changes within subjects over time. Coefficients on time-varying independent variables can be interpreted as the average effect on the dependent variable related to a one unit change across time and between subjects in the independent variable. Coefficients on time-invariant variables rely solely on between-subject information, so they represent the average effect on the dependent outcome related to a between-subjects unit change in the time-invariant independent variable.

Model specifications are presented in the following equations.

At Level 1,

$$Y_{it} = \pi_{0i} + \pi_{1i}\text{Time}_{it} + \pi_{2i}(\text{Receipt of care from a spouse})_{it} \\ + \sum_w \pi_w X_{wit} + \sum_p \pi_p X_{pit} + \sum_q \pi_q (X_{pit} \times (\text{Receipt of care from a spouse})_{it}) + \epsilon_{it}$$

In the equations, Y_{it} represents the outcome measure (depressive symptoms) for respondent i at time t ; π_{0i} represents respondents' depressive symptoms in 2000 when other covariates are held constant; Time_{it} is a dummy variable indicating data from 2002 ($t = 1$), 2004 ($t = 2$), 2006 ($t = 3$), 2008 ($t = 4$), and 2010 ($t = 5$) waves for respondent i at time t (reference is the 2000 wave); π_{1i} indicates the differences in depressive symptoms between the baseline and each subsequent wave; π_{2i} is the average difference in depressive symptom scores between those who receive care from a spouse and those who do not; X_{wit} indicates time-varying covariates of respondents, such as age, functional limitations, and health conditions, and time-varying covariates of couples, such as the length of current marriage in years and the number of children. X_{pit} denotes time-varying spousal health characteristics, such as spouses' physical health (i.e. functional limitations and health conditions) and mental health (i.e. depressive symptoms). To examine the moderating effects of the receipt of care from a spouse in the relationship between spousal health and respondents' depressive symptoms, the interaction terms between them were included. ϵ_{it} represents the residual effect for individual i at time t (unobserved within-subject variance).

At Level 2,

$$\pi_{0i} = \gamma_{00} + \sum_k \gamma_{0k} Z_{ki} + \zeta_{0i}$$

The level 2 model is specified to account for respondents' demographic characteristics. Z_{ki} denotes time-invariant respondents' characteristics, such as race, education. ζ_{0i} error term is a measure of unobserved variance between subjects.

The HRS used a complex sampling design, so data were weighted using a person-level

weight that differs across waves (Level 1 weight) as well as a person-level weight in the year when individuals were initially entered into the HRS study (Level 2 weight) in order to take into account differential probabilities of selection and non-response. Descriptive statistics and multivariate analyses presented in this paper were corrected for design effect by using weights.

In addition, to address issues related to missing data, multiple imputation was used. Multiply-imputed data were created for analyses. Missing values were imputed using the chained equations approach (*ice* command in STATA v.12), which is based on a series of regression models including outcome variables as well as predictive variables in the present study. Missing data were imputed for those who were interviewed but have some missing data on predictors within each wave. Individuals who were not age-eligible for the HRS study, placed in a nursing home, or deceased were excluded from the multiple imputation process. I compared the results using the complete data with no missing values on the study variables to the results using imputed data. The direction, magnitude, and significance level of coefficients were similar between the two results. The results presented here are based on imputed data. Specifically, I reported descriptive statistics in Table 3.1 based upon one of the five imputed data sets. This is because the number of care recipients was different across the imputed data sets, and descriptive statistics were similar across the imputed data sets. Results displayed in Table 3.2 were built upon the five imputed data using *mi estimate: xtmixed* command in Stata v.12. Estimates were first calculated based upon each individual imputed data set. Then, these obtained individual estimates were consolidated to a single set of estimates using Rubin's combination rules.

3.3 Results

3.3.1 Sample characteristics

Descriptive statistics for the sample, such as means, percentage, and standard errors, are displayed in Table 3.1. Descriptive statistics were based on the number of person-wave observations, not on the number of individuals, because each observation was the unit of the analysis in this study. The number of person-wave observations reflects multiple observations per respondent for most. For both husbands and wives, older adults who received care from their spouse were likely to be older and non-white and to have fewer years of education and longer duration of marriage than those who did not receive care. Caregiving spouses were more likely to have greater functional limitations, health problems, and to be more depressed than non-caregiving spouses.

Table 3.1: Sample characteristics by gender, Health and Retirement Study 2000-2010

	Husband			Wives		
	Do not receive care	Receive care		Do not receive care	Receive care	
Sociodemographic characteristics						
Age	66.53 (0.18)	71.03 (0.57)	***	64.21 (0.17)	68.02 (0.49)	***
Race						
White/Caucasian	91.41%	88.73%	*	91.78%	88.99%	**
Non-white	8.59%	11.27%		8.22%	11.01%	
Years of education	13.35 (0.08)	11.87 (0.16)	***	13.08 (0.07)	12.12 (0.13)	***
Years of marriage	36.84 (0.30)	39.79 (0.71)	***	37.01 (0.28)	40.70 (0.71)	***
Number of children	3.16 (0.03)	3.49 (0.06)	***	3.19 (0.03)	3.27 (0.07)	
Respondent health						
ADLs	0.09 (0.00)	1.52 (0.05)	***	0.09 (0.00)	1.83 (0.08)	***
IADLs	0.03 (0.00)	1.30 (0.03)	***	0.03 (0.00)	1.48 (0.04)	***
Health conditions	1.78 (0.02)	3.07 (0.06)	***	1.65 (0.02)	2.96 (0.07)	***
Depressive symptoms	0.83 (0.02)	2.41 (0.08)	***	1.10 (0.03)	2.81 (0.07)	***
Spousal health						
ADLs	0.22 (0.01)	0.38 (0.03)	***	0.21 (0.01)	0.28 (0.03)	**
IADLs	0.14 (0.01)	0.24 (0.03)	***	0.13 (0.01)	0.21 (0.02)	***
Health conditions	1.72 (0.02)	2.28 (0.05)	***	1.87 (0.03)	2.17 (0.05)	***
Depressive symptoms	1.18 (0.03)	1.89 (0.08)	***	0.92 (0.02)	1.39 (0.06)	***
Number of respondents	5,721	493		5,613	626	
Number of observations	2,1370	2,213		21,509	2,074	

Note. Percentages and means are calculated based on total observations. * $p < .05$, ** $p < .01$, *** $p < .001$

3.3.2 Effects of the receipt of care from spouse, spouse's physical and mental health

Results from multivariate analyses are presented in Table 3.2. Models 1 and 3 showed the main effects of the receipt of care from spouse, spouse's physical health, and spouse's mental health for husbands and wives, respectively. Models 2 and 4 showed the moderating effects of the receipt of care from spouse on the relationship between spouse's physical and mental health and respondent's depressive symptoms. Results showed that receiving care from a spouse and the spouse's depressive symptoms were significantly associated with depressive symptoms of respondents. These findings were similar for both husbands and wives. Gender differences were observed, however, in the main effects of spouse's physical health. In addition, gender differences occurred in two-way interaction effects between the receipt of care from spouse and spousal physical and mental health. I summarize the results based on the hypotheses in the following paragraphs.

Table 3.2: Linear mixed model of depressive symptoms in husbands and wives

	Husbands						Wives					
	Model 1			Model 2			Model 3			Model 4		
Background Characteristics												
Age (centered at 65)	-0.014	***	(0.002)	-0.014	***	(0.003)	-0.013	***	(0.003)	-0.013	***	(0.003)
Race (White=1)	-0.237	***	(0.060)	-0.236	***	(0.060)	-0.084		(0.063)	-0.084		(0.063)
Years of education (centered at 12)	-0.057	***	(0.006)	-0.057	***	(0.006)	-0.100	***	(0.008)	-0.099	***	(0.008)
Years of marriage	-0.005	**	(0.001)	-0.004	**	(0.001)	-0.003		(0.002)	-0.003	†	(0.002)
Number of children	-0.008		(0.009)	-0.008		(0.009)	-0.015		(0.009)	-0.015	†	(0.009)
Respondent ADLs	0.272	***	(0.030)	0.270	***	(0.030)	0.290	***	(0.029)	0.290	***	(0.029)
Respondent IADLs	0.110	**	(0.038)	0.111	**	(0.038)	0.248	***	(0.038)	0.246	***	(0.038)
Respondent health conditions	0.191	***	(0.015)	0.190	***	(0.015)	0.240	***	(0.015)	0.241	***	(0.015)
Main effects												
Receipt of care from spouse (Yes=1)	0.375	***	(0.077)	0.444	***	(0.122)	0.223	**	(0.078)	0.243	*	(0.117)
Spouse ADLs	0.035		(0.024)	0.029		(0.024)	0.047	*	(0.023)	0.056	*	(0.024)
Spouse IADLs	0.046		(0.029)	0.059	*	(0.027)	0.095	**	(0.028)	0.086	**	(0.029)
Spouse health conditions	0.017		(0.013)	0.025	†	(0.013)	0.002		(0.013)	0.004		(0.014)
Spouse depressive symptoms	0.101	***	(0.008)	0.094	***	(0.008)	0.145	***	(0.011)	0.142	***	(0.012)
Interaction												
Receipt of care from spouse X Spouse ADLs				0.055		(0.070)				-0.088		(0.076)
Receipt of care from spouse X Spouse IADL				-0.110		(0.117)				0.091		(0.101)
Receipt of care from spouse X Spouse health conditions				-0.078	†	(0.041)				-0.021		(0.041)
Receipt of care from spouse X Spouse depressive symptoms				0.062	*	(0.030)				0.025		(0.036)
Wave (reference= 2000)												
2002	-0.056	*	(0.028)	-0.057	*	(0.027)	-0.028		(0.034)	-0.029		(0.034)
2004	-0.083	**	(0.030)	-0.083	**	(0.030)	-0.095	**	(0.033)	-0.096	**	(0.034)
2006	-0.057	†	(0.032)	-0.057	†	(0.032)	-0.097	**	(0.035)	-0.098	**	(0.035)
2008	-0.126	***	(0.034)	-0.127	***	(0.033)	-0.177	***	(0.037)	-0.178	***	(0.037)
2010	-0.203	***	(0.037)	-0.203	***	(0.037)	-0.263	***	(0.041)	-0.264	***	(0.041)
Intercept	0.959	***	(0.093)	0.953	***	(0.094)	1.007	***	(0.108)	1.005	***	(0.108)

Note. † $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

The effects of spouse's physical health on depressive symptoms of the other partner. The first hypothesis concerning the moderating effects of receiving care from a spouse on the association between one spouse's physical health and the other partner's depressive symptoms was not supported. Results from the analysis of husbands' depressive symptoms (Model 2) found that the receipt of care from wives did not moderate the relationship between wives' functional limitations and husbands' depressive symptoms. That is, the effects of wives' ADL and IADL limitations on husbands' depressive symptoms were not significantly different according to whether or not husbands receive care from their wives. However, results showed a marginally significant interaction between the receipt of care and wives' health conditions ($p = 0.057$). As shown in Figure 3.1, for husbands who did not receive care, more spousal health problems were associated with greater depressive symptoms in the husbands. In contrast, for husbands who received care, more health problems experienced by their caregiving spouse were associated with fewer depressive symptoms in husbands.

Additionally, the analysis of wives' depressive symptoms (Model 4) showed that receiving care from husbands did not moderate the relationship between husbands' physical health and their wives' depressive symptoms. Specifically, the effects of husbands' functional limitations on wives' depressive symptoms were similar for wives who received care from their husbands and wives who did not. The impact of husbands' health problems were not significant for both groups. Taken together, these findings do not support the second hypothesis concerning care-receiving wives' vulnerability to their husbands' poor physical health.

