

The Pennsylvania State University

The Graduate School

College of Health and Human Development

**EMPLOYMENT AND DAILY EXPERIENCES:  
DOES RETIREMENT REPRESENT THE GOLDEN DAYS?**

A Dissertation in

Human Development and Family Studies

by

Jen D. Wong

© 2010 Jen D. Wong

Submitted in Partial Fulfillment  
of the Requirements  
for the Degree of

Doctor of Philosophy

August 2010

The dissertation of Jen D. Wong was reviewed and approved\* by the following:

David M. Almeida  
Professor of Human Development and Family Studies  
Dissertation Adviser  
Chair of Committee

Denis Gerstorf  
Assistant Professor of Human Development and Family Studies

Linda A. Wray  
Associate Professor of Biobehavioral Health

Steven H. Zarit  
Professor and Head of Human Development and Family Studies

\*Signatures are on file in the Graduate School.

## ABSTRACT

This dissertation examines how retirement affects the daily experiences of well-being. Using the Life Course Daily Stress perspective as a framework, three studies were conducted utilizing data from the National Study of Daily Experiences, which is the daily diary portion of the National Survey of Midlife in the United States (MIDUS). The first study described the associations between employment status (worker vs. retiree) and several domains of daily experiences (time use, psychological distress, and stressors). Results showed that working men reported spending the least amount of time on daily household chores when compared to their working and retired counterparts. Older working men and younger retired men exhibited the greatest vulnerability to daily psychological distress and risk that daily stressors posed to daily routines, finances, personal health or safety, and plans for the future. Using longitudinal data, the second paper assessed the associations between retirement transition (stayed working vs. transitioned into retirement) and daily experiences across a 10-year span. Older individuals who transitioned into retirement reported the greatest stressor exposure, and working individuals with a high school or less education reported the greatest stressor severity. The third paper moved past the use of self-report assessments of daily experiences to the biological marker of health, salivary cortisol. On all study days, older retirees displayed the highest cortisol level at 30 minutes after awakening while younger retirees exhibited the lowest cortisol level. There was an interactive effect of retirement status and gender on awakening cortisol on stressor days with retired men exhibiting the highest awakening cortisol level. Lastly, cortisol level at bedtime on stressor days was significantly higher for younger retirees and older workers than for older retirees and younger workers. These findings suggest that the retirement experiences are complex and cannot be characterized as entirely positive or negative. Findings also indicate that aspects of daily

experiences are best explored through the interactive effect of retirement and life course influences rather than a simple main effect of retirement. Especially important to the study of retirement and daily experiences are the characteristics of the person (timing and gender) and environment (social embeddedness).

## TABLE OF CONTENTS

List of Tables .....	vii
List of Figures .....	viii
Acknowledgements.....	ix
Chapter I. OVERVIEW .....	1
Introduction.....	2
Trends in Retirement.....	2
Retirement Well-being.....	3
Global to Daily Well-being.....	4
Theoretical Framework: Life Course Daily Stress Perspective (LCDS).....	5
Aspects of Daily Experiences .....	5
Daily Time Use.....	6
Daily Psychological Distress (Negative Affect).....	6
Daily Stressors .....	7
Salivary Cortisol .....	7
Dissertation Goals.....	8
Paper 1: The Effects of Employment Status on Daily Experiences in a Sample of Middle-Aged and Older Adults .....	9
Paper 2: The Effects of Retirement Transition on Daily Experiences.....	9
Paper 3: The Effects of Employment Status on Salivary Cortisol in Mid- and Late-Life Adults.....	10
References.....	12
Chapter II. THE EFFECTS OF EMPLOYMENT STATUS ON DAILY EXPERIENCES IN A SAMPLE OF MIDDLE-AGED AND OLDER ADULTS.....	18
Abstract .....	19
Introduction.....	20
Method .....	32
Results.....	37
Discussion.....	40
References.....	46
Chapter III. THE EFFECTS OF RETIREMENT TRANSITION ON DAILY EXPERIENCES .....	71
Abstract .....	72
Introduction.....	73
Method.....	87
Part 1: Retirement Transition and Stressor Exposure .....	95
Hierarchical Regression Results .....	95
Part 2: Retirement Transition and Stressor Reactivity.....	98
Multilevel Modeling Results.....	98
Discussion.....	101
References.....	110

Chapter IV. THE EFFECTS OF EMPLOYMENT STATUS ON SALIVARY CORTISOL IN MID- AND LATE-LIFE ADULTS .....	143
Abstract .....	144
Introduction.....	145
Method .....	154
Results.....	159
Discussion.....	164
References.....	171
Chapter V. CONCLUSION .....	190
Conclusion .....	191
Characteristics of the Person (Timing and Gender).....	191
Characteristics of the Environment (Social Embeddedness and Education) .....	195
Limitations .....	197
Future Directions .....	199
References.....	201

## LIST OF TABLES

Table 2.1 Socio-demographic Characteristics by Employment Status.....	59
Table 2.2 Hierarchical Multiple Regression Modeling Time Spent on Daily Activities.....	60
Table 2.3 Hierarchical Multiple Regression Modeling Daily Psychological Distress .....	61
Table 2.4 Hierarchical Multiple Regression Modeling Any Daily Stressor Exposure .....	62
Table 2.5a Hierarchical Multiple Regression Modeling Appraisal of Risk that Daily Stressors Posed on Areas of Lives. ....	63
Table 2.5b Hierarchical Multiple Regression Modeling Appraisal of Risk that Daily Stressors Posed on Areas of Lives. ....	64
Table 3.1 Sample Selection Criterion.....	123
Table 3.2 Socio-demographic Characteristics at Wave 2 by Study Inclusion Status. ....	124
Table 3.3 Socio-demographic Characteristics at Wave 2 by Retirement Transition.....	125
Table 3.4 T-Tests of Outcome Variables at Wave 2 by Retirement Transition. ....	126
Table 3.5 Hierarchical Multiple Regression Analyses Predicting Daily Time Use From Retirement Transition and Life Course Influences.....	127
Table 3.6 Hierarchical Multiple Regression Analyses Predicting Daily Stressor Characteristics From Retirement Transition and Life Course Influences .....	128
Table 3.7 Hierarchical Multiple Regression Analyses Predicting Daily Stressor Characteristics (Areas of Risk) From Retirement Transition and Life Course Influences.....	129
Table 3.8 Fixed Effects Estimates for Model of the Predictors of Time Spent on Daily Household Chores .....	130
Table 3.9 Fixed Effects Estimates for Model of the Predictors of Time Spent on Daily Physical Activities. ....	131
Table 3.10 Fixed Effects Estimates for Model of the Predictors of Daily Psychological Distress .....	132
Table 4.1 Socio-demographic Characteristics by Employment Status.....	181
Table 4.2 Descriptive Statistics of Cortisol Samples and Sampling Times by Employment Status .....	182
Table 4.3 Multilevel Models Predicting Cortisol Levels at 30 Minutes after Awakening on All Study Days.....	183
Table 4.4 Multilevel Models Predicting Cortisol Levels at Awakening and Before Bedtime on Stressor Days. ....	184

## LIST OF FIGURES

Figure 2.1 Life Course Daily Stress Model .....	65
Figure 2.2 Employment Status and Gender on Time Spent on Daily Household Chores .....	66
Figure 2.3 Employment and Marital Status on Time Spent on Daily Household Chores .....	67
Figure 2.4 Marital, Gender, and Employment Status on Time Spent on Giving Daily Emotional Support .....	68
Figure 2.5 Age, Gender, and Employment Status on Daily Psychological Distress .....	69
Figure 2.6 Age, Gender, and Employment Status on Daily Stressor Exposure.....	70
Figure 3.1 Life Course Daily Stress Model .....	133
Figure 3.2 Transition and Age on Difference Scores in Time Spent on Daily Leisure Activities .....	134
Figure 3.3 Transition and Age on Number of Stressors at Wave 2 .....	135
Figure 3.4 Transition and Education on Averaged Stressor Severity at Wave 2.....	136
Figure 3.5 Transition and Marital Status on Difference Scores in Averaged Stressor Severity .....	137
Figure 3.6 Transition and Gender on Risk of Stressors on Your Physical Health or Safety at Wave 2 .....	138
Figure 3.7 Transition and Marital Status on Difference Scores in Risk of Stressors on Financial Situation .....	139
Figure 3.8 Stressor Reactivity by Retirement Transition and Age on Time Spent on Daily Household Chores .....	140
Figure 3.9 Stressor Reactivity by Retirement Transition and Gender on Time Spent on Daily Physical Activities .....	141
Figure 3.10 Stressor Reactivity by Retirement Transition and Age on Daily Psychological Distress.....	142
Figure 4.1. Modeling Diurnal Cortisol Rhythm.....	185
Figure 4.2 Life Course Daily Stress Model .....	186
Figure 4.3 Employment Status and Age on 30 Minutes After Awakening Cortisol on All Study Days.....	187
Figure 4.4 Employment Status and Gender on Awakening Cortisol on Stressor Days.....	188
Figure 4.5 Employment Status and Age on Bedtime Cortisol on Stressor Days.....	189



## ACKNOWLEDGMENTS

I would like to thank my advisor, Dr. David M. Almeida, for his guidance and never ending support over the years. Dave, I still remember the first time we met and you said, ‘How can we help each other?’ From that day forth, it has been an adventurous journey. As scary as it is to leave the nest, it is reassuring to know that you are reachable with a simple call. I will miss hearing about your amazing stories on a regular basis as well as the lab gifts that you lugged back from your trips abroad. Remember bottle openers shaped in famous London monuments as well as the British Open visors! Mostly, I will miss learning from you. From you, I learned the importance of positive thinking, work hard and play hard, and love what you do in life. Thank you for inviting me to be a part of the NSDE family.