The effects of spouse's mental health on depressive symptoms in the other partner. The third hypothesis concerning the moderating effects of receiving care from a spouse on the association between one spouse's mental health and the other partner's depressive symptoms was supported only for husbands. Results from the analysis of husbands' depressive symptoms (Model 2) showed that the interaction between the receipt of care and wives'

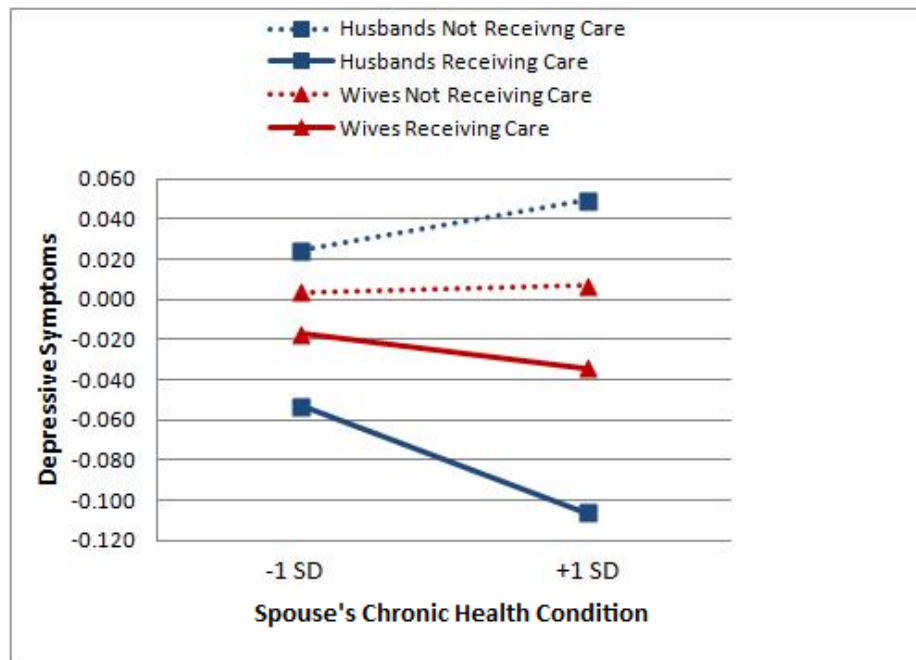


Figure 3.1: Differential effects of health conditions in one spouse on depressive symptoms in the other spouse by care-receiving status and gender. The effect of wives' health condition on their husbands' depressive symptoms significantly differed by whether the husbands receive care from their wives. The effect of husbands' health condition on their wives' depressive symptoms were similar for both wives who received care from their husbands and wives who did not.

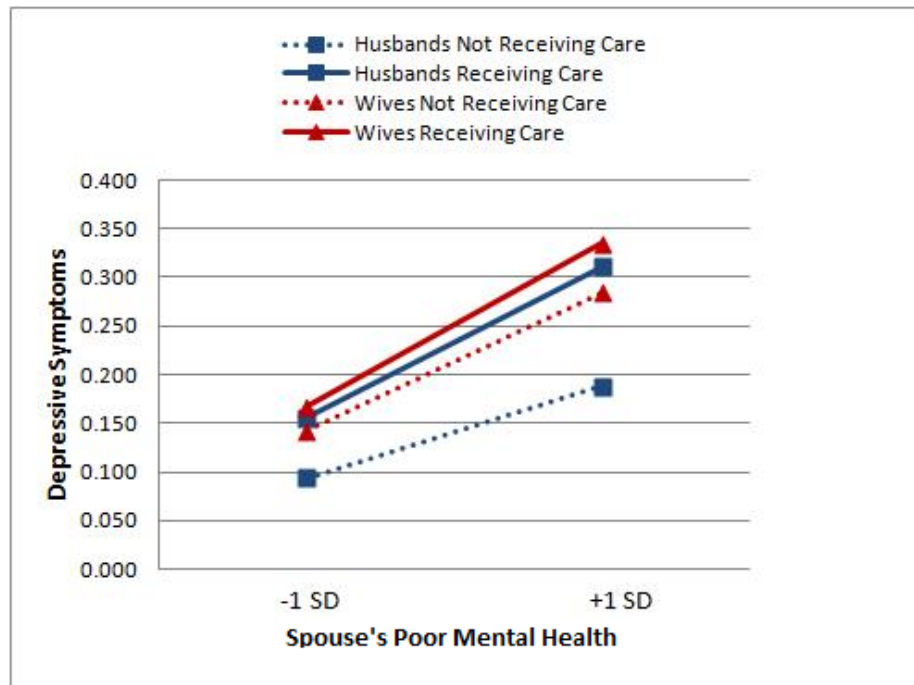


Figure 3.2: Differential effects of depressive symptoms in one spouse on depressive symptoms in the other spouse by care-receiving status and gender. The effect of wives' depressive symptoms on their husbands' symptoms significantly differed by whether the husbands receive care from their wives. The effect of husbands' depressive symptoms on their wives' symptoms were similar for both wives who received care from their husbands and wives who did not.

mental health (i.e., depressive symptoms) was significant ($p < .05$). As shown in Figure 3.2, the effects of wives' depressive symptoms on husbands' symptoms were stronger for husbands who received care from their wives than for husbands who did not receive care. In contrast to husbands, the analyses of wives' depressive symptoms (Model 4) showed no significant interaction between the receipt of care and husbands' mental health. That is, the effects of husbands' mental health were similar for wives who received care from their husbands and wives who did not. Taken together, these results do not support the fourth hypothesis concerning wives' vulnerability to husbands' poor mental health.

3.4 Discussions

This study investigated whether receiving care from spouses moderates the relationship between older adults' depressive symptoms and their spouse's health. A major strength of this study is that it draws from nationally representative data collected for over 10 years from 6,239 couples. Findings from this study highlight two important points with respect to the marital relationship and caregiving in later life. First, the results emphasize the importance of stressful situations, such as care-receiving resulting from functional limitations. Second, gender differences appear in the ways by which care recipients respond to their caregiving spouses' physical and mental health. In this section, I discuss the findings in relation to the hypotheses.

The first hypothesis concerning the moderating effect of receiving care from spouses on the relationships between physical health in one spouse and depressive symptoms of the other was not supported by data. In addition, the second hypothesis focusing on wives' vulnerability to their husbands' physical health was not confirmed by data. The first hypothesis was that a spouse's poor physical health is related to greater depressive symptoms for older adults who receive care as compared to those who do not. Contrary to the first proposed hypothesis, for husbands who receive care from their wives, wives' greater number of health conditions is associated with fewer depressive symptoms in their husbands. For husbands who do not receive care from their wives, the wives' greater number of health problems is associated with the husbands' greater depressive symptoms.

I expected that, if a spouse provides care, the spouse's physical health would have greater effects on his or her partner's depressive symptoms because care-receiving partners might feel guilty and perceive themselves as burdens. However, this study found results opposite to what was expected. This unexpected finding may be explained by the complexity in exchanges of support between spouses. Previous studies indicate that care recipients feel less indebted, more satisfied with their life, and have fewer depressive symptoms when they help their caregivers (Pruchno et al., 1997; Wolff & Agree, 2004). If caregiving spouses

have some chronic health problems, perhaps there are more opportunities for care-receiving partners to help their spouses. For example, care-receiving partners may check medication or help their spouses to adhere to a treatment regimen. Such opportunities to reciprocate help from caregiving spouses may be particularly beneficial for care-receiving husbands. In general, wives are more likely to report being underbenefited in their relationships with husbands and to react negatively to inequity in the marital relationship than are husbands (DeMaris, 2010). Caregiving wives are more likely to perceive costs related to caregiving than are caregiving husbands (Raschick & Ingersoll-Dayton, 2004). Considering that caregiving wives are more sensitive to inequity and cost in the marital relationship, the efforts of care-receiving husbands to help their wives may produce more positive effects for couples in which wives are caregivers.

The third hypothesis concerning the moderating effects of care receipt on the associations of depressive symptoms between spouses was supported only for husbands. The fourth hypothesis focusing on wives' vulnerability to their husbands' mental health was not confirmed by data. Instead, the data suggest that the receipt of care from a spouse makes husbands more vulnerable to their wives' depressive symptoms. Specifically, findings suggest that the effects of wives' depressive symptoms are stronger for husbands who receive care from their wives than for husbands who do not receive care. These findings indicate that care-receiving husbands are more sensitive to their caregiving wives' depressive symptoms than those husbands who do not receive care from their wives. However, findings show that, when wives have depressed husbands, they show similar levels of depressive symptoms regardless of whether or not the wives receive care from their husbands.

One explanation is that the findings of vulnerability among care-receiving husbands to caregiving wives' depressive symptoms may stem from the combined effects of shrinking social networks among older adults and health problems. In general, research on social support among older adults indicates that the size of the social network decreases as individuals age (Shumaker & Hill, 1991). Older men report greater decreases in social network

size than do women; men's reliance on spouses for social support increases greatly with age (Antonucci & Akiyama, 1987; Waite & Gallagher, 2001). Furthermore, care-receiving older adults with illness or disabilities experience decreases in their social networks because they may not be able to engage in social activities due to health problems (Lyons et al., 2002, 1995). Care-receiving partners tend to show increased emotional dependency on their spouses because they fear disabilities and death (Rolland, 1994). Thus, husbands' increased dependency on their wives as sources of emotional support and care may exacerbate their vulnerability to their wives' depressive symptoms.

Another explanation for care-receiving husbands' susceptibility to their wives' depressive symptoms is the existence of gender differences in the degree to which care recipients rely solely on their spouse's help. Previous research suggests that wives are more likely to be the sole caregiver for their husbands (Feld et al., 2005). Caregiving wives take over their husbands' roles and extend the amount of care they provide as their husbands' needs increase (Noel-Miller, 2010). In addition, depressed caregiving spouses are more likely to provide a low quality of care than non-depressed caregiving spouses by treating their partner in potentially harmful ways (Williamson & Shaffer, 2001). Situations in which a sole caregiver is depressed are likely to have more impact on care quality and subsequent care recipient depression than are situations in which there are multiple caregivers and one is depressed.

In summary, this study shows that husbands who receive care from depressed wives are particularly at risk for greater depressive symptoms. The findings from this study contribute to a growing body of literature on the role of marital relationships in explaining depressive symptoms in later life (Stimpson et al., 2006). Specifically, this study identified factors that may increase vulnerability to spouses' physical and mental health, such as the receipt of care from a spouse and the gender of the care recipient. By investigating the roles of care receipt in the effects of the spouse's physical and mental health, this study was able to identify those who are particularly susceptible to a spouse's mental health: husbands who

receive care from their wives.

Another contribution of this study is to the literature on psychosocial well-being of older adults with chronic illness and disabilities (Dunne et al., 2011; Yang, 2006). Existing research has focused on individual characteristics related to psychological well-being, such as self-esteem, sense of mastery, and perceived social support (Dunne et al., 2011; Newsom & Schulz, 1996; Yang, 2006). Less attention has been paid to the interpersonal context that may affect psychological well-being of older adults with chronic illness and disabilities. By focusing on the influence of a spouse's physical and mental health on care recipients, this study expanded our understanding of why older adults with chronic illness or disabilities are vulnerable to depressive symptoms even when they receive help from people in close relationships.

Despite this study's strengths, several limitations should be noted. First, this study is somewhat limited in testing the moderating effects of the gender of care recipients on the relationship between caregivers' health and care recipients' depressive symptoms. Because a measure of depressive symptoms was only available for the spouse's mental health in the HRS data, I was not able to include a three-way interaction in the analytic models among the spouse's mental health, the receipt of care, and gender. For instance, if there were other indicators for spouses' mental health, such as psychological distress, it would be possible to test the three-way interactions between care receipt, gender, and spouse's levels of distress in predicting the other partner's depressive symptoms. Instead of testing three-way interactions, I conducted subgroup analyses by gender. Although this study found gender differences in care recipients' vulnerability to caregivers' mental health, the significance of gender differences was not tested. Future research should use various types of measures for the spouse's mental health, such as psychological distress and anxiety, to investigate the moderating effects of gender and the receipt of care on the relationship between spouses' mental health and the other partners' depressive symptoms.

Second, the present study is exploratory in examining the cross-sectional relationships

among the receipt of care from a spouse, the spouse's physical and mental health, and the other partner's depressive symptoms. Considering that a spouse's physical and mental health as well as the receipt of care varies over time, examining cross-sectional relationships is not effective in assessing the dynamic process that occurs between spouses as their functioning changes. Because the moderator (i.e. receipt of care) as well as the independent variables (spouse's physical and mental health) change over time, future research needs to use more sophisticated research designs and methods to capture dynamic-longitudinal relationships among care receipt, spouses' physical and mental health, and the other partners' depressive symptoms.

Finally, previous studies have suggested that the quality of the marital relationship is important in examining the influences of one spouse's health on the other's depressive symptoms (Kouros & Cummings, 2010; Tower & Kasl, 1996). In particular, mutuality, communication, and interpersonal interactions between spouses may play an important role in the association between caregivers' health and care recipients' depressive symptoms (Savundranayagam et al., 2005; Wolff & Agree, 2004). Future studies that elaborate pathways of increased risk for depressive symptoms in care-receiving husbands would be useful.

In conclusion, findings from this study provide insights on care receipts' psychological well-being by highlighting the role of interpersonal contexts within marital relationship and suggest directions for future research. In addition, this study makes an important contribution to research on gender differences in depressive symptoms. By examining the role of care receipt, this study provides evidence for the contextual factor contributing to men's vulnerability to depressive symptoms. Further studies are warranted to elaborate health-related life stressors that intensify the influence of one spouse's characteristics on depressive symptoms in the other. Also, future research should articulate the interactive process between spouses in shaping each other's depressive symptoms. By continuing to examine the interpersonal factors and common stressors that contribute to older adults' psy-

chological well-being, we can expand our knowledge of how marital relationships affect mental health. Such knowledge will help in the design of dyadic interventions that may prevent and alleviate negative outcomes that occur when one spouse experiences physical or mental health problems in later life.

CHAPTER IV

SPOUSAL SUPPORT AND DEPRESSIVE SYMPTOMS AMONG CAREGIVING COUPLES: A DYADIC ANALYSIS

4.1 Introduction

Marital relationships have strong influences on older adults' mental health (Holahan et al., 2007; Williams & Umberson, 2004), particularly when one spouse suffers from illness or disability and needs care from the other partner (Wolff & Kasper, 2006). One spouse's chronic illness or disability can result in significant distress and adjustment for both the ill spouse and his or her partner (Berg & Upchurch, 2007). Thus, a dyadic perspective is helpful in understanding the impact of illnesses and disabilities on mental health outcomes of caregivers and care recipients because it takes into account spousal influences on each other.

Existing literature suggests that social support from spouses plays an important role in their partner's mental health outcomes in both positive and negative ways (Berkman et al., 2000). Specifically, research on caregiving couples found that positive emotional support from caregiving spouses was related to care recipients' positive outcomes, such as adaptive coping behaviors, fewer negative reactions to loss of functional independence and fewer depressive symptoms (Druley & Townsend, 1998; Martire et al., 2002; Schulz &

Schwarzer, 2004). Emotional support from care-receiving spouses also contributes to their caregiving partners' lower levels of caregiving burden and stress and greater well-being (Kleiboer et al., 2006; Raschick & Ingersoll-Dayton, 2004; Wright & Aquilino, 1998). Conversely, negative social exchanges with spouses, such as criticism and rejection, results in maladaptive coping behaviors, increased distress, and more depressive symptoms for care recipients (Druley & Townsend, 1998) and greater caregiving burdens, stress, and depressive symptoms for caregiving partners (Townsend & Franks, 1997).

Many studies have provided evidence that social support from one spouse plays a critical role in contributing to his or her partner's mental health outcomes among the general population of married couples or among caregiving dyads. However, few studies have examined to what extent social support from spouses has more protective or harmful effects on caregiving couples compared to non-caregiving couples. When one spouse is sick, the couple needs to adjust their expectations, roles, and responsibilities in their marital relationships. In such stressful situations, positive and negative support¹ from spouses may be even more salient for caregiving couples than for non-caregiving couples.

Additionally, previous literature has shown that the effects of positive and negative social exchanges vary by gender (Acitelli & Young, 1996; Waite & Gallagher, 2001; Walen & Lachman, 2000). In general, women tend to have larger and more diverse social networks as well as provide and receive more social support (Antonucci & Akiyama, 1987). In terms of the influence of spousal support, women are more relationship-oriented and are more influenced by spousal support than men (Antonucci & Akiyama, 1987; Bolger et al., 1989). However, it has been less well-understood whether or not these gender differences in the effects of positive and negative support on mental health exist among caregiving couples.

The purpose of this study is to understand the extent to which caregiving and care-receiving affect the relationship between social support from a spouse (i.e., positive and

¹Negative support refers to negative aspects of social relations, such as criticism and rejection (Rook, 1984). Negative support, negative social exchanges, and social strain are interchangeably used in this dissertation.

negative support) and their partner's depressive symptoms. This study also aims to understand how the gender of caregivers and care recipients influences the association between social support from spouses and their partner's depressive symptoms.

The present study adds to the existing literature on caregiving couples in three ways. First, using nationally representative data of older couples, this study tests the moderating effects of caregiving and care-receiving on the association between social support from spouses and their partner's depressive symptoms. It has been well-established that positive and negative support from spouses is important for the general population of married couples. However, only a small body of studies examined the joint effects of instrumental support (i.e., physical care) and emotional support (i.e., positive and negative support) (Krause, 1995). This study examines how the relationship between the quality of support (i.e. positive and negative support) and depressive symptoms differ by whether or not individuals receive or provide instrumental support (i.e., physical care). In doing so, this study contributes to advancing knowledge of the extent to which caregiving or care-receiving circumstances make positive and negative support from spouses more important for mental health outcomes.

Second, there has been research on the relationship between positive and negative support exchanges between members of caregiving dyads and their impact on one another, but few studies included both care recipients and caregivers in analyses of the association between positive and negative support and depressive symptoms. This study includes both caregivers and care recipients; thus, the effects of positive and negative support from spouses on depressive symptoms are compared across caregivers, care recipients, and individuals who are not involved in care relationships.

Third, previous studies have emphasized the role of gender in understanding the relationship between social support and psychological well-being (Acitelli & Young, 1996; Waite & Gallagher, 2001; Walen & Lachman, 2000). However, gender differences in the effects of support from spouses on mental health outcomes in caregiving couples have re-

ceived less attention. Existing studies have established that, following stressful events, women who receive positive support from their spouses are less at risk of depression whereas men are not (Edwards et al., 1998). Given well-documented gender differences in caregiving stress and social support (Lutzky & Knight, 1994; Miller & Cafasso, 1992; Pinquart & Sörensen, 2006; Yee & Schulz, 2000), this study investigates gender differences in the effects of social support from spouses on depressive symptoms in caregiving partners and care-receiving partners. This investigation uses dyadic analyses to compare three different groups: couples who do not provide or receive care, couples in which husbands receive care from their wives, and couples in which wives receive care from their husbands.

4.1.1 Positive and negative support and depressive symptoms in caregiving and non-caregiving couples

The first aim of this study is to examine differences between caregiving couples and non-caregiving couples in the effects of positive and negative support from spouses on their partner's depressive symptoms. Among the social relationships of older adults, the spousal relationship is especially important for older adults' well-being because most people turn to their spouses to receive support in times of crisis, such as illness (Antonucci et al., 2001; Primomo et al., 1990). Spouses are the largest group that provides care for frail older adults and are the primary source of emotional and instrumental assistance for older adults with functional disabilities (Lima et al., 2008). However, close relationships, including spousal relationships, consist of both positive and negative social exchanges (Antonucci et al., 2001; Rook, 1984).

Research on the general population of older adults indicates that positive support from spouses alleviates the adverse impact of stressful events and increases individuals' psychological well-being (Acitelli & Antonucci, 1994; Antonucci, 1989; Cutrona, 1996; House et al., 1988). In contrast, negative social exchanges with spouses have detrimental effects on psychological health, such as depression, emotional distress, and diminished life sat-

isfaction (Brown et al., 2003; Newsom et al., 2008; Reinhardt, 2001; Rook, 1998; Rook et al., 2007; Schuster et al., 1990). Furthermore, interpersonal conflict can be a stressor in itself (Rook, 1997; Rook et al., 2007). While the above studies focused on the general population of older adults, the following sections focus more narrowly on a review of the literature of positive and negative support between caregivers and care receiver.

4.1.1.1 Positive support from spouse and caregiving couples

For caregiving dyads, many studies have found that positive support from care recipients helped decrease caregivers' stress and burden (Dwyer et al., 1994; Ingersoll-Dayton et al., 2001; Reid et al., 2005; Walker et al., 1992). Caregivers who received emotional support from care recipients reported more benefits related to caregiving, such as feeling good about themselves and feeling grateful about life (Raschick & Ingersoll-Dayton, 2004). However, caregivers who had fewer exchanges of emotional support with care recipients experienced higher levels of caregiving burden and perceived caregiving as unrewarding and frustrating (Snyder, 2000).

Positive support from care recipients may be more important for caregiving spouses' psychological well-being than for non-caregiving spouses. Because caregiving often requires considerable commitment and effort for a long-term period (Miller, 1990; Parmelee, 1983), positive support from care recipients, such as companionship, may serve as a reward for caregivers. Positive support from care recipients perhaps contributes to maintaining or re-building reciprocity in their marital relationship, even when roles and responsibilities between spouses change due to health problems.

For care recipients, there are few studies on how caregivers' positive support affects care recipients, so here I review studies of couples dealing with chronic illnesses. Studies of couples coping with chronic illnesses suggest that positive support from patients' spouses provided benefits to patients' psychological well-being (Druley & Townsend, 1998; Franks et al., 2006; Manne et al., 1999a). Previous studies examined patients with specific diseases

(e.g. cancer and osteoarthritis) and their spouses, and found that spouses' positive support was associated with patients' greater use of effective coping strategies, greater psychological well-being, and fewer depressive symptoms (Druley & Townsend, 1998; Franks et al., 2006; Manne et al., 1999b). Ball et al. (2010) also found that emotional support from caregivers was associated with decreases in depressive symptoms of patients with dementia.

Positive support from spouses may have a greater impact on care recipients' depressive symptoms than it does for those who do not receive care from their spouses. This is because care receiving partners may need to rely on their spouses emotionally more than in the past because of their anxiety and fear about illness and death. Furthermore, positive support from caregiving spouses may be closely related to the ways in which couples interact and communicate with each other. Care recipients who receive emotional support from their spouses perhaps feel that their spouses are responsive to their needs. In such cases, care recipients feel secure about discussing how they would like to receive help from their spouses and asking their spouse for help. Thus, positive support from spouses may be associated with the quality of care provided by the spouses. Positive support from spouses may have greater importance for care-receiving partners.

4.1.1.2 Negative support from spouses and caregiving couples

Research on caregivers found that negative interactions with care recipients were associated with greater distress and depressive symptoms of caregivers (Creasey et al., 1990; Sheehan & Nuttall, 1988; Stephens et al., 1987; Townsend & Franks, 1995, 1997). Although negative support from care recipients infrequently exists (Carruth, 1996; McCann & Evans, 2002), having negative support from spouses may have a greater impact on the depressive symptoms of caregiving spouses as compared to non-caregiving spouses. Caregiving responsibilities may create or exacerbate feelings of inequity in marital relationships because of the burden that caregiving can impose on spouse caregivers. Furthermore, if care recipients express criticism and rejection toward caregivers, it may be difficult for

caregivers to cope with negative interactions with care recipients. In addition, caregiving spouses tend to receive less support from other informal and formal networks because caring for an ill partner is seen as a part of the marriage contract (Miller, 1990). Given spousal caregivers' risk for stress and burden, caregiving situations may increase spouses' vulnerability to negative support from their partner.