I also would like to thank my committee members (Drs. Denis Gerstorf, Linda A. Wray, and Steve Zarit) who took the time to share their expertise in helping me think deeper about my research as well as career goals. Thank you for your time and wonderful suggestions and advice. It has been an honor to have each of you on my committee.

I would like to thank Dr. Robert Stawski for his statistical guidance and expertise. I will miss our lunch outings (Qdoba and Panera!).

I also want to express my sincere gratitude and thanks to the department of Human Development and Family Studies. In particular, I would like to thank: *Mary Jo Spicer*: Like a magic 8 ball, you have all the answers. As busy as you are, you always found the time to answer my questions with a smile and hello. *Debbie Miller*: I leave PSU impressed by your incredible kindness and strength. Thank you for making HDFS 129 and 315 exam days easier and more fun. *Lisa Sampsell*: From Marion to Henderson, you always greeted me with a smile! Thank you for all of your help as well as the great book recommendations! *Diana Lyons*: Thank you for the

help that you provided with my conference travel arrangements. I will miss your optimism and kind spirits. *Alvin Hall*: Always cheerful, kind, and helpful, you always found the time to answer my questions. *Donna Rose Bitner*: In spite of the great responsibilities that you hold, you always had the time and patience to answer my questions. Without wonderful people like each of you, graduate students, like myself, would be wandering aimlessly in Henderson searching for answers. Thank you all for making the department a better place to learn.

I also have an enormous amount of thanks and admiration for the following wonderful people that I met in the Gerontology Center/Marion Place: *Susan Hofer*: You welcomed me with open arms and a great sense of humor. Your strength, integrity, and kindness are admirable. *Jenifer Hoffman*: In times of need, you opened up your home to me. Your generosity, grace, and sense of humor always brightened up my day. *Barb Gummo*: Your strength is an inspiration to me. Whenever I trekked down the hall, you always greeted me with a smile! *Pam Davis*: From Marion to Henderson, I truly have enjoyed all of our wonderful chats. I will miss laughing with you about the stories of the day. Words cannot express my gratitude to each of you.

Along my educational journey, I have had the opportunity and privilege to meet a number of inspirational educators and mentors. I would like to thank the following individuals for showing me that learning is limitless: Dr. Sherry Corneal, Dr. Robert Shilkret, Dr. W. Carter Smith, Dr. Rachel Conrad, Dr. Philip Kelleher, Mr. G. Riley, Mr. E. Seger, and Mr. Statham.

Finally, a friend once told me that life is like a long, adventurous bus ride. There will be people who get on and off the bus at various points along the way. Some you will miss. Others you will see again at later stops. If fortunate, there will be those who stay for the entire trip. I am extremely thankful to have had a wonderful and supportive group of family and friends who supported me on this adventurous ride. First, and most importantly, I would like to thank my

family. *Dad, Mom, Huei, and Jovea*: Any challenges that I encountered along this journey, you guided me back with patience, understanding, and encouragement. Moments when I needed a laugh, I found it with a simple call. Thank you for everything. Luvs, hugs, and tons of smiles.

*Yetty S.*: Thank you for being a great friend, confidant, and part of my family. You have an amazing ability to lift my spirits with a few simple words and laughter. Words cannot express my gratitude for the help that you have provided over the years. *Sandra G.*: Thank you for being such a great friend. I cannot thank you enough for the endless amount of encouraging words, laughter, and great ideas! I am going to miss our adventurous outings and fun/interesting art classes. SC is a little harder to leave because of you. *Julie S.*: Thank you for always making me laugh and giving me a better perspective on everything. Every time we chat, my stomach aches a bit from laughing so much! *Lisa Q.*: Not only are you a wonderful colleague, you are a friend. Always generous with your kindness, encouragement, and honesty.

Thank you all for reminding me of the important things in life!

# CHAPTER I

## OVERVIEW

## Introduction

Retirement often is viewed as the golden years with individuals sailing off into retirement to pursue unlimited opportunities and be free of the stressors of the workplace. Empirical research is mixed on the effects of retirement and subjective well-being. Whereas some studies have documented positive effects of retirement (e.g., Drentea, 2002), others have found negative outcomes (e.g., Kim & Moen, 2002). The majority of the previous work on retirement and subjective well-being has focused on global assessments, such as life satisfaction and depression. Less is known about the effects of retirement on daily well-being such as leisure pursuits, negative mood, and stress. This dissertation takes a more microscopic approach to the study of retirement and well-being by examining the daily experience of well-being.

This dissertation is comprised of three papers. The first paper explores the associations between employment status (worker vs. retiree) and multiple domains of daily experiences (time use, psychological distress, and stressors). The second paper uses longitudinal data to assess how the transition to retirement influences aspects of daily experiences across a 10-year span. This paper examines whether midlife and older adults' exposure and reactivity to stressors differ as a function of the transition to retirement. The third paper moves past the use of self-report assessments of daily experiences to the biological marker of health, salivary cortisol, in the study of retirement. The three papers are framed in a Life Course Daily Stress perspective that highlights how life course influences (e.g., retirement timing, gender) shape the associations between retirement and aspects of daily experiences.

### *Trends in Retirement*

The establishment of retirement income programs (e.g., Social Security) in the 20<sup>th</sup> century made retirement a normative life course transition for many workers in the United States.

In recent years, however, retirement has become less structured due in part to demographic, social, and economic changes in the United States (see Ekerdt, 2010; Moen, 2003). Increases in life expectancy and education attainment combined with the elimination of mandatory retirement in most industries have redefined the amount of time spent in parts of the life course (Burtless & Quinn, 2002; Moen, 2003; Quinn, 2002). Retirement has become less of an institutionalized process and more of an individualized decision. Less clarity combined with ambiguous norms about retirement suggest that the transition from employment to retirement may present both opportunities and challenges to one's well-being.

### *Retirement and Well-being*

Findings in the literature on retirement and subjective well-being have been mixed. For some, the transition from employment to retirement offers opportunities to be free of the challenges associated with work as well as to pursue personal and social interests. The transition from employment to retirement has been linked to improved well-being (e.g., increased positive affect) and self-reported health (Drentea, 2002; Mein, Martikainen, Hemingway, Stansfeld, & Marmot, 2003). In contrast to their working counterparts, retirees are more likely to report lower stress levels and to participate in more regular exercise (Midanik, Soghikian, Ransom, & Tekawa, 1995). Especially for women, retirement has been associated with better health behaviors (e.g., fewer problems with alcohol; Midanik et al., 1995).

At the same time that retirement may offer older adults a host of opportunities, this social transition also may present some challenges. According to Pearlin, Schieman, Fazio, and Meersman (2005), disruptions or changes in highly salient roles may result in disruptions in other aspects of one's life. Role disruptions or changes have been linked to mental health. Buxton, Singleton, and Melzer (2005) found that earlier retired men reported a higher prevalence

of any neurotic disorders than men and women still in the labor force. Furthermore, Butterworth and colleagues (2006) found younger retired men (aged 45-49) were more likely to have a common mental disorder (depressive and anxiety disorders) than their working counterparts.

### *Global to Daily Well-being*

The literature on retirement and subjective well-being primarily has focused on the importance of examining retirement for *global* well-being. Lacking in this area of research is how retirement is associated with *daily* well-being. Much of the literature has focused on global measures such as life satisfaction (Kim & Moen, 2002), adjustment (van Solinge & Henkens, 2008; Wang, 2007), and depression (Szinovacz & Davey, 2004). Although measures of global well-being can be informative, global assessments of well-being may not necessarily capture the periodic peaks and valleys of the individual's well-being that are reflective of the *daily* responsibilities, opportunities, and challenges salient to a person's role status as worker or retiree. A daily assessment of well-being (e.g., a daily diary approach), therefore, could be a more sensitive psychological barometer of life as a worker or retiree. Utilizing a daily approach also will help to minimize the amount of time that elapsed between an experience and the account of the experience (Bolger, Davis, & Rafaeli, 2003). This proximal assessment can provide a less biased account of one's well-being (Nisbett & Wilson, 1977). The final strength of the daily diary method is the ability to assess within-person processes. This approach allows for the charting of day-to-day fluctuation in stress and well-being within an individual (Reis & Gable, 2000), thereby, providing another level of understanding to the retirement and well-being literature.