Existing studies have suggested that some spouses respond negatively to their ill partners, such as expressing excessive worry or, inversely, avoiding an ill partner while providing instrumental help to them (Lutzky & Knight, 1994; Manne et al., 1999a; Rook, 1998). Negative support from spouses may have more adverse effects on care-receiving older adults than healthy older adults. This is because negative responses from caregiving spouses constitute violations of the expectation, from the perspective of care recipients, that close relationships are supportive in times of crisis (Kuijjer et al., 2002). Caregiving spouses who behave in negative ways toward their care recipient may not provide care appropriately, such as overprotecting them or treating them with less respect (Thompson & Sobolew-Shubin, 1993). Moreover, as spousal caregivers exhibit greater negative behaviors toward their care-receiving partners, such as criticism, care recipients may try to be undemanding, passively accept care and comply with caregivers' decisions over care to avoid tension in their relationship with caregivers (Lewinter, 2003; Ward-Griffin et al., 2006). This passivity on the part of the care recipient may result in certain needs of the care recipient not being met. These unmet needs, in turn, may contribute to care recipients' depressive symptoms.

In sum, previous research on social support indicates that both positive and negative support from spouses has distinctive and unique effects on older adults' psychological well-being (Lincoln, 2008). Additionally, the caregiving literature demonstrates that positive and negative exchanges between caregivers and care recipients buffer or exacerbate the harmful impact of illness and disabilities in one spouse on the couple (Ball et al., 2010; Franks et al., 2006). These positive and negative exchanges between spouses themselves

are also crucial for their adaptation to illness and disabilities, stress related to care, and their mental health outcomes. Few studies, however, have examined both caregiving couples and non-caregiving couples and evaluated to what extent caregiving/care-receiving conditions make support exchanges between spouses more important. This study addresses these gaps in the previous literature by comparing caregiving couples and non-caregiving couples and examining group differences in the impact of spousal support on depressive symptoms. The hypothesis is that positive and negative support from spouses will exert a greater impact on mental health outcomes for spouses in caregiving couples than those for spouses in non-caregiving couples.

4.1.2 Gender, social support from spouse, and care

The second aim of this study is to investigate whether the moderating effects of caregiving/care receipt on the relationships between positive and negative support from spouses and depressive symptoms vary by the gender of caregivers/care recipients. The findings of previous research based on the general population of older adults have been mixed regarding gender differences in the effects of positive and negative support from spouses on their partner's depressive symptoms. Some studies have found that positive and negative support in the marital relationship has more significant effects on psychological well-being for women than for men (Abbey et al., 1995; Acitelli & Young, 1996; Acitelli & Antonucci, 1994; Bolger et al., 1989; Schuster et al., 1990). Other studies have reported that positive and negative support from spouses had a greater effect on psychological well-being for men than for women as individuals got older (Antonucci & Akiyama, 1987; Waite & Gallagher, 2001). However, in a final set of studies, gender differences in the effects of positive and negative support from spouses on their partner's psychological well-being were not observed (Dean et al., 1990; Okun & Keith, 1998; Walen & Lachman, 2000).

Although extensive research has examined gender and social support from spouses, there are few studies that considered gender differences in the association between pos-

itive/negative support from spouses and mental health in the context of caregiving. Most studies focused exclusively on either women or men (Ball et al., 2010; Snyder, 2000) or did not investigate gender differences (Druley & Townsend, 1998; Symister & Friend, 2003; Townsend & Franks, 1997). Concerning the impact of spousal support on caregivers, wife caregivers may be more strongly influenced by spousal support than husband caregivers. In general, caregiving wives report higher levels of distress and greater feelings of isolation than do caregiving husbands (Hooker et al., 2000; Pinqart & Sörensen, 2006; Yee & Schulz, 2000); thus, care recipients' positive and negative support for caregivers may be more critical to caregiving wives than to caregiving husbands' symptoms. Raschick and Ingersoll-Dayton (2004) found that emotional support from care recipients had a more positive impact on life satisfaction related to caregiving roles for wives than for husbands. Thus, I expect that positive and negative support from spouses has greater effects on caregiving wives than on caregiving husbands.

In addition, many studies have shown that negative support from caregivers affects care recipients' adaptation to illness and psychological well-being. However, few studies have examined gender differences in the relationship between positive/negative support from caregivers and care recipients' depressive symptoms. Given a dearth of research on gender differences in the effects of positive and negative support from caregivers on care recipients, I draw on studies of patients with chronic illness and their spouses. One study on patients with cancer found gender differences in reporting positive and negative support from spouses (Manne et al., 1999a). Female patients were more likely to report positive support from their spouse (e.g. showing love/affection) than were male patients. In contrast, male patients were more likely to report negative support from their spouse (e.g. being demanding) than were female patients (Manne et al., 1999a). These gender differences may result from the fact that women are more likely to focus on positive support from support providers and less likely to recall negative support from support providers than are men (Yankeelov et al., 1991). Manne et al. (1997) found that greater positive support from

spouses was significantly related to greater psychological well-being for female patients with cancer, but not for male patients. However, no gender differences were found in terms of the effects of negative support from spouses on psychological distress. Because women generally report less support in their marital relationship (DeMaris, 2010), spousal support in times of need may have a greater impact on wives than on men. Thus, this study hypothesizes that the relationships between positive/negative support from spouses are stronger for care-receiving women than for care-receiving men.

4.2 Method

4.2.1 Sample

This study is based on two sub-samples of the Health and Retirement Study that consist of those respondents who lived with their spouses in the community in 2006 (3,538 individuals) or in 2008 (2,600 individuals). These sub-samples were derived from those respondents who completed the Leave-Behind Participant Lifestyle Questionnaires (Lifestyle Questionnaires) in 2006 (7,383 individuals) or 2008 (5,829 individuals) which covers psychosocial aspects of the respondents' lives and includes variables needed for this study. Although HRS collected data from the same individuals over time, there was only one respondent who completed the Lifestyle Questionnaires in both 2006 and 2008. Thus, it was not possible to investigate the proposed model using prospective data. Instead, I used two cross-sectional data sets from the 2006 and 2008 waves of the HRS. The inclusion criteria for the analytic sample were: (1) respondents were married or partnered, (2) respondents lived with their spouse/partner in the community, (3) respondents answered the survey by themselves, not by a proxy person, (4) respondents and their spouse were heterosexual couples, (5) respondents were not missing information about whether or not they receive care from their spouse, and (6) both respondents and their spouses responded to the Lifestyle Questionnaire during the same wave. The fourth criterion was included to distinguish the

partners in the couple and split them into the sample of wives and the sample of husbands in dyadic analyses. The fifth criterion was included because I needed the information about respondents' care-receiving status to conduct subgroup analyses, and the last criterion was necessary to create the sample for matched couples and gain information from both partners. In addition, if both spouses in a couple provided care to each other, those couples were excluded because it was difficult to determine which partner was a caregiver or care receiver in the couple. The number of couples where spouses provided care to each other was very small (40 couples), so there were too few to generate a separate category for subgroup comparisons. These inclusion criteria resulted in 3,097 couples. Additionally, 28 couples were dropped because of missing values on exogenous variables (i.e. wives' or husbands' education); thus, 3,069 couples (6,138 individuals) were included in the final analysis.

With respect to demographic information, the average age of the husbands in this study was 68 years old, and the average age of the wives was 64 years old. In terms of educational background, the average amount of education for both husbands and wives was 13 years. With respect to race, 89% were White, 7% were African American or Black, and 4% were categorized as "other" both for husbands and wives. The average number of functional limitations was 0.22 for wives and 0.23 for husbands. Table 4.1 presents detailed information on the sample characteristics by subgroups. Care-receiving and caregiving spouses were more likely to be older, functionally impaired, and depressed than were those who did not receive or give care. In addition, care-receiving and caregiving spouses were likely to have fewer years of education than those who did not receive or give care.

4.2.2 Measures

Spousal care. Spousal care was assessed by whether or not spouses received any help related to activities of daily living (ADL) or instrumental activities of daily living (IADL) from their partner during the past month. The ADL included whether or not the respondent

had some difficulties in (1) bathing, (2) eating, (3) dressing, (4) walking across a room, (5) getting in or out of bed, and (6) using the toilet. The IADL included whether or not the respondent had some difficulties in (1) using the phone, (2) managing money, (3) taking medications, (4) shopping for groceries, and (5) preparing hot meals. If a respondent received any help with ADL or IADL, then the respondent was coded as a care recipient, and the respondent's partner was coded as a caregiver. This measure was used to create subgroups to test moderating effects of caregiving and care receipt. I provide a detailed explanation of generating subgroups in the analytic strategy section.

Positive support from spouses. Respondents' perceived positive support from their partners was measured by three items, assessed with a scale ranging from 0 (not at all) to 3 (a lot). The three items were as follows: (1) how much his or her partner really understood the way the respondent felt about things; (2) how much the respondent could rely on his or her partner if the respondent had a serious problem; (3) how much the respondent could open up to their spouse if the respondent needed to talk about his or her worries.

Negative support from spouses. Respondents' perceived negative support from their partners was measured by four items, assessed with a scale ranging from 0 (not at all) to 3 (a lot). The questions were how much his or her partner: (1) demanded of the respondent; (2) criticized the respondent; (3) let the respondent down when the respondent was counting on him or her; and (4) got on the respondent's nerves.

Depressive symptoms. Depressive symptoms were measured by a shortened version of the Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977). The CESD score is the sum of eight indicators. Six of the eight indicators measure whether the respondent experienced the following negative sentiments all or most of the time during the past week: depression, everything is an effort, sleep is restless, feel alone, feel sad, and cannot get going. The other two indicators measure positive feelings, such as whether the respondent felt happy and enjoyed life all or most of the time. The indicators of positive feelings were reverse-coded. Thus, higher scores indicate greater depressive symptoms in

the past week, ranging from 0 to 8.

Control variables. Respondents' age, race, education level, functional impairments, and whether a respondent answered the survey in 2006 or 2008 were included as control variables in the analytic model.

4.2.3 Analysis plan

The main analytical strategy for this study is structural equation modeling using Mplus. Because one spouse's reports about positive and negative support from their spouse and depressive symptoms are correlated with their partner's reports on these things (since they are partnered to each other), this non-independence needs to be considered in the analyses. Structural equation modeling can take into account non-independence between scores of spouses while estimating the hypothesized regressions for wives and husbands simultaneously (Kenny, 1996). The non-independence was allowed by correlating the disturbances (i.e., the error correlations) of latent constructs between husbands and wives.

I tested two separate structural equation models, which differed only by the predictor (i.e. positive support or negative support from spouses). The effects of positive support and negative support on depressive symptoms were estimated separately because of concerns about multicollinearity between these two types of support. There was a strong linear relationship between positive support from husbands and negative support from husbands among wives. The estimated correlation between the latent construct for positive support from spouses and the latent construct for negative support from spouses was $-.740$ for wives who were not involved in caregiving or care-receiving; $-.718$ for caregiving wives; and $-.818$ for care-receiving wives. Multicollinearity can lead to the standard errors of the coefficients becoming widely inflated and unstable coefficients. To avoid these problems of multicollinearity, the effects of positive and negative support from spouses were individually estimated in analyses.

To address the research questions, I conducted several steps to test the moderating ef-

fects of the receipt of care on the relationship between spousal support and depressive symptoms. First, using the overall sample, the effects of positive and negative support from spouses on depressive symptoms were examined after controlling for age, race, education, functional impairment levels, and waves when survey was conducted. Once the overall model was identified, the moderating effect of the provision and receipt of care was tested by conducting subgroup analyses. Three subgroups were generated based on whether individuals receive care from their spouse and the gender of caregivers/care-receivers. The first group is the couples where spouses do not provide or receive care in relation to each other; the second group includes the couples where husbands receive care from their wives; and the third group includes the couples where wives receive care from their husbands. To explore how the provision and receipt of care from spouses influences the association between positive and negative support from spouses and depressive symptoms, I constrained the factor loadings of each latent construct to be equal across three subgroups, and estimated the paths between the constructs separately for couples with no caregiving/receiving, couples with care-receiving husbands and couples with care-receiving wives. The chi-square difference test was used to determine whether the moderating effects were significant or not.

Model fit was assessed using the comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR). CFI values greater than .90 indicate an acceptable fit, and RMSEA values less than .06 and an SRMR value less than .08 indicate a good fit (Kline, 2011). The χ^2 goodness-of-fit test is generally a primary model fit index, but it is sensitive to sample size (Kline, 2011). Therefore, I used CFI, RMSEA, and SRMR to evaluate the model fit.

Last, missing data were examined; 200 couples had missing values on at least one of the dependent variables or observed variables. 34-37 husbands and 28-31 wives had missing values in the measure of observed variables for negative interactions with spouses, 27-34 husbands and 24-38 wives in the measure of observed variables for positive support, and 1 husband in the measure of depressive symptoms. A full-information maximum likelihood

estimator (FIML), as implemented in Mplus, was used to estimate the model with missing data (Enders, 2010). The FIML approach includes not only complete cases but also partially recorded cases into the likelihood function for the estimation of parameters. FIML has been found to be more accurate and more efficient than other methods of handling missing data, such as listwise deletion or pairwise deletion (Enders, 2010).

HRS has a complex sampling design, so the data were analyzed with household-level weights to correct for oversampling of African Americans, Hispanics, and Floridians. Results presented in this study are based on weighted data. However, the effects of stratification and clusters were not taken into account in analyses because the sample size of caregiving couples was so small to represent all stratifications and clusters used in the HRS.

4.3 Results

Table 4.1 displays means and standard deviations of the study variables. On average, husbands were significantly older than their wives ($p < .05$) and were likely to have more years of education than their wives ($p < .05$). Among subgroups of husbands, no significant differences were observed in terms of demographic characteristics. Among subgroups of wives, both care-receiving and caregiving wives were older than no care wives. In addition, caregiving wives reported lower levels of positive support from their husbands than care-receiving wives and no care wives.

Table 4.1: Descriptive statistics of the overall sample and subgroups

	Husbands				p^a	Wives				p^a	p^b
	All (n=3069)	No care (n=2619)	Care recipient (n=233)	Caregiver (n=217)		All (n=3069)	No care (n=2619)	Caregiver (n=233)	Care recipient (n=217)		
Age	64.26 (0.06)	63.73 (0.06)	68.77 (0.17)	67.00 (0.60)		61.04 (0.02)	60.61 (0.04)	63.94 (0.19)	64.03 (0.11)	*	*
Race(1=white)	92.12%	92.69%	87.94%	88.94%		92.36%	92.65%	87.89%	92.96%		
Years of education	13.68 (0.01)	13.83 (0.02)	12.64 (0.03)	12.78 (0.16)		13.42 (0.04)	13.53 (0.06)	12.64 (0.23)	12.66 (0.05)		†
Functional impairment	0.20 (0.01)	0.01 (0.00)	2.92 (0.22)	0.05 (0.00)	*	0.20 (0.01)	0.01 (0.00)	0.04 (0.03)	3.02 (0.32)	†	
Positive support from spouse											
Understand the way you feel	2.49 (0.01)	2.50 (0.02)	2.35 (0.01)	2.45 (0.03)		2.25 (0.01)	2.28 (0.01)	1.98 (0.02)	2.19 (0.01)	†	**
Rely on spouse if serious problem	2.84 (0.00)	2.85 (0.01)	2.79 (0.05)	2.74 (0.00)		2.75 (0.00)	2.78 (0.00)	2.37 (0.10)	2.78 (0.05)		*
Open up to spouse about worries	2.56 (0.01)	2.57 (0.01)	2.49 (0.01)	2.41 (0.06)		2.38 (0.00)	2.41 (0.00)	2.07 (0.04)	2.27 (0.01)	†	*
Negative support from spouse											
Too many demands on you	1.04 (0.02)	1.01 (0.02)	1.13 (0.11)	1.32 (0.09)		1.02 (0.02)	0.98 (0.02)	1.56 (0.08)	1.00 (0.10)		
Criticize you	1.12 (0.00)	1.12 (0.82)	1.26 (0.86)	1.14 (0.82)		1.00 (0.02)	0.92 (0.02)	1.27 (0.10)	1.13 (0.08)		†
Let you down	0.48 (0.01)	0.46 (0.00)	0.68 (0.13)	0.55 (0.04)		0.75 (0.01)	0.73 (0.01)	1.03 (0.08)	0.75 (0.03)		**
Gets on your nerves	0.88 (0.02)	0.86 (0.02)	1.02 (0.04)	0.96 (0.06)		1.13 (0.01)	1.10 (0.00)	1.42 (0.15)	1.19 (0.01)		*
Depressive symptoms	0.85 (0.01)	0.72 (0.04)	2.44 (0.28)	1.01 (0.12)		1.10 (0.05)	0.93 (0.05)	1.63 (0.31)	2.93 (0.02)		

Note. a. Statistical significance of mean differences across subgroups. † $p < .10$ * $p < .05$

b. Statistical significance of mean differences across husbands and wives. † $p < .10$ * $p < .05$

Table 4.2 presents correlations between the study variables. The high levels of correlations among the observed variables of latent constructs supported the construction of the latent variable. For both husbands and wives, the correlations appeared to be in the expected direction. A spouse's greater negative support was associated with his or her partner's greater depressive symptoms. A spouse's greater positive support was related with his or her partner's fewer depressive symptoms. Higher levels of negative support from spouses were related to lower levels of positive support from spouses.

Table 4.2: Correlations between lack of reciprocity in marital relationship, negative and positive support, and depressive symptoms (N = 3,069)

	1	2	3	4	5	6	7	8
1. Too many demands on you	—	0.521	0.471	0.475	-0.329	-0.331	-0.331	0.146
2. Criticize you	0.515	—	0.461	0.488	-0.387	-0.258	-0.372	0.159
3. Let you down	0.400	0.361	—	0.551	-0.494	-0.485	-0.496	0.205
4. Gets on your nerves	0.451	0.486	0.456	—	-0.476	-0.383	-0.466	0.219
5. Understand the way you feel	-0.287	-0.329	-0.369	-0.396	—	0.500	0.657	-0.204
6. Rely on spouse if serious problem	-0.182	-0.176	-0.332	-0.244	0.419	—	0.591	-0.194
7. Open up to spouse about worries	-0.256	-0.279	-0.380	-0.345	0.571	0.500	—	-0.203
8. Depressive symptoms	0.125	0.137	0.168	0.183	-0.204	-0.140	-0.156	—

Note. Correlation values for husbands are below the diagonal; those for wives are above the diagonal. All correlations are significant at the 0.001 level.

4.3.1 Testing the overall model

In the following sections, I discuss the results of the models of the effects of positive and negative support from spouses on depressive symptoms for the overall sample.

4.3.1.1 Positive support from spouses

A test of the overall model for the effects of positive support from spouses on depressive symptoms resulted in an acceptable fit to the data: $\chi^2(70) = 248.874, p < .001$; RMSEA=.033; CFI=.953; SRMR=.036. Factor loadings for the latent construct of negative interactions with spouses were statistically significant ($p < .001$); the standardized coefficients ranged from .624 to .808 for husbands and from .681 to .870 for wives. Figure 4.1 presents the standardized and unstandardized coefficients for paths and the squared multiple correlations (R-squared) for each construct, which shows the percent variance explained by the model.

For husbands, the results indicated that greater positive support from their wives was related to the husbands' fewer depressive symptoms ($\beta = -.173, p < .001$). Being older and non-white was associated with greater positive support from their wives. Being older, having greater years of education, and less functional impairment was related to fewer depressive symptoms. For wives, greater positive support from their husbands was related to wives' fewer depressive symptoms ($\beta = -.223, p < .001$). For wives, being older was related to positive support from spouses. Being older, more educated, and less impaired was related to fewer depressive symptoms.

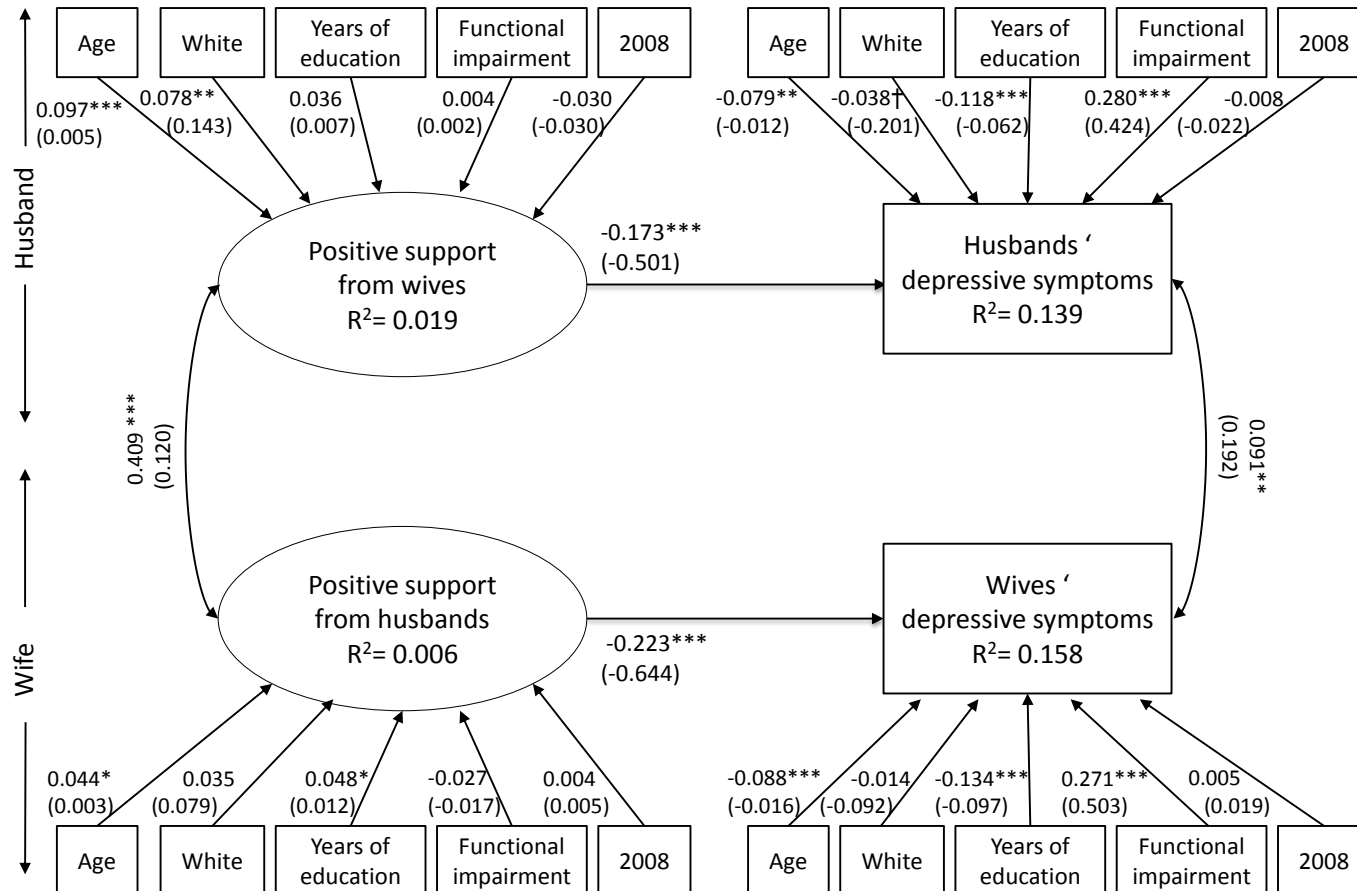


Figure 4.1: Structural equation model of the effects of positive support from spouses on depressive symptoms for the overall sample. $\chi^2(70, N = 3,069) = 256.479, p < .001$; CFI=.953; RMSEA=.029; SRMR=0.036. Coefficients presented first are standardized, and coefficients in the parentheses are unstandardized. * $p < .05$ ** $p < 0.01$ *** $p < .001$

4.3.1.2 Negative support from spouses

A model that tests the effects of negative support from spouses on depressive symptoms resulted in an acceptable fit: $\chi^2(103) = 474.136, p < .001$; RMSEA=.034; CFI=.928; SRMR=.036. The standardized coefficients of factor loadings for negative support ranged from .591 to .708 for husbands and from .688 to .724 for wives. Figure 4.2 presents the standardized and unstandardized coefficients for paths and the squared multiple correlations (R-squared) for each construct.