### *Theoretical Framework: Life Course Daily Stress Perspectives (LCDS)*

The life course perspective (Elder, Johnson, & Crosnoe, 2003) has long been important to the study of retirement with its focus on development as a lifelong process, human agency, transition timing, social embeddedness, and historical context. One limitation of the life course perspective is that it does not account for the role that day-to-day stressors play in health and emotional adjustment (Zautra, 2003). According to the stress literature, stress tends to increase during periods of uncertainty (e.g., transitioning from employment to retirement). Major life transitions, such as retirement, often involve a transformation of multiple domains of responsibilities, thereby, challenging past routines and requiring new adaptation (Brown & Harris, 1989; Dohrenwend & Dohrenwend, 1974; Holmes & Rahe, 1967; Hultsch & Plemons, 1979). Changes in status, especially those that are off-time, may adversely affect psychological and physical health. In the study of retirement, it is important to consider social structures, timing, and context; however, these considerations often are overlooked in the stress literature (George, 1993). This dissertation utilizes the Life Course Daily Stress perspective (LCDS, Almeida & Wong, 2009), which integrates the life course framework with the daily stress literature, to better understand the importance of retirement on aspects of daily experiences.

### *Aspects of Daily Experiences*

The LCDS perspective suggests that life transitions can affect daily well-being through exposure and reactivity to daily stressors. Daily stressful experiences are important because over time these experiences can accumulate and lead to greater negative outcomes. This dissertation will expand this perspective to include a variety of daily experiences: time use, psychological distress, stressors, and salivary cortisol.



### *Daily Time Use*

The transition from employment to retirement may represent the opportunity to be relieved of the psychological, physical, and social challenges associated with work. In retirement, individuals, especially those in good health, now may have more time to explore personal and social interest. Staying active and engaged are key components of healthy aging (Cox et al., 2001; Mobily et al., 1991; Musick et al., 1999). Participation and interest in leisure activities have been associated with increased well-being and life satisfaction (Floyd et al., 1992; Riddick, 1985; Riddick & Stewart, 1994), and this becomes more important for individuals when they lose their worker role. Because there are unique expectations and socialization processes associated with particular social roles (LaRossa & Reitzes, 1993), participation in daily activities is expected to differ by employment (e.g., worker vs. retiree).

### *Daily Psychological Distress (Negative Affect)*

As indicated earlier, subjective well-being in the retirement literature has been assessed primarily in the areas of satisfaction (Smith & Moen, 2004), adjustment (van Solinge & Henkens, 2008), and depression (Butterworth et al., 2006). Less, however, is known about the links between retirement and the affective component of subjective well-being, particularly negative affect (see Andrew & Withey, 1976 for description of the two components of subjective well-being—life satisfaction and affect). Although affect and life satisfaction are interrelated, affect is assessing a different aspect of subjective well-being (Diener, 1994; Lucas, Diener, & Suh, 1996). In this dissertation, psychological distress (negative affect) will be examined at the daily level with respect to retirement status and transition. The assessment of psychological distress over a shorter timeframe will help reduce potential recall biases in occurrence and

intensity (Thomas & Diener, 1990; Winkielman, Knauper, & Schwartz, 1998) and provide a better understanding of the influences of retirement on day-to-day psychological distress.

### *Daily Stressors*

The third aspect of daily experiences focuses on daily stressors. According to Almeida (2005), daily stressors are defined as the routine challenges of day-to-day living, such as arguments with a family member, getting stuck in traffic, or unexpected work deadlines. In contrast to life events, minor daily stressors occur more frequently and unexpectedly, and can disrupt daily life (Almeida, 2005). Disruptions in daily life, as minor as they might be, exhibit immediate and negative impacts on psychological and physical functioning (Almeida, Wethington, & Kessler, 2002; Bolger, DeLongis, Kessler, & Schilling, 1989). Consequently, daily stressors can pile up over time and may result in more severe psychological and physical difficulties (e.g., depression, anxiety, physical health symptoms; Lazarus, 1999; Zautra, 2003).

The examination of retirement and daily stressors is important because norms and expectations are associated with each social role, and changes in one's social role may entail transformations in identities, activities, and environment. Changes in employment status also may increase or decrease one's exposure to daily stressors as well as the stress response. It is not simply whether one experiences a daily stressor that will impact their daily well-being; how an individual appraises the daily stressors experienced also matters. This dissertation will examine retirement status and transition with respect to daily stressor exposure and reactivity.

### *Salivary Cortisol*

Much of the retirement and health literature has focused on self-report assessments of health and paid less attention to biological markers of health. In contrast to self-reports of health, biological markers of health provide insights to the unseen physiological mechanisms underlying

health functioning. This dissertation will focus on the biological marker of salivary cortisol. The hypothalamic-pituitary-adrenal (HPA) axis plays an important role in linking stressor exposure to physical health (McEwen, 1998). Cortisol is the end product of the HPA axis and has important functions in humans, including glucose production, fat metabolism, and inflammatory responses (Adam & Gunnar, 2001; Ice, Katz-Stein, Himes, & Kane, 2004; Johnson, 2006; Stone et al., 2001). Cortisol also has been implicated in psychiatric and somatic disorders, such as post-traumatic stress disorders (Gill, Vythilingam, & Page, 2008) and hypertension (Schoorlemmer, Peeters, van Schoor, & Lips, 2009). The literature examining the association between employment and cortisol primarily has focused on cortisol differences between workers and individuals who experienced short- or long-term unemployment (e.g., Grossi, Ahs, & Lundberg, 1998; Grossi, Perski, Lundberg, & Soares, 2001; Maier et al., 2006). Retirement, which differs from short- or long-term unemployment, is expected to offer individuals a relief from the demands of employment and could be associated with healthy HPA regulation. At the same time, retirement may entail changes and disruptions; thereby, retirement also could be associated with HPA dysregulation.

### *Dissertation Goals*

The LCDS perspective is used to frame this dissertation. All three papers utilize data from the National Survey of Midlife Development in the United States (MIDUS) and the National Study of Daily Experiences (NSDE). The NSDE is a national sample of men and women in the United States. Collected approximately 10 years apart, the first wave of NSDE is comprised of 1031 men and women between 25 to 74 years of age. In the second wave of NSDE, there are 1509 men and women between ages 33 to 84. The NSDE respondents completed daily telephone interviews about time use, psychological distress, productivity, and stressors over eight

consecutive days. In the second wave of NSDE, respondents also provided four saliva samples across four consecutive days.

*Paper 1: The Effects of Employment Status on Daily Experiences in a Sample of Middle-Aged and Older Adults*

In the study of retirement status and subjective well-being, much attention has been directed to global well-being, such as life satisfaction (Kim & Moen, 2002) and adjustment (Wang, 2007). Less is known about the associations between retirement status and daily well-being. Shifting the study of retirement from a global to daily approach, paper one describes the effects of employment status (worker vs. retiree) on aspects of daily experiences. Utilizing data from the first wave of MIDUS and NSDE, paper one focuses on the daily outcomes of time use, psychological distress, and stressors. As emphasized by the LCDS perspective of the importance of life course influences, paper one also examines the potential moderating effects of age, gender, marital status, and education in the associations between employment status and aspects of daily experiences.

*Paper 2: The Effects of Retirement Transition on Daily Experiences*

The second paper builds on the first paper by moving the study of retirement as a status to a transition. Transitions, such as moving from employment into retirement, may lead to changes in one's social and physical worlds, thereby, resulting in some degree of stress, either positive or negative (George, 1993). Using data from both waves of MIDUS and NSDE, the first part of this paper assesses the effects of retirement transition (stayed working vs. transitioned into retirement) on aspects of daily experiences (time use, psychological distress, and stressors) over a 10-year period. The second part of the paper explores whether stressor reactivity to daily time use and psychological distress differs as a function of retirement transition. Paper 2 also

uses the LCDS perspective to examine how life course influences (e.g., timing, gender) moderate the associations between retirement transition and aspects of daily experiences.

*Paper 3: The Effects of Employment Status on Salivary Cortisol in Mid- and Late-Life Adults*

The final paper moves past the use of self-report assessments of daily experiences to a biological marker of health, salivary cortisol. Focusing primarily on cortisol differences between workers and individuals who experienced short- or long-term unemployment (e.g., Grossi et al., 1998; Grossi et al., 2001; Maier et al., 2006), the literature on employment and cortisol has directed less attention on the effects of retirement on cortisol. Using data from the second wave of MIDUS and NSDE, paper three explores the effects of employment status (worker vs. retiree) on the parameters of the diurnal cortisol rhythm (cortisol awakening response and afternoon decline) and cortisol secretion level at each sampling occasion. The LCDS perspective, which combines the life course and stress literature, will be important in understanding how employment and retirement may be associated with the wear and tear of the body, as captured by salivary cortisol.

This dissertation utilizes the LCDS perspective and builds upon the literature of retirement and well-being in three key ways. First, this dissertation moves past using global assessments of well-being to examining daily assessments of well-being, with specific focus on *daily* time use, psychological distress, and stressors. Second, the use of a daily diary method allows for examination of day-to-day fluctuation in stress and well-being within an individual (Reis & Gable, 2000). This dissertation, particularly paper two, furthers the study of retirement by assessing whether midlife and older adults' stressor reactivity to daily time use and psychological distress differs as a function of retirement transition. Finally, this dissertation incorporates the use of a biological marker of health, salivary cortisol, in the study of retirement.

Utilizing a daily and multiple assessments of well-being will allow for a more complete understanding of the effects of retirement status and transition on day-to-day experiences in the United States.

## References

- Adam, E., & Gunnar, M. (2001). Relationship functioning and home and work demands predict individual differences in diurnal cortisol patterns in women. *Psychoneuroendocrinology*, 26, 189-208.
- Almeida, D.M. (2005). Resilience and vulnerability to daily stressors assessed via diary methods. *Current Directions in Psychological Science*, 14(2), 64-68.
- Almeida, D. M., Wethington, E., & Kessler, R. C. (2002). The Daily Inventory of Stressful Experiences (DISE): An Interview-Based Approach for Measuring Daily Stressors. *Assessment*, 9, 41-55.
- Almeida, D. M., & Wong, J. D. (2009). Life transitions and daily stress processes. In G. H., Elder, Jr., & J. Z. Giele (Eds.), *The craft of life course research* (pp. 141-162). New York: Guilford Press.
- Andrews, F. M. & Withey, S. B. (1976). *Social indicators of well-being: America's perception of life quality*. New York: Plenum Press.
- Bolger, N., Davis, A., & Rafaeli, E. (2003). Diary methods: Capturing life as it is lived. *Annual Review of Psychology*, 54, 579-616.
- Bolger, N., DeLongis, A., Kessler, R. C., & Schilling, E. A. (1989). Effects of daily stress on negative mood. *Journal of Personality and Social Psychology*, 57, 808-818.
- Brown, G. W., & Harris, T. O. (1989). *Life events and illness*. New York: Guilford Press.
- Burtless, G., & Quinn, J. F. (2002). *Is working longer the answer for an aging workforce?* (An issue in brief Center for Retirement Research at Boston College, No. 11). Boston, MA: Boston College.

- Butterworth, P., Gill, S. C., Rodgers, B., Anstey, K. J., Villamil, E., & Melzer, D. (2006). Retirement and mental health: Analysis of the Australian national survey of mental health and well-being. *Social Science and Medicine*, *62*, 1179-1191.
- Buxton, J. W., Singleton, N., & Melzer, D. (2005). The mental health of early retirees: National interview survey in Britain. *Social Psychiatry and Psychiatric Epidemiology*, *40*, 99-105.
- Cox, H., Parks, T., Hammonds, A., & Sekhon, G. (2001). Work/retirement choices and lifestyle patterns of older Americans. *Journal of Applied Sociology*, *18*, 131-149.
- Diener, E. (1994). Assessing subjective well-being: Progress and opportunities. *Social Indicators Research*, *31*, 103-157.
- Dohrenwend, B. S., & Dohrenwend, B. P. (1974). *Stressful life events: Their nature and effects*. Oxford, England: John Wiley & Sons.
- Drentea, P. (2002). Retirement and mental health. *Journal of Aging and Health*, *14*, 167-94.
- Ekerdt, D. J., Bosse, R., & LoCastro, J. S. (1983). Claims that retirement improves health. *Journal of Gerontology*, *38*, 231-236.
- Elder, G. H., Johnson, M. K., & Crosnoe, R. (2003). The emergence and development of life course theory. In J. Mortimer & M. J. Shanahan (Eds.), *Handbook of the life course* (pp. 3-22). New York: Kluwer Academic.
- Floyd, F. J., Haynes, S., Doll, E. R., Winemiller, D., Lemsky, C., Burgy, et al. (1992). Assessing retirement satisfaction and perceptions of retirement experiences. *Psychology and Aging*, *7*, 609-621.
- George, L. K. (1993). Sociological perspectives on life transitions. *Annual Review of Sociology*, *19*, 353-373.
- Gill, J., Vythilingam, M., & Page, G. G. (2008). Low cortisol, high DHEA, and high levels of



- stimulated TNF-alpha, and IL-6 in women with PTSD. *Journal of Traumatic Stress*, 21, 530-539.
- Grossi, G., Ahs, A., & Lundberg, U. (1998). Psychological correlates of salivary cortisol secretion among unemployed men and women. *Integrative Psychological and Behavioral Science*, 33, 249-263.
- Grossi, G., Perski, A., Lundberg, U., & Soares, J. (2001). Associations between financial strain and the diurnal salivary cortisol secretion of long-term unemployed individuals. *Integrative Psychological and Behavioral Science*, 36, 205-219.
- Holmes, T. H., & Rahe, R. H. (1967). Holmes-Rahe life changes scale. *Journal of Psychosomatic Research*, 11, 213-218.
- Hout, M., Arum, R., & Voss, K. (1996). The political economy of inequality in the “ages of extremes.” *Demography*, 33, 421-425.
- Hultsch, D. F., & Plemons, J. K. (1979). Life events and life-span development. In P. B. Baltes & O. G. Brim (Eds.) *Life-span development and behavior*, (Vol. 2, pp. 1-36). New York: Academic.
- Ice, G. H., Katz-Stein, A., Himes, J., & Kane, R. L. (2004). Diurnal cycles of salivary cortisol in older adults. *Psychoneuroendocrinology*, 29, 355-370.
- Johnson, K. L. (2006). The hypothalamic-pituitary-adrenal axis in critical illness. *AACN Clin Issues*, 17, 39-49.
- Kim, J. E., & Moen, P. (2002). Retirement transitions, gender, and psychological well-being: A life course, ecological model. *Journal of Gerontology: Psychological Sciences*, 57, 212-222.

- LaRossa, R., & Reitzes, D. C. (1993). Symbolic interactionism and family studies. In P. G. Boss, W. J. Doherty, R. LaRossa, W. R. Schumm, & E. S. K. Steinmetz (Eds.), *Source book of family theories and methods: A contextual approach* (pp. 135-166). New York: Plenum.
- Lazarus, R. S. (1999). *Stress and emotion: A new synthesis*. New York: Springer.
- Lucas, R. E., Diener, E., & Suh, E. M. (1996). Discriminant validity of well-being measures. *Journal of Personality and Social Psychology, 71*, 616-628.
- Maier, R., Egger, A., Barth, A., Winker, R., Osterode, W., Kundi, M., et al. (2006). Effects of short- and long-term unemployment on physical work capacity and on serum cortisol. *International Archives of Occupational and Environmental Health, 79*, 193-198.
- McEwen, B. S. (1998). Protective and damaging effects of stress mediators. *New England Journal of Medicine, 33*, 171-179.
- Mein, G., Martikainen, P., Hemingway, H., Stansfeld, S., & Marmot, M. (2003). Is retirement good or bad for mental and physical health functioning? Whitehall II longitudinal study of civil servants. *Journal of Epidemiology and Community Health, 57*, 46-49.
- Midanik, L. T., Soghikian, K., Ransom, L. J. & Tekawa, I. S. (1995). The effect of retirement on mental health and health behaviors: The Kaiser Permanente Retirement Study. *Journal of Gerontology Social Sciences, 50*, 59-61
- Mobily, K. E., Lemke, J. H., & Gisin, G. J. (1991). The idea of leisure repertoire. *Journal of Applied Gerontology, 10*, 208-223.
- Moen, P. (2003). Midcourse: Navigating retirement and a new life stage. In J. Mortimer & M. J. Shanahan (Eds.), *Handbook of the life course* (pp. 269-291). New York: Kluwer Academic.
- Musick, M. A., Herzog, A. R., & House, J. S. (1999). Volunteering and mortality among older

- adults: Findings from a national sample. *Journal of Gerontology: Social Sciences*, 54, 1373-180.
- Nisbett, R. E., & Wilson, T. D. (1977). The halo effect: Evidence for unconscious alteration of judgments. *Journal of Personality and Social Psychology*, 35, 250-256.
- Pearlin, L. I., Schieman, S., Fazio, E. M., & Meersman, S. C. (2005). Stress, health, and the life course: Some conceptual perspectives. *Journal of Health and Social Behavior*, 46, 205-219.
- Quinn, J. F. (2002). Changing retirement trends and their impact on elderly entitlement programs. In S. H. Altman & D. I. Shactman (Eds.), *Policies for an aging society* (pp. 293-315). Baltimore: The Johns Hopkins University Press.
- Reis, H. T., & Gable, S. L. (2000). Event-sampling and other methods for studying everyday experience. In H.T. Reis, & C.M. Judd (Eds.), *Handbook of research methods in social and personality psychology* (pp.190–222). New York: Cambridge University Press.
- Riddick, C. C. (1985). Life satisfaction and determinants of older males and females. *Leisure Sciences*, 7, 47-63.
- Riddick, C. C., & Stewart, D. G. (1994). An examination of life satisfaction and importance of leisure in the lives of older female retirees: A comparison of Blacks and Whites. *Journal of Leisure Research*, 26, 75-87.
- Schoorlemmer, R. M., Peeters, G. M., van Schoor, N. M., & Lips, P. (2009). Relationships between cortisol level, mortality, and chronic diseases in older persons. *Clinical Endocrinology*, 71, 779-786.
- Smith, D. B., & Moen, P. (2004). Retirement satisfaction for retirees and their spouses: Do gender and the retirement decision-making process matter? *Journal of Family Issues*, 25,

262-285.