For husbands, the results indicated that greater negative support from their wives was related to husbands' greater depressive symptoms ($\beta = .189, p < .001$). Being older, White/Caucasian, and responding the 2008 psychosocial survey were associated with less negative support from their wives. For wives, greater negative support from their husbands was related to wives' greater depressive symptoms ($\beta = .235, p < .001$). Being White/Caucasian was related to less negative support from spouses, and being older, more educated, and less impaired was related to fewer depressive symptoms.

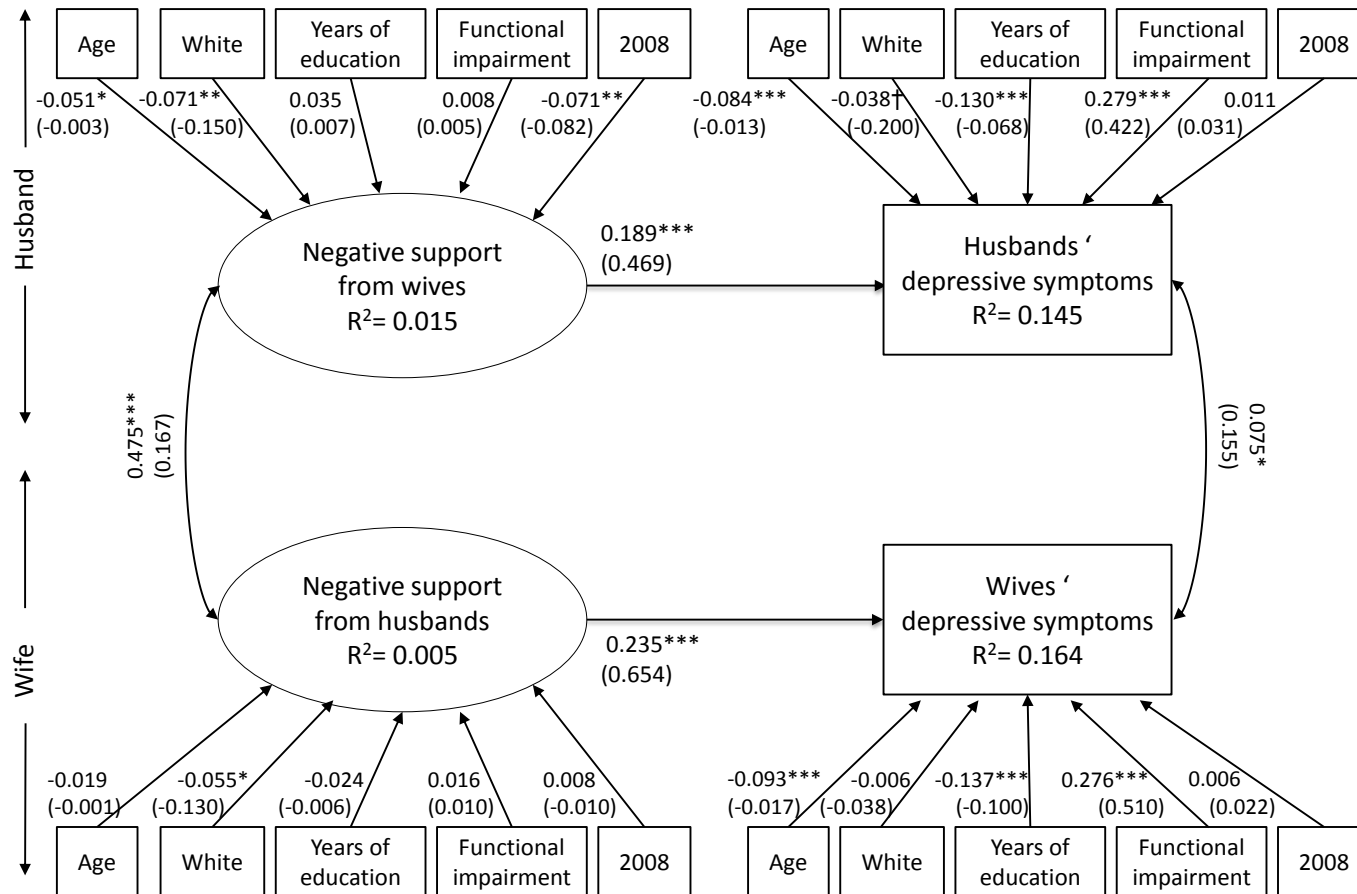


Figure 4.2: Structural equation model of the effects of negative support from spouses on depressive symptoms for the overall sample. $\chi^2(103, N = 3,069) = 479.469, p < .001$; CFI=.928; RMSEA=.035; SRMR=.036. Coefficients presented first are standardized, and coefficients in the parentheses are unstandardized. * $p < .05$ ** $p < 0.01$ *** $p < .001$

4.3.2 Testing the moderating effect of caregiving and care receipt

To investigate the moderating effects of care receipt, I first determined whether or not the model was different across the three subgroups (i.e., couples where spouses do not provide or receive care from each other, couples where husbands receive care from their wives, and couples where wives receive care from their husbands). I constrained the factor loadings of the latent construct to be equal across the subgroups and estimated the paths from support from spouses to depressive symptoms for each subgroup. The coefficients of control variables were estimated without equality constraints across the subgroups.

For the subgroup analyses of the effects of negative support from spouses, I used a parsimonious model that removed insignificant control variables from the overall model. This was because the sample size of caregiving couples was so small that using the overall model for negative support from spouses in subgroup analyses resulted in non-identification problems. A chi-square difference test indicated that the overall model and the parsimonious model were not significantly different ($\chi^2(9) = 5.34, p > .05$; not shown). Therefore, the parsimonious model was preferred in the subgroup analyses for the effects of negative support from spouses.

Table 4.3: Results from subgroup comparisons

Paths	Couples with no caregiving/receiving	Couples with care-receiving husbands	Couples with care-receiving wives	Differences in χ^2 (df)	<i>p</i>
Positive support from wives → Husbands' depressive symptoms	-0.459***(-0.180)	-0.796†(-0.172)	-0.535* (-0.182)	2.05 (2)	n.s.
Positive support from husbands → Wives' depressive symptoms	-0.536*** (-0.206)	-1.036*** (-0.333)	-1.149** (-0.297)	7.85 (2)	< .05
Negative support from wives → Husbands' depressive symptoms	0.396*** (0.181)	0.644 (0.165)	0.885** (0.317)	2.81 (2)	n.s.
Negative support from husbands → Wives' depressive symptoms	0.586*** (0.229)	0.870** (0.296)	0.745* (0.210)	2.31 (2)	n.s.

Note. Coefficients first presented are unstandardized, and coefficients in parentheses are standardized. † $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 4.3 shows the results of subgroup analyses. Coefficients first presented in Table 4.3 were unstandardized to compare coefficients across the subgroups. Coefficients in the parentheses were standardized to compare the relative strengths of the coefficients within each group. Although the magnitudes of the coefficients were different across the subgroups, the directions of the coefficients were similar.

For all three groups of husbands, positive support from spouses was associated with fewer depressive symptoms in their partner. For caregiving husbands and no care husbands, greater positive support from wives was significantly related to fewer depressive symptoms ($b = -.535, p < .05$; $b = -.459, p < .001$, respectively). For care-receiving husbands, the relationship between positive support and depressive symptoms was marginally significant ($b = -.796, p = .052$). For wives, the path from positive support from husbands to wives' depressive symptoms was statistically significant for all subgroups. Greater positive support from husbands was associated with fewer depressive symptoms for no care wives, caregiving wives, and care-receiving wives ($b = -.536, p < .001$; $b = -1.036, p < .001$; $b = -1.149, p < .01$, respectively).

Negative support from spouses was related to more depressive symptoms in their partner for no care husbands and caregiving husbands ($b = .396, p < .001$; $b = .885, p < .01$). However, for husbands who receive care from their wives, the path from negative support to depressive symptoms was not significant ($p > .10$). In addition, greater negative support from husbands was significantly associated with greater depressive symptoms for no care wives, caregiving wives, and care-receiving wives ($b = .586, p < .001$; $b = .870, p < .01$; $b = .745, p < .05$, respectively).

To evaluate statistical significances in which the path coefficients were different across the subgroups, the following steps were conducted. First, all paths in the model were constrained to be equal across the three subgroups. Next, the equality constraint of the individual path from positive/negative support to depressive symptoms was removed. The differences in chi-square statistics between the model that constrained all paths to be equal

across the subgroups and the model that allowed each individual path to vary across the three subgroups were calculated. If the differences in the chi-square statistics between the two models are significant, it indicates significant differences in the paths from positive/negative support to depressive symptoms across the subgroups. The last two columns in Table 4.3 present the results of the chi-square difference test and statistical significance of the difference.

The results showed that the path from positive support from husbands to their wives' depressive symptoms was significantly different across the subgroups ($\Delta\chi^2(2) = 7.85, p < .05$). The relationship between positive support from husbands and their wives' depressive symptoms were stronger for wives who receive care or provide care ($b = -1.149, p < .01$; $b = -1.036, p < .001$) than for wives who are not involved in spousal caregiving/care-receiving ($b = -.536, p < .001$). However, the relationship between positive support from wives and their husbands' depressive symptoms did not differ significantly across the subgroups. Additionally, no group differences were observed for the relationship between negative support from spouses and depressive symptoms.

In sum, positive support from the husbands is related to greater decreases in depressive symptoms for wives who receive or provide care compared to wives who do not receive or provide care in their marital relationship. However, for husbands, the effects of positive support from spouses on depressive symptoms were similar across the groups. The effects of negative support from spouses on depressive symptoms were also similar across the subgroups within husbands and wives.

4.4 Discussion

This study examined how the provision and receipt of care influence the relationship between spousal support and depressive symptoms, using the 2006 and 2008 waves of the HRS data. The current study extends the previous literature on spousal support and psychological well-being by comparing the effects of positive and negative support from

spouses on depressive symptoms across caregiving and non-caregiving couples as well as husbands and wives.

The findings provided partial support for the proposed hypotheses that there will be significant differences between caregiving and non-caregiving couples in the effects of spousal support on depressive symptoms and caregiving and care-receiving wives are more sensitive to spousal support than caregiving and care-receiving husbands. The results shows that the effects of positive support from husbands on their wives' depressive symptoms are stronger for caregiving and care-receiving wives than for those who neither provide nor receive care. However, there were no significant group differences in the relationship between positive support from wives and their husbands' depressive symptoms. These findings suggest that positive support from spouses is particularly important for wives in caregiving relationships.

For caregiving wives, the benefits of positive support from husbands may be more salient because caregiving wives have been found to be more distressed and isolated than other family caregivers (Yee & Schulz, 2000). Positive support from care-receiving husbands may thus serve as a reward for their effort to help their husbands and produce a beneficial impact on caregiving wives' depressive mood.

For care-receiving wives, the greater benefits of receiving positive support from husbands might best be explained by the association between positive support from caregivers and the quality of care. If caregivers provide positive support to their care recipients, such as understanding the ways in which care recipients feel, those caregivers may be more responsive to their care recipients' needs. Older adults who receive care from supportive caregivers also may feel more comfortable discussing with their caregivers how they would like to receive help from them. Therefore, positive support from caregiving spouses has a more positive influence on care recipients' depressive symptoms than on those who do not receive care.

In contrast, the relationship between positive support from wives and their husbands'

depressive symptoms was not significantly different between husbands in caregiving relationships and those in non-caregiving relationships. For caregiving husbands, these similarities of the effects of positive support from spouses with non-caregiving husbands may be explained by caregiving husbands' lower levels of distress compared to caregiving wives. Previous studies have found that caregiving husbands utilize managerial strategies to deal with caregiving work, and, consequently, caregiving husbands report feelings of competence as a caregiver and low levels of burdens (Russell, 2001). In addition, spousal caregiving is not a traditional role for husbands, so caregiving husbands receive affirmation about having difficulties with caregiving work and praise for their work from others (Calasanti & King, 2007). Given the lower levels of burdens and the affirmation and appreciation of caregiving work from others, positive support from care recipients may not have greater importance for caregiving husbands than for non-caregiving husbands.