Stone, A. A., Schwartz, J. E., Smyth, J., Kirschbaum, C., Cohen, S., Hellhammer, D., et al.

(2001). Individual differences in the diurnal cycle of salivary free cortisol: A replication of flattened cycles for some individuals. *Psychoneuroendocrinology*, *26*, 295-306.

Szinovacz, M. E., & Davey, A. (2004). Honeymoons and joint lunches: Effects of retirement and spouse's employment on depressive symptoms. *Journal of Gerontology: Psychological Sciences*, *59*, 233-245.

Thomas, D., & Diener, E. (1990). Memory accuracy in the recall of emotions. *Journal of Personality and Social Psychology*, *59*, 291-297.

van Solinge, H., & Henkens, K. (2008). Adjustment to and satisfaction with retirement: Two of a kind? *Psychology and Aging*, *23*, 422-434.

Wang, M. (2007). Profiling retirees in the retirement transition and adjustment process:

Examining the longitudinal change patterns of retirees' psychological well-being. *Journal of Applied Psychology*, *92*, 455-474.

Winkielman, P., Knauper, B. & Schwarz, N. (1998). Looking back at anger: Reference periods change the interpretation of emotion frequency questions. *Journal of Personality and Social Psychology*, *75*, 719-728.

Zautra, A. J. (2003). *Emotions, stress, and health*. New York, NY: Oxford University Press.

## CHAPTER II

### THE EFFECTS OF EMPLOYMENT STATUS ON DAILY EXPERIENCES IN A SAMPLE OF MIDDLE-AGED AND OLDER ADULTS

## Abstract

This study describes how employment status (worker vs. retiree) is associated with daily time use, psychological distress, and stressors. Using data from the first wave of National Study of Daily Experiences, which is a part of the National Survey of Midlife in the United States (MIDUS), the current study is comprised of 133 workers and 135 retirees between 55 to 74 years of age. Over eight consecutive days, participants from the NSDE completed telephone interviews about time use, psychological distress, physical symptoms, productivity, and stressors. A series of hierarchical regression models were used to estimate the effects of employment status, age, gender, marital status, and education, and their interactions, on daily time use, psychological distress, and stressors. Results showed that working men spent the least amount of time on daily household chores than working women and retirees. In retirement, men and women reported spending a similar amount of time on daily household chores. Older working men and younger retired men were the most disadvantaged in several aspects of daily well-being, including daily psychological distress and risk of stressors on daily routine, finances, health and safety, and future plans. Findings from this study suggest that to understand how retirement status shapes daily well-being, it is necessary to consider life course influences (e.g., age, gender).

## Introduction

Much of the past adult developmental research on retirement status and well-being has focused on *global* assessments of well-being. Less attention has been directed toward how retirement status is associated with *daily* well-being. The different expectations, challenges, and opportunities associated with each particular role status are expected to shape participation in daily activities and aspects of daily well-being. This study moves past using global assessments of well-being to examining daily assessments of well-being, with specific focus on *daily* time use, psychological distress, and stressors.

### *Employment and Global Well-being*

The transition from paid work to retirement may represent the opportunity to be relieved of the psychological, physical, and social stressors associated with employment. For individuals with low work-salience, retirement offers opportunities to explore personal and social interests that can lead to positive health outcomes. The positive outcomes of retirement have been documented in the areas of well-being and health behaviors. Retirement appears to lead to an improvement in well-being (e.g., increased positive affect) and self-reported health (Drentea, 2002; Mein, Martikainen, Hemingway, Stansfeld, & Marmot, 2003). Others found retired individuals reported lower stress levels and engaged in more regular exercise than their working counterparts (Midanik, Soghikian, Ransom, & Tekawa, 1995). In the area of health behaviors, retired women were less likely to report having a problem with alcohol (e.g., frequency of drunkenness, had accidents and injuries related to drinking) than non-retired women (Midanik et al., 1995).

At the same time that retirement may offer older adults a host of opportunities, retirement may present some challenges. Disruptions or changes in highly salient roles may result in

disruptions in other aspects of one's life (Pearlin, Schieman, Fazio, & Meersman, 2005). Individuals with high work role salience may find retirement to be difficult in part due to the loss of a central and valued role. Previous research has demonstrated that men with high work role salience were more likely than their counterparts to report low retirement satisfaction (Quick & Moen, 1998). Role disruptions or changes also have implications for mental health. Buxton, Singleton, and Melzer (2005) found that earlier retired men reported a higher prevalence of any neurotic disorders (depressive and anxiety disorders) than men and women still in the labor force. When compared to men who remained in the labor force, 22.2% of men who retired younger had a common mental disorder. Similarly, in a study using a sample of Australian men and women between ages 45 to 74, Butterworth, Gill, Rodgers, Anstey, Villamil, and Melzer (2006) found younger retired men were more likely to have a common mental disorder than their working counterparts.

#### *Global to Daily Well-being*

Past literature on retirement and well-being primarily focused on *global assessments of well-being*, including life satisfaction (Kim & Moen, 2002), adjustment (van Solinge & Henkens, 2008), and depression (Szinovacz & Davey, 2004). Lacking in this area of research is how retirement status is associated with daily well-being. Global assessments of well-being may not necessarily capture the periodic peaks and valleys of the individuals' well-being that are reflective of the daily responsibilities, opportunities, and challenges salient to a person's role status as worker or retiree. A global assessment of self-reported health, such as "Would you say your health is excellent, very good, good, fair, or poor?", may not capture the psychological or physical impairments that individuals experience day-to-day. A daily assessment of well-being, therefore, could be a more sensitive psychological barometer of life as a worker or retiree.



Utilizing a daily approach to studying well-being also will help to minimize the amount of time that elapsed between an experience and the account of the experience (Bolger, Davis, & Rafaeli, 2003). This proximal assessment can provide a less biased account of one's well-being (Nisbett & Wilson, 1977). Finally, the daily diary method allows for the assessment of within-person processes. This approach allows for the charting of day-to-day fluctuation in stress and well-being within an individual (Reis & Gable, 2000). This paper furthers the study of retirement status and well-being by utilizing daily assessments of well-being and examining daily well-being in multiple domains (daily time use, daily psychological distress, and daily stressors).

#### *Daily Well-being*

#### *Employment and Time Use*

Retirement, for many, may represent the opportunity to be relieved of the stressors associated with employment. No longer having to work, retirees--especially those in good health--now may have more time to explore personal and social interests, which can have positive outcomes on well-being. Participation and interests in leisure activities have been associated with increased well-being and life satisfaction (Floyd et al., 1992; Riddick & Stewart, 1994; Ryff, Singer, & Love, 2004; Stubbe, de Moor, Boomsma, & de Geus, 2007). Depending on the type of leisure activities, one's physical health and development of knowledge and skills can be enhanced (Dardis, Soberon-Ferrer, & Patro, 1994; Pressman et al., 2009). Socially responsible behaviors, such as volunteering, also have positive implications for well-being. Formal volunteering has been associated with increased life satisfaction (Van Willigen, 2000), more positive affect (Greenfield & Marks, 2004), and higher levels of contentment (Jirovec & Hyduk, 1998). Staying active and engaged are keys to healthy aging (Cox, Parks, Hammonds, & Sekhon,

2001; Mobily, Lemke, & Gisin, 1991; Musick, Herzog, & House, 1999). This especially may be important for individuals when they lose their status as a worker.

In contrast to work, retirement may free up time for individuals to pursue other activities. In 2008, employed persons in the United States worked an average of 7.6 hours on the days they worked for pay (United States Bureau of Labor Statistic, USBLS, 2009). Thus, the hours that workers allocate to paid work are hours that are not being directed towards activities such as leisure, volunteering, or household work. Past research has shown that individuals out of the labor force spent significantly more time in leisure and sports activities than working individuals (Krantz-Ken & Stewart, 2007). Non-working individuals spent more time reading for personal interests than employed individuals (Krantz-Ken & Stewart, 2007). Because the nature of retirement differs from work in terms of expectations, responsibilities, challenges, and opportunities, employment status is expected to influence how individuals spend time in their daily lives.

The first part of this study assesses the effect of employment status (worker vs. retiree) on time spent on daily sleep, household chores, physical activities, leisure activities, formal volunteer work, unpaid assistance from others (giving or receiving), and emotional support (giving or receiving). Because workers' daily time use is more likely to be restricted by work, it is predicted that retirees will report greater time spent on sleep, household chores, and socially responsible behaviors than workers.

### *Employment and Daily Psychological Distress*

In the study of retirement, psychological distress has been examined primarily through global measures such as neurotic disorders (Buxton et al., 2005), depression (Butterworth et al., 2006), and life satisfaction (Kim & Moen, 2002). Different assessments of psychological distress

have resulted in mixed findings. Whereas Kim and Moen (2002) found that newly retired men reported the highest morale score than those not yet retired from their career jobs; Ross and Drentea (1998) found retirees had lower levels of psychological distress when compared to workers. Additionally, researchers such as Buxton et al. (2005) and Butterworth et al. (2006) reported earlier/younger retired men had a higher prevalence of a common mental disorder (depressive and anxiety disorders) than their working counterparts.

In the study of retirement, less attention has focused on the affective component of subjective well-being (see Andrew & Withey, 1976 for description of the two components of subjective well-being—life satisfaction and affect). Shifting from a global to a daily assessment of psychological distress (negative affect) in this study, daily psychological distress will be explored with respect to employment status (worker vs. retiree). It is expected that retirees will exhibit greater daily psychological distress than workers. Although workers' exposure to work stressors may increase reporting of daily psychological distress, it is expected that retirees will report greater daily psychological distress due to the changes and disruptions in social role that retirement may bring (George, 1993). Because retirement is more ambiguous than other parts of the life course (Ekerdt, 2010; Moen, 2003), the lack of role clarity and expectations in retirement may present greater challenges for retirees.

### *Employment and Daily Stressors*

Past research has shown that adverse working conditions can lead to a number of poor outcomes, such as increased distress, anxiety, depression, and blood pressure (McEwen, 1998; Niedhammer, Goldberg, & Leclerc, 1998; Stets, 1995). The change in social role from worker to retiree may be advantageous in that individuals no longer have to experience the challenges and difficulties associated with the work environment. For others, the shift from employment to

retirement actually may be negative. Because changes in one's social role (e.g., worker to retiree) may entail possible transformations in identities, activities, and environment, the shift from worker to retiree also may increase or decrease one's vulnerability to stressors as well as the stress responses. This paper addresses this issue via the assessment of exposure to and appraisal of daily stressors.

Daily stressors are defined as the routine challenges of day-to-day living including arguments with a family member, unexpected work deadlines, and getting stuck in traffic (Almeida, 2005). In contrast to life events, minor daily stressors occur more frequently and unexpectedly, and can disrupt daily life (Almeida, 2005). These interruptions have immediate negative impacts on psychological, physical, and physiological functioning (Almeida, 2005; Almeida, Wethington, & Kessler, 2002; Bolger, DeLongis, Kessler, & Schilling, 1989; Brantley, Dietz, McKnight, Jones, & Tulley, 1998). Importantly, daily stressors can pile up over a series of days, which may result in more detrimental stress reactions (e.g., anxiety, depression; Lazarus, 1999; Zautra, 2003).

In addition to examining how employment status is associated with daily stressor exposure, it is also important to assess how individuals *appraise* the daily stressors experienced. Almeida and Horn (2004) found younger and midlife adults perceived their stressors as more severe and more likely to affect how others feel about them. In contrast to older adults, younger and midlife adults reported overloads (i.e., having too little time or other resources) and demands (i.e., having too much to do) to be greater sources of daily stressor.

In line with past research suggesting that changes in one's social role (i.e., worker to retiree) may entail possible transformations in identities, activities, and environment (e.g.,

George 1993), retirees are expected to exhibit greater daily stressor exposure and appraise stressors more negatively (e.g., risks of stressors on daily life) than workers.

### *Life Course Daily Stress Perspective (LCDS)*

Most research on retirement and well-being has taken a main effects approach that assumes that retirement has monolithic and universal consequences. This approach has led to mixed findings with some research linking retirement to positive outcomes and others to negative outcomes (e.g., Buxton et al., 2005; Martin-Matthews & Brown, 1988; Midanik et al., 1995). However, the effects of retirement on well-being are influenced by both characteristics of the individual as well as the context of retirement. The present paper views retirement as a transition within the context of life course development by utilizing a Life Course Daily Stress perspective (LCDS; Almeida & Wong, 2009). According to this perspective (see Figure 2.1), daily stress processes may be precipitated by life transitions. It is during the period of uncertainty that stress tends to be higher, and transitions often involve a transformation of multiple domains of responsibilities. Furthermore, the effects of life transitions on daily stress processes are influenced by life course factors (e.g., timing, gender, social embeddedness).

### *Characteristics of the Person: Timing (Age) and Gender*

#### *Timing (Age)*

The examination of employment status and aspects of daily experiences must take account of the norms and expectations that surround work. Although more individuals are working into old age, expectations regarding when one exits the labor force remain. Role status that goes against cultural norms may have implications for daily well-being. In accordance with the LCDS perspective, timing is an important life course influence that shapes life transitions. Timing refers to the idea that “developmental antecedents and consequences of life transitions,

events, and behavioral patterns vary according to their timing in a person's life" (Elder, Johnson, & Crosnoe, 2003, p. 12). Depending on when a life transition occurs in the life course, the meaning of the transition varies and affects individuals differently (Wheaton, 1990). The age norms and expectations that influence whether a transition is on or off time also are reflections of socially defined time and timing (Neugarten, 1979). Retirement analyses of age-specific patterns report higher frequencies of retirement at ages 62 and 65 (Burtless, 2004; Coile & Gruber, 2000). These two spikes (ages 62 and 65) correspond to the *early* and *normal* retirement ages of entitlement to Social Security benefits (although eligibility age for full benefits is rising, Ekerdt, 2010; Johnson, 2004). Thus, the study of retirement and daily experiences must not ignore the consideration of timing.

In the area of daily time use, younger workers are expected to spend the least amount of time on daily activities (e.g., sleep, household chores, physical activities) than their counterparts. In contrast to older individuals, younger individuals may occupy more social roles and responsibilities (Lachman & James, 1997). More social roles and responsibilities combined with greater time restriction associated with work may limit time spent on daily activities for these younger workers.

The importance of timing also is expected to shape the associations between employment status and stressor exposure and appraisal. Based on past research indicating that individuals who experience an off-time transition may not have the anticipatory skills and social resources to prepare them for the changes that they face (Hagestad & Neugarten, 1985), it is predicted that younger retirees, as well as older workers, will report the greatest daily psychological distress. Furthermore, younger retirees and older workers are expected to appraise stressors more negatively than their counterparts.

## *Gender*

Gender represents an important life course factor in shaping employment patterns and subsequent well-being. Although women's labor force participation has increased steadily since the 1970s, women still have less continuous employment and tend to occupy more low-wage jobs than men (Institute for Women's Policy Research, 2009; United Bureau of Labor Statistics, 2000). Women also are more likely than men to coordinate their retirement plans with their spouses' plans rather than to base the retirement decision simply on their own economic conditions (Blau, 1998; Honig, 1998; Pienta & Hayward, 2002). The combination of less continuous employment, lower wages than men, and the reliance on spouses' retirement plans, in turn, places women at a greater disadvantage at retirement in terms of psychological, physical, and financial well-being. The literature on the effects of gender on the retirement experiences has been mixed. Some studies have found men to be more satisfied and better adjusted to retirement than women (e.g., Gall, Evans, & Howard, 1997; Quick & Moen, 1998), while others reported women are psychologically better equipped for retirement than men due to more experiences with role transitions and career interruptions (Price, 2003; Talaga & Beehr, 1995).

Gender is expected to moderate the associations between employment status and aspects of daily experiences. In the areas of daily time use, women are expected to report more time spent in traditionally 'female' activities, such as household chores and giving emotional support, than men. No longer having to work, retired women are expected to report spending the most time in these activities due to fewer restrictions on their daily time use.

The literature examining gender differences in psychological distress typically have found women were more likely to exhibit greater psychological distress than men (e.g., Almeida & Horn, 2004; Almeida & Kessler, 1998; Mirowsky & Ross, 1995). Findings from these studies,

combined with the literature documenting the disadvantages that women face at retirement (Ekerdt & Hackney, 2002; Gabriel & Schmitz, 2007), suggest that retired women may face the greatest risk for daily psychological distress. Because women also are more likely to report greater frequency of daily stressors and appraise daily stressors as more severe than men (Almeida et al., 2002; Almeida & Horn, 2004; Bolger, DeLongis, Kessler, & Schilling, 1989), women are expected to report greater stressor exposure and appraise stressors more negatively than their counterparts.