For care-receiving husbands, positive support from wives may not have stronger effects on their depressive symptoms than on symptoms of husbands in non-caregiving relationships because care-receiving husbands may be less likely to seek emotional support from caregivers. Being dependent and emotionally expressive may be seen as less masculine, so men are less likely to seek and activate emotional support from their spouses (Barbee et al., 2010). A qualitative study found that most male patients with cancer were not comfortable talking with their spouses about their emotions and worries (Gray et al., 2000). Therefore, care-receiving husbands may have positive and negative feelings about receiving emotional support from their wives, and the influence of positive support from wives may not be greater for care-receiving husbands.

This study also found that the effects of negative support from spouses on their partner's depressive symptoms were not significantly different between caregiving and non-caregiving couples regardless of the gender of caregivers/care recipients. One possible reason for the similar effects of negative support from spouses between caregiving and non-caregiving couples may be the resilience of caregiving couples and cognitive adjust-

ment of caregivers and care recipients in interpreting their spouses' negative support. For caregivers, negative support from care recipients may be understood as a spillover of care recipients' emotional burdens related to illness and disabilities. Caregivers also may feel a sense of responsibility to care for the emotional needs of their spouses as part of caregiving work. Thus, negative responses from care recipients may not have stronger effects on caregivers. Additionally, care recipients may try to understand negative support from caregivers as an outcome of distress related to caregiving and may not focus on caregivers' negative responses. Another explanation for the absence of differences in the effects of negative support from spouses on depressive symptoms may be the measure for mental health outcomes used in this study. Increased negative support from spouses may result in higher levels of anger and frustration for caregiving couples than for non-caregiving couples rather than depressive symptoms.

This study has several limitations. First, caution is needed in interpreting these results because the sample sizes of caregiving couples and non-caregiving couples are unequal. The sample size of caregiving couples is much smaller compared to the number of non-caregiving couples. The lack of power may result in the insignificance of the moderating effects of caregiving/care-receiving on the relationship between negative support from spouses and depressive symptoms. Future research, using a larger sample size of caregiving couples, is needed to examine how caregiving and care-receiving influence the relationship between positive and negative support from spouses and their partner's depressive symptoms.

Second, this study was based on cross-sectional data, so it does not assess the causal relationship between spousal support and depressive symptoms. I have tested alternative models that are equivalent to the analytic model, and the empirical data in this study supported the path from positive and negative support from spouses to depressive symptoms rather than the other direction. Furthermore, although existing studies found that current states of emotions have minimal effects on reporting positive and negative support (Krause

et al., 1989), it may be possible that depressive moods in one partner affect support exchanges between spouses. Additional work is needed to examine the relationship between positive and negative support from spouses and depressive symptoms using longitudinal data.

Third, depressive symptoms were used as a measure for mental health in this study. Because positive and negative support have been found to be related to different dimensions of mental health (Ingersoll-Dayton et al., 1997), future research should utilize various measures for mental health outcomes related to caregiving and care-receiving, such as anger, anxiety, and life satisfaction.

Last, this study was not able to compare the relative importance of positive and negative support from spouses because of multicollinearity problems for wives. Existing studies found that negative support has the greater impact on psychological distress than positive support (Newsom et al., 2005), so it would be informative if future research compares the relative importance of positive and negative support from spouses between caregiving and non-caregiving couples by including both positive and negative support in one model.

In conclusion, the present study advances our understanding of the relationship among caregiving/care-receiving, spousal support, and depressive symptoms. The findings of this study have important implications for caregiving couples in both practice and research. The findings highlight the importance of positive support when one spouse provides care to his or her partner. This study provided evidence that the beneficial effects of positive support on mental health is greater for wives in caregiving couples. The findings of this study suggest that positive support exchanges between caregivers and care recipients are a key component for interventions targeting caregiving couples. To reduce depressive symptoms of spouses in caregiving couples, interventions that facilitate supportive interactions between care recipients and caregivers may be effective, especially for wives. Practitioners may help caregiving couples interact with each other in supportive ways by educating them in communication skills as well as coping skills to deal with difficult emotions. Interven-

tions for caregiving couples also need to be developed by adapting couple-based therapies that aim to improve marital functioning and attachment, such as an emotion-focused couple therapy (Johnson & Greenberg, 1995; McLean et al., 2008) for couples dealing with health problems in their later life. Additionally, future studies that further examine the issues suggested in this study will be beneficial in extending our knowledge of social support and mental health in caregiving couples.

CHAPTER V

CONCLUSION

5.1 Summary of Findings

The dissertation examined the effect of care receipt on depressive symptoms among older adults. Specifically, it focused on three aspects of the relationship between the receipt of care and depressive symptoms: (1) self-perceptions of aging; (2) spousal caregivers' physical and mental health; and (3) positive and negative support from spousal caregivers. First, Chapter 2 examined the extent to which self-perceptions of aging explains the relationship among the receipt of care, perceived loss of control, and depressive symptoms. Given pervasive negative stereotypes of aging, such as being sick and dependent (Stone, 2003), the receipt of care may serve to activate stereotypes of aging that have been embedded over the life span. The findings supported both proposed hypotheses that (1) the receipt of care would contribute to negative perceptions of aging and (2) these negative perceptions of aging would erode older adults' sense of control and lead to greater depressive symptoms. The results further indicated that self-perceptions of aging mediated the relationship between receipt of care and perceived loss of control as well as the relationship between receipt of care and depressive symptoms. That is, older adults who received a greater amount of care perceived their aging more negatively which, in turn, increased perceived loss of control and depressive symptoms. These findings suggest that the receipt of care may make frail older adults more vulnerable to negative self-perceptions of aging.

Chapter 3 investigated the effects of caregiving spouses' physical and mental health on care-receiving partners' depressive symptoms. This chapter compared the effects of spouses' physical and mental health on their partner's depressive symptoms between older adults who receive care from their spouses and those who do not receive care. In doing so, I tested whether the receipt of care from spouses increases older adults' vulnerability to the negative effects of spouses' physical and mental health. Results indicated that the receipt of care moderates only the impact of wives' mental health on husbands' depressive symptoms. Husbands who receive care from their wives are more sensitive to their wives' depressive symptoms than husbands who do not receive care. However, the effects of husbands' mental health on wives' depressive symptoms were similar among wives who receive care and those who do not. These gender differences between spouses need to be further explored by taking into account gender differences in social networks and the importance of support from spouses.

Finally, Chapter 4 expanded the focus of the study by including both caregivers and care recipients in order to examine the extent to which positive and negative support from spouses affect depressive symptoms. In this chapter, I examined whether or not the effects of positive and negative support from spouses on depressive symptoms are stronger for caregiving and care-receiving partners than those who are not involved in caregiving relationships. The results indicated that the effects of positive support from husbands on their wives' depressive symptoms were stronger for caregiving and care-receiving wives than for those who neither provide nor receive care. However, for husbands, there were no significant differences in the effects on depressive symptoms of positive support from spouses among caregivers, care receivers, and husbands who are not in caregiving relationships. Furthermore, no group differences were found in terms of the effects on depressive symptoms of negative support from spouses for wives and husbands. These findings suggest that positive support from spouses is particularly important for wives in caregiving relationships.

5.2 Implications for Theory and Research

Each chapter in the present dissertation provides implications for theory and research. Chapter 2 utilizes theoretical frameworks from several fields in gerontology, including stereotype embodiment theory (Levy, 2009) and identity theory (Stets & Turner, 2006), to explain the ways in which care receipt is related to depressive symptoms. This chapter exemplified a way by which to bridge theoretical insights from different fields of gerontology and to fill the gaps in empirical research. Stereotype embodiment theory suggests that self-perceptions of aging reflect stereotypes of aging that have been developed over a life span. Identity theory posits that individuals experience negative emotions in situations where their prominent identity is challenged. Based on these theoretical frameworks, this study conceptualized care receipt as a trait corresponding to negative stereotypes of aging and hypothesized that care receipt facilitates negative perceptions of aging. These negative self-perceptions of aging were hypothesized to increase individuals' negative emotions, such as depressive symptoms. While previous studies of the relationship between care receipt and mental health focus on the quality of care and tend to lack its theoretical foundations (Burgener & Twigg, 2002; Clark & Stephens, 1996; Lin & Wu, 2011; Newsom & Schulz, 1998; Wolff & Agree, 2004), this paper turned to the issues related to identity in later life and extended the scope of research to consider stereotypes of aging, identity, and dependency in the areas of family caregiving.

Chapter 3 contributed to elaborating the interactive model of depression (Coyne, 1976) by providing evidence that wives' mental health has greater impact on husbands when the husbands receive care from their wives. The interactive model of depression suggests that exchanges of negative emotions between spouses contribute to developing and maintaining depressive symptoms (Joiner & Coyne, 1999). The findings of this paper indicate that the extent to which one spouse's depressive symptoms are associated with his or her partner's symptoms vary by the stressful circumstances which couples undergo. Specifically, this study found that care-receiving husbands are more susceptible to their wives'

depressive symptoms than are those who do not receive care from spouses. These findings suggest that caregiving and care-receiving in marital relationships may change interactions and communications between spouses and affect the strength of the association between spouses' depressive symptoms. Future studies need to explore how caregiving and care-receiving conditions change interactions between spouses and affect the transmission of depressive symptoms in marital relationships. Furthermore, findings from this study highlight the importance of understanding those stressors that intensify the negative effects of one spouse's depression on his or her partner. The strength of the association between spouses' depressive symptoms may change depending on stressors that couples face across their life span. Identifying those stressors will be helpful in articulating how the marital relationship contributes to the development of depressive symptoms.

Chapter 4 built upon empirical research on social support between spouses and is less grounded in theory. However, the findings of this chapter provide support for considering adult attachment theory as a theoretical framework in understanding spousal support and its impact on health. Adult attachment theory postulates that the function of intimate relationships is to satisfy one of the most fundamental needs of human beings — the feeling of security that comes from feeling loved and valued by a responsive partner (Shaver & Hazan, 1993). A secure relationship is possible only when partners understand and respect each other's attachment needs. When individuals have secure relationships with their partners, this attachment security facilitates emotional adaptation to stress and psychological well-being (Mikulincer & Shaver, 2007). In particular, this theory conceptualizes the attachment behavioral system, which helps us understand why positive support from spouses has greater effects on caregivers and care recipients. The attachment behavioral system is an innate system that protects individuals by keeping them close to an attachment figure (i.e. parents and partners) when faced with threats. That is, when individuals are threatened, through illness or other stressors, they seek to reestablish emotional security from their partners and maintain the attachment bond. If this concept is applied to caregiving

couples, caregivers and care receivers experience increased needs for secure attachment from their partner due to illness. Thus, positive support from partners may satisfy these needs and have stronger effects on caregiving couples. Moreover, attachment theory explains that partners in secure attachment relationships are responsive and attentive to their partners' needs; therefore, this theory also provides an explanation of how positive support from spouses could be related to the quality of care. Although there is a growing body of research on family caregiving based on attachment theory (Bradley & Cafferty, 2001; Magai & Cohen, 1998; Monin et al., 2012; Perren et al., 2007), consideration of attachment theory in future studies that examine spousal caregiving would be fruitful.

Findings from Chapter 3 and 4 highlight gender differences in the effects of spouses on their partners' depressive symptoms. In Chapter 3, this study found that care-receiving husbands were more susceptible to their wives' depressive symptoms compared to husbands who do not receive care from their wives. In Chapter 4, the findings indicate that both care-receiving and caregiving wives enjoy greater benefits from receiving positive support from husbands compared to wives who are not in caregiving relationships. These findings point the way to future development of theory in the areas of marital relationship and mental health. In general, married men show better mental health compared to their non-married counterparts, and the protective effects of marriage on health are stronger for men than for women (Bernard, 1982; Kiecolt-Glaser & Newton, 2001). Studies found that marital interactions have greater influences on women than on men (Kessler & McLeod, 1984; Kiecolt-Glaser et al., 1997). The existing literature explains these gender differences as outcomes of gender socialization, which socializes women to be relationally interdependent in self-representations. Findings in Chapter 4 also support these theoretical explanations of gender differences in the effects of marriage on mental health. However, the findings in Chapter 3 may be interpreted in different ways. On the one hand, because the importance of marriage for health is greater for men than for women, it may have more detrimental effects on depression for care-receiving husbands than those for care-receiving wives if

their spouses are depressed and are not able to provide supportive care. On the other hand, findings in Chapter 3 signify that husbands' vulnerability to their wives' depressed moods is exacerbated by care-receiving conditions. Care-receiving conditions may affect changes in gender identities for husbands and lead them to be more relationally oriented and sensitive to their wives' depression. There are only a few studies that focus on how caregiving and care-receiving affect gender relations among older couples (Calasanti, 2004; Calasanti & Bowen, 2006; Ribeiro et al., 2007). Future research should be conducted to develop theories that can account for gender differences in the impact of marital relationships on mental health while considering the influences of aging and health problems on couples.

5.3 Implications for Practice and Policy

The findings of this dissertation have important implications for social work practice and policy. In the following paragraphs, I discuss how social workers and other professionals could incorporate findings from this research into their practice and policy advocacy when they work with care-receiving older adults and caregiving families.

First, the results from Chapter 2 show that care-receiving experiences for older adults are related to their negative perceptions of aging. Practitioners should focus on the effects that receiving care has on older adults' sense of their aging selves when they counsel older adults who receive care. Improving older adults' perceptions of themselves can be incorporated into programs and services for older adults who receive care. For example, life review or reminiscence therapy has been found to be useful for older populations (Haight & Haight, 2007). Practitioners may use these therapeutic approaches for older adults who receive care in order to help older adults reframe meanings of negative life events, such as loss of functional abilities and increasing dependency, and re-interpret those events (Bohlmeijer et al., 2007; Watt & Cappeliez, 2000). In addition, by reviewing life together, practitioners help older adults attain a sense of continuity while experiencing changes in physical health and rebuild positive perceptions of the self. By achieving more positive attitudes toward the

aging self, older adults can experience improvement in other dimensions of mental health, such as perceived control and depression.

Second, the findings of Chapter 2 suggest implications for practice with family caregivers. Practitioners can help caregivers to provide assistance in ways that enhance older adults' positive perceptions of their aging. For example, caregivers can encourage care-receiving older adults to participate in decisions related to care, even if those decisions are related to very small and routine things. Increases in older adults' participation in care-related decisions may help them experience more feelings of independence. Caregivers also can help care-receiving older adults find ways to assist caregivers and can assure the care-recipients of their strengths or praise helpful behaviors. In doing so, older adults may feel less indebtedness and more competence (Ingersoll-Dayton et al., 2001). By participating in care-related decisions and providing help to caregivers, older adults' increasing sense of independence and competence may help break the link between receiving help and negative self-stereotyping of aging. Practitioners may help caregivers to incorporate various approaches in their interactions with care-receiving older adults that can promote older adults' positive evaluation of the aging self.

Third, the results from Chapter 2 indicated that individuals' self-perceptions of aging is a critical factor that contributes to depressive symptoms among older adults who receive care. To improve older adults' positive attitudes toward their own aging, it is necessary not only to intervene with individual older adults but also to reduce stereotypes and prejudice against older adults in our society (Nelson, 2002). Social workers working with older adults should consider advocacy against ageism as a part of their responsibilities. This role can be achieved by monitoring policies and practices for the evidence of stigmatizing and stereotyping older adults, increasing opportunities for intergenerational cooperation, and involving older adults in policy planning and implementation (Nelson, 2002).

Fourth, the results from Chapter 3 and 4 emphasize the importance of spouse's influences on care-receiving older adults. In Chapter 3, the findings indicate that caregiving

couples are at greater risk for transmission of depressive symptoms between spouses. In Chapter 4, I found that positive support from spouses is a protective factor for caregiving couples. These findings suggest the need for developing couple-based interventions for caregiving couples. Existing psychosocial interventions for caregiving couples have focused on either caregivers (Belle et al., 2006; Coon et al., 2003; Gallagher-Thompson & DeVries, 1994; Hepburn et al., 2001; Kennet et al., 2000; Toseland et al., 1990) or care recipients (Kasl-Godley & Gatz, 2000; Yale, 1995). Considering the strong influence of spouses on care-receiving older adults, psychosocial interventions targeting caregiving dyads need to be developed and provided to caregiving couples. A small but growing body of intervention research has been conducted to develop dyadic interventions for caregiving couples and evaluate the effects of those interventions (Ingersoll-Dayton et al., 2013; Judge et al., 2010; Whitlatch et al., 2006; Zarit et al., 2004). These studies have confirmed that a dyadic approach provides benefits for both caregivers and care recipients and improved interactions and relationship quality for couples. However, these interventions were developed for couples dealing with specific diseases, such as cancer or dementia (Ingersoll-Dayton et al., 2013; Manne et al., 2005; McLean et al., 2008; Northouse et al., 2007; Whitlatch et al., 2006; Zarit et al., 2004). The development of individual interventions for each patient population might be effective to address specific needs of caregiving couples with specific diseases. However, the development of dyadic interventions for each specific illness may prohibit integrating and advancing knowledge of efficient interventions for caregiving couples and may not be cost-efficient as well.

Practitioners and intervention researchers need to develop interventions and programs for caregiving couples facing various types of illness and disabilities by identifying common challenges and issues that caregiving couples face and finding intervention content and techniques that can alleviate those challenges. For example, caregiving couples often experience feelings of loss and grief regardless of impairment in physical or cognitive abilities (Blieszner et al., 2007; Boss & Couden, 2002). In such a case, interventions for caregiving

couples may include discussions of loss and grief as a core component of the interventions although the content of loss and grief may differ across couples and illnesses. Moreover, the process of identifying core components of successful interventions for caregiving couples can be systemically conducted by adopting a distillation and matching model suggested by Chorpita and colleagues (2005). A distillation and matching model suggests analyzing individual interventions as a unit of analysis and helps find specific practice elements that are common for successful interventions (Chorpita et al., 2005). Identifying common elements of successful interventions for caregiving couples allows practitioners flexibly apply intervention contents and strategies to couples dealing with various types of illness and disabilities while leaving room for tailoring to specific needs of the couples. Using this common elements approach also might be useful in training practitioners and social work students who would work with caregiving couples. Practice elements and skills identified by the common element approach may be integrated into social work education curriculum for students or training programs for practitioners so that social work students and practitioners can be prepared better to counseling and implementing programs for caregiving couples.

Fifth, the findings of this dissertation help identify a key component for dyadic interventions for caregiving couples, which is positive support exchanges between spouses. To increase positive support from spouses, interventions may facilitate positive communication between caregivers and care recipients by educating them in communicating skills. By improving communications between spouses, caregivers and care recipients may interact with each other in a supportive manner. Practitioners also encourage caregiving couples to interact in supportive ways by teaching them how physical and cognitive impairment affect both partners' emotions and how to cope with difficult emotions and behaviors. Additionally, interventions can provide pleasant activities shared by caregivers and care recipients so that caregiving and care-receiving partners have more opportunities to interact with each other in supportive ways.

Last, the results from Chapter 3 and 4 showed that caregiving spouses' mental health and ability to provide emotional support are crucial factors that explain care-receiving older adults' depressive symptoms. These findings suggest that health care policy makers should consider not only long-term care for older adults but also social services for family caregivers as public health issues. Models for long-term care services need to be developed and expanded to address both older adults' and their family caregivers' needs by adopting family-centered and patient-centered approaches (Gitlin & Schulz, 2012). The provision of social services that reduce caregivers' burden may contribute to improving care for older adults.

5.4 Limitations and Future Directions

As discussed separately in detail in chapters 2, 3, and 4, this study has several limitations; in this section, I will discuss the limitations that these three chapters share in common.

First, this dissertation used a sample of older adults who receive help with activities of daily living and instrumental activities of daily living. The samples in this dissertation consist of individuals who did not have severe cognitive impairments so that they were able to answer the survey by themselves. Thus, this study did not include the group of older adults who need help due to their cognitive impairments, which constitutes a significant portion of older care recipients. The findings of this study cannot, consequently, be generalized to care-receiving older adults with cognitive impairments. Older adults with cognitive impairments, such as dementia, are the most marginalized group in caregiving research (Whitlatch, 2001). Future research should pay attention to the voices and experiences of care-receiving older adults with cognitive impairments by developing various strategies to include this population in large survey data and collect data from those with cognitive impairments.

Second, this dissertation operationalized the receipt of care as receiving help with activ-

ities of daily living (ADLs) or instrumental activities of daily living (IADLs). However, the conceptualization of care receipt in this dissertation may be too narrow to capture various types of care provided to older adults. It might be possible that older adults receive help with other activities that are not listed in ADLs and IADLs, such as driving or gardening, which may have important meanings for older adults. Thus, this study may exclude older adults who receive other forms of help and underestimate the effects of care receipt on older adults. Future studies need to utilize a broader concept of care to accurately reflect various types of help provided to older adults and its impact on older adults.

Third, the present research focused on negative consequences of receiving care. Thus, this dissertation did not examine the groups of older adults who are resilient in the process of adjusting to declines in health. Some older adults experience the receipt of care from individuals in their close relationship positively, such as feeling grateful and being loved and respected (Ward-Griffin et al., 2006). Future research should investigate both positive and negative aspects of receiving care to fully understand care-receiving older adults' experiences.

Fourth, the research design in this dissertation has limitations in assessing causal inferences in the relationship between the receipt of care and depressive symptoms. One of the reasons is that the dissertation examined cross-sectional relationships. Although the proposed relationships built upon theories and previous research, reverse relationships are possible. Moreover, although this study controlled for the effects of functional impairment, it was difficult to distinguish the effects of care receipt and health problems. Questionnaire items were not specifically incorporated to address older adults' experiences related to receiving care. Thus, this study may not have sufficiently controlled for potential confounding factors, such as pain and severity of disease, that might explain the effects of care receipt on depressive symptoms. Future research should address these issues related to causal inferences by using longitudinal data and controlling for confounding factors in the effects of care receipt on depressive symptoms.

Fifth, this dissertation identified spousal relationships as a critical factor; however, the current study did not distinguish different types of marital or partnership status among older couples. With a growing rate of divorce, diversity in partner relationship in later life, such as remarriage, unmarried cohabitation and living apart together, has increased (Brown & Lin, 2012; Cooney & Dunne, 2001). Despite limited evidence, a small body of research indicates that new partnerships or nonmarital unions in old age are likely to have disadvantages in receiving social support or informal care from outside the couple (Brown et al., 2005; De Jong Gierveld, 2004; Gierveld & Peeters, 2003; Noël-Miller, 2011). These limited available resources for social support may affect dynamics and interactions between partners in caregiving situations. Studies that take into account diverse types of partner relationship may be able to more accurately assess how spouse/partner relationships affect care-receiving older adults' mental health.

Finally, the HRS data used in this study lack measures for the quality of care and diverse measures of mental health. This dissertation found significant group differences between individuals who receive care and those who do not receive care. However, due to the absence of measures for the quality of care, I was not able to further examine the extent to which the quality of care explains the relationship between caregiving spouses' health and support and their care-receiving partners' depressive symptoms. Furthermore, although this study utilized depressive symptoms as a measure for mental health, the receipt of care may affect various dimensions of mental health, such as anxiety and psychological distress. Future research should include measures for the quality of care and a variety of measures for mental health to illuminate the relationship between care receipt and depressive symptoms in later life.

In conclusion, this dissertation investigated how the receipt of care is related to depressive symptoms among older adults. The three empirical studies in this dissertation contribute to filling in some missing pieces of gerontological research on family caregiving by focusing on care-receiving older adults. The findings of this dissertation show that the

receipt of care is associated with individuals' perceptions of aging and the spousal relationship. These findings call for increased attention to care-receiving experiences and intra- and inter-personal factors that may explain the higher risk for depressive symptoms among care-receiving older adults. Based on these findings, diverse psychosocial interventions for care-receiving older adults need to be developed. Expanding upon this dissertation, continued research is needed to understand how care receipt influences mental health in later life.

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