### *Characteristics of the Environment: Social Embeddedness and Education*

#### *Social Embeddedness (Marital Status)*

Past research has demonstrated the importance of social embeddedness in understanding how employment affects global well-being (e.g. Johnson, 2004; Kim & Moen, 2002; Pienta & Hayward, 2002; Szinovacz & Davey, 2005a). Marriage offers individuals opportunities to establish social ties and financial security (Pienta, Hayward, & Jenkins, 2000). Married individuals have been shown to report the lowest rates of negative health behaviors while divorced individuals report the highest (Umberson, 1987). Marital dissolutions have greater negative effects for the well-being of women than men by placing them at a greater risk for poverty in old age. According to President's Council of Economic Advisors (PCEA; 2000), of the women who divorced, approximately 22% of these women experience a 50% or more reduction in family income. Furthermore, women's retirement expectations and behaviors have been associated with marital status (Johnson, 2004; Smith & Moen, 1998, 2004). Unlike single, divorced, or widowed women, retirement for married women typically occurs within the context of their spouses' work and retirement plans (Johnson, 2004). All of these findings highlight the importance of social embeddedness in the study of retirement and daily experiences.



In this study, marital status is expected to moderate the associations between employment status and aspects of daily experiences in the following ways. For daily time use, unmarried workers are predicted to spend the least amount of time in all of the activities because of greater time restriction due to work as well as the absence of a partner to share the division of labor. The absence of a marital partner to share the division of labor also may translate into less time to participate in other daily activities (e.g., leisure). It is also expected that retirement may help to buffer the effects of being unmarried. Although unmarried retirees may not have someone to share the division of labor, these individuals no longer have their time restricted by work. The absence of work responsibilities may offer unmarried retirees more opportunities to participate in daily activities.

In the area of daily psychological distress, unmarried individuals are expected to exhibit higher levels of daily psychological distress than their married counterparts (Bloom, Asher, & White, 1978; Kitson & Morgan, 1990). Specifically, unmarried retirees are expected to exhibit the greatest daily psychological distress. Because marriage can safeguard and buffer individuals from financial insecurity as well as increase access to social capital (Pienta et al., 2000), unmarried individuals in retirement may face the greatest challenges when compared to their counterparts. In accordance with these reasons, it is expected that unmarried retirees will appraise stressors more negatively than their counterparts.

### *Education*

The last life course influence to be considered in the examination of employment status and daily experiences is education. Education functions as an important foundation for subsequent stratification processes by occupation and earnings (Marks & Shinberg, 1998). Education has been linked to aspects of daily experiences, including time use, psychological

distress, and stressor exposure (Almeida, Neupert, Banks, & Serido, 2005; Grzywacz, Almeida, Neupert, & Ettner, 2004). Studies documenting education differences in physical, leisure, and volunteering activities typically have found those with higher education were more likely to participate in physical activities, spend less time watching television, and contribute time to their community than individuals with lower education (e.g., Almeida & McDonald, 2005; Macintyre & Mutrie, 2004). Education differences in psychological distress also have been observed. In general, individuals with lower education reported more psychological distress than those with higher education (Almeida et al., 2005; Fryers, Melzer, & Jenkins, 2003; Grzywacz et al., 2004; Kessler, 1982). Findings on education differences and daily stressor generally show that individuals with higher education reported more daily stressors than those with lower education (Almeida et al., 2005; Grzywacz et al., 2004). However, individuals with higher education were more likely to appraise stressors to be less severe (Almeida et al., 2005)

In this study, retirees with some college or more education are expected to spend the most time on daily physical activities, leisure activities, and in the areas of giving and helping. Working individuals with high school or less education are expected to report spending the least amount of time on these activities due to time restriction imposed by work as well as restrictions in resources and access to the activities. In the area of daily psychological distress, retirees with a high school or less education are expected to exhibit greater daily psychological distress because of the changes associated with retirement and the vulnerability factors associated with having a lower education. Finally, the changes associated with retirement combined with the ambiguity of the phase of retirement may expose retirees with higher education to greater exposure to daily stressors. In contrast, retirees with high school or less education are expected to appraise

stressors as the most severe due in part to the possibility of having fewer coping resources to handle the changes or disruptions associated with the retirement experience.

It is important to note that the decision to retire, stay working, or re-enter the labor force after a period of exit is a self-sorting process based on multiple factors, including employment situation, family circumstances, health, and finances (e.g., Burr, Massagli, Mutchler, & Pienta, 1996; Johnson, 2004; McGarry, 2002). Research has shown that factors such as health problems (Mutchler, Burr, Massagli, & Pienta, 1999; Szinovacz & Davey, 2005b) and finances (Pienta & Hayward, 2002; Shuey, 2004) are push and pull factors that often are considered in the decision to continue work or retire. Although the data in this study does not allow for the examination of reasons for employment or retirement, this study tried to account for health problems and financial situations by controlling for existing chronic health conditions and total household income. While these variables do not address the exact reasons for work or retirement, they do try to account for any differences that might exist between workers and retirees.

In summary, this study moves the examination of retirement status and well-being to a more microscopic approach. Specifically, this study describes how employment status (workers vs. retirees) is associated with aspects of daily experiences, including daily time use, daily psychological distress, and daily stressors. Finally, this study explores how life course influences (e.g., age, gender) shape the associations between retirement status and aspects of daily experiences.

## Method

### *Sample and Procedure*

The current study utilized data from the from the first wave of the National Study of Daily Experiences (NSDE), which is the daily diary portion of the National Survey of Midlife in

the United States (MIDUS). The MIDUS is a national probability sample of English speaking, non-institutionalized adults aged 25 to 74, selected through random digit dialing procedures. Respondents in the NSDE randomly were selected from the MIDUS sample and received \$20 for their participation. The 1031 NSDE respondents completed daily telephone interviews about time use, psychological distress, physical symptoms, productivity, and stressors over eight consecutive days. Data was collected during separate “flights” of interview with each “flight” representing the 8-day sequence. To account for potential confound between day of study and day of week, the specific day of the week in which the session began varied across days of the week. Data collection spanned over an entire year (March 1996 to 1997).

For this study, respondents were selected based on several criteria. First, respondents must have valid employment status responses. Of the 1031 respondents, 880 (85.4%) respondents had valid employment response. Age has been associated with the likelihood to work (i.e., younger individuals more likely to work; older individuals more likely to retire); therefore, this study limited the respondents to those between 55 to 74 years of age ( $N=276$ ; 26.8%). Additionally, the age range of 55 to 74 had the most even distribution of workers and retirees. Children in the household may contribute to additional financial obligations and increase opportunities for stressor exposures. This study excluded eight respondents (all workers) who reported having children under aged 18 in the household ( $N=276$  to 268). The current study comprised of 268 respondents, 133 workers and 135 retirees.

Presented in Table 2.1 are the socio-demographic characteristics of the respondents by employment status. Retirees ( $M=65.9$ ,  $SD=5.3$ ) were significantly older than workers ( $M=60.1$ ,  $SD=4.6$ ). The two groups also differed by gender. Among the workers in this sample, there were more women than men; whereas, the sample of retirees was comprised of more men than

women. Although this sample of workers and retirees significantly did not differ in marital status, education, or chronic conditions, they did differ by household income with workers reporting higher total household income than retirees.

### *Measures*

#### *Predictor Variables*

*Retirement status.* Respondents report their employment status using, “*What is your current employment situation?*” Instructed to select all responses that applied, respondents reported yes, no, or do not know to the following responses: working now, self-employed, unemployed, temporarily laid off, retired, homemaker, full-time student, and part-time student. Do not know responses were eliminated from analyses. To reduce murkiness and aim for a mutually exclusive conceptualization of employment status, conflicting employment status responses (e.g., working now and retired, self-employed and retired) also were excluded. There were 135 retirees and 133 workers in this study.

*Age and gender.* To examine how age moderates the association between retirement status and aspects of daily experiences, age was included as a continuous variable centered at mean ( $M=62.9$ ;  $SD=5.7$ ). Gender (0 = men, 1 = women) also was examined as a moderator of employment status and daily well-being.

*Marital status.* Respondents reported their marital status using the following responses: married, separated, divorced, widowed, or never married. Due to the small percentage of respondents in the non-married categories (separated ( $n=5$ ), divorced ( $n=25$ ), widowed ( $n=39$ ), and never married ( $n=8$ )), the unmarried categories were combined, resulting in a contrast between married and unmarried.

*Education.* Education was a contrast between high school degree or less (0) and some college or more (1).

#### *Daily Outcome Variables*

Over the course of eight consecutive days, respondents completed telephone interviews about their experiences in the previous 24 hours concerning daily time use, psychological distress, and stressors.

*Daily time use.* Respondents reported the amount of time they spent in each of the following activities during the previous 24 hours: a) sleep, b) household chores, c) physical activities, d) leisure activities, e) formal volunteer work, f) providing unpaid assistance to others outside the household, g) receiving unpaid assistance from others outside the household, h) giving emotional support, and i) receiving emotional support. Average time spent on each activity was calculated across the study days.

*Daily psychological distress.* Measure of psychological distress was limited to symptoms of depression and anxiety, which are two emotions commonly used to defined psychological distress (Diefenbach, Leventhal, Leventhal, & Patrick-Miller, 1996; Mroczek & Kolarz, 1998). On a 5-point scale from 0 (none of the time) to 4 (all of the time), respondents were asked how much time today did they feel: ‘restless or fidgety’, ‘nervous’, ‘worthless’, ‘so sad nothing cheer you up’, ‘everything was an effort’, and ‘hopeless’? Scores were averaged across items across study days. Taken from the following well-known and valid instruments: The Affect Balance Scale (Bradburn, 1969), the University of Michigan Composite International Diagnostic Interview (Kessler et al., 1994), the Manifest Anxiety Scale (Taylor, 1953) and the Center for Epidemiological Studies Depression Scale (Radloff, 1977), Kessler et al. (2002) developed the scale using Item Response Theory. The Cronbach’s alpha for this 6-item scale was 0.87.

*Daily stressors.* Daily stressors were assessed through a semi-structured Daily Inventory of Stressful Events (DISE; Almeida, Wethington, & Kessler, 2002). The DISE stressor assessment is consisted of a series of seven stem questions for identifying whether certain types of daily stressor (e.g., arguments, home stressors) had occurred in past 24 hours. The *frequency* of any stressors across the items across study days was calculated, with a higher score indicating greater stressor exposure. Respondents rated the severity of the stressors using a 4-point scale from 0 (not at all) to 3 (very). Mean of *subjective severity* score across stressors over study days was calculated. Using a 4-point scale (0=not at all risk to 3=at risk a lot), respondents also appraised the degree of risk the stressors posed to areas of their lives: a) disruption of daily routines, b) finances, c) how respondents feel about self, d) how others feel about respondents, e) personal health or safety, and f) plans for the future. Mean for each area of risk across all stressors over study days was calculated.

*Control variables.* To control for potential health influences that may differ between workers and retirees, the number of chronic health conditions experienced in the past twelve months was included (Cleary, Zaborski, & Ayanian, 2004). In project one of MIDUS, respondents indicated whether they experienced or were treated for any of the following in the past twelve months: a) asthma, bronchitis, or emphysema, b) tuberculosis, c) other lung problems, d) arthritis, rheumatism, or other bone or joint diseases, e) sciatica, lumbago, or recurring backache, f) persistent skin trouble (e.g. eczema), g) thyroid disease, h) hay fever, i) recurring stomach trouble, indigestion, or diarrhea, j) urinary or bladder problems, k) being constipated all or most of the time, l) gall baldder trouble, m) persistent foot trouble (e.g., bunions, ingrown toenails), n) trouble with varicose veins requiring medical treatment, o) AIDS or HIV infection, p) lupus or other autoimmune disorders, q) persistent trouble with your gums

or mouth, r) persistent trouble with your teeth, s) high blood pressure or hypertension, t) anxiety, depression, or other emotional disorder, u) alcohol or drug problems, v) migraine headaches, w) chronic sleeping problems, x) diabetes or high blood sugar, y) multiple sclerosis, epilepsy, or other neurological disorders, z) stroke, aa) ulcer, bb) hernia or rupture, and cc) piles or hemorrhoids. This study also included total household income (logged) to account for income differences between workers and retirees.

## Results

### *Analyses*

A series of hierarchical multiple regression models were conducted to examine the association between employment status and daily well-being (time use, psychological distress, and stressors). The main effects of employment status, age, gender, marital status, and education as well as the interactions (2- and 3-way interactions (Steps 2 and 3)) were calculated for all models. Chronic health condition and logged total household income were entered as controls.

### *Daily Time Use Results*

The first set of analyses examined the association between employment status and daily time use. There were no main or interactive effects of employment status, age, gender, marital status, and education on time spent on daily sleep, physical activities, leisure activities, formal volunteer work, receiving unpaid assistance from others outside the household, or receiving emotional support. However, several significant findings in other areas of time use are worthy of discussion. These results are presented in the Table 2.2.

For time spent on daily household chores, there was an interactive effect of employment and gender (see Table 2.2). Whereas working men spent an average of 1.17 hours on daily chores, working women spent 2.61 hours (see Figure 2.2). Although retired women spent more



time on daily household chores (2.58 hours) than retired men (2.44 hours), the difference was much smaller.

Results also showed an interactive effect of employment and marital status on daily household chores (see Table 2.2). As graphically depicted in Figure 2.3, unmarried workers reported fewer hours spent on chores (1.59 hours) than married workers (2.19 hours). Marital status had less of an influence on time spent on daily household chores in retirement. In retirement, unmarried individuals reported spending an average of 2.65 hours on daily household chores; whereas married individuals reported spending 2.44 hours.

In this study, there was an interactive effect of employment and marital status on time spent providing unpaid assistance to others outside the household (see Table 2.2). Unmarried workers spent the least amount of time providing unpaid assistance (1.50 hours). In contrast, unmarried retirees spent 3.60 hours helping others. Married individuals, regardless of employment status, reported a similar amount of time providing unpaid assistance (married workers: 2.83 hours; married retirees: 2.87 hours).

Presented in Table 2.2 are the results for time spent giving daily emotional support to others. There was an interactive effect of marital status, gender, and employment status on giving emotional support to others (see Figure 2.4). Among workers, unmarried men and married women reported spending more time giving emotional support to others. Among retirees, unmarried women and married men reported spending the most time giving emotional support. Furthermore, unmarried retirees reported spending the greatest time giving emotional support in both groups of workers and retirees.

#### *Daily Psychological Distress Results*

The second set of analyses focused on the association between employment status and daily psychological distress (see Table 2.3). Presented in Figure 2.5 is the three-way interactive effect of age, gender, and employment status on daily psychological distress. To graphically depict the results, age was recoded as a contrast between younger (one standard deviation below the sample mean) and older (one standard deviation above the sample mean) individuals. The sample mean age and standard deviation are 62.9 and 5.7. Among the workers, older men reported the greatest daily psychological distress; whereas, older women reported the lowest daily psychological distress (see Figure 2.5). In contrast, younger retired men reported the greatest daily psychological distress among the retirees (as well as compared to working individuals).

#### *Daily Stressor Characteristics Results*

The final set of analyses focused on the daily stress processes of workers and retirees. The association between employment status and stressor exposure first was explored. Presented in Table 2.4 are the results from the three-way interactive effect of age, gender, and employment status on any stressor. Among workers and retirees, younger working women reported the greatest proportion of days experiencing a stressor (45%) (see Figure 2.6). In contrast, younger working men reported the lowest proportion of days experiencing a stressor (21%) among both working and retired individuals. Among retirees, older women reported the greatest proportion of stressors days (35%) while older retired men reported a lower proportion of stressor days (20%). Mean of subjective stressor severity was explored but employment status did not account for any group differences.

Respondents also appraised the degree of risk the stressors posed to areas of their lives (see Tables 2.5a and 2.5b). In the examination of risk of stressors on disruption of daily routine

and financial situation, there was a three-way interactive effect of age, gender, and employment status. Older working men and younger retired men reported stressors having the greatest risk on disruption of daily routine and financial situation when compared to their working and retired counterparts.

The degree of risk the stressors posed on how respondents feel about self and how others feel about the respondents was examined (see Tables 2.5a and 2.5b). For both areas of risk, an interactive effect of employment and education status was observed. Retirees with high school or less education appraised the greatest risk that stressors posed in feeling about self and how others feel about them as compared to their working and retired counterparts. Employment status did not differ for individuals with some college or more education in both how daily stressors risk feeling about self and how others feel about them.

Presented in Table 5b are results for the interactive effect of age, gender, and employment status on the risk of stressors on respondent's health and safety, and plans for the future. Consistent with the findings above, older working men reported stressors having the greatest disruption on their health and safety as well as their future plans as compared to their working and retired counterparts. In contrast, older retired men appraised stressors having low disruption on their health and safety, and future plans. Among retired individuals, younger men appraised stressors having the greatest disruption on their health and safety, and future plans.

## Discussion

Much of the past literature on retirement has examined well-being from a global approach. Less attention has been directed towards studying retirement at a more microscopic level. This study describes the associations between employment status (workers vs. retirees) and

aspects of daily well-being. Findings highlight the importance of life course influences in the study of retirement and daily experiences

### *Employment Status and Age Among Men*

An important finding from this study is that older working men and younger retired men appear to be the most vulnerable of all groups. Older working men and younger retired men reported the greatest daily psychological distress and the greatest disruption that stressors posed to areas of their lives (e.g., health and safety, plans for the future). A plausible explanation for why older working men and younger retired men seem to be the most affected could be attributed to the norms and expectations regarding when one should retire. The expectations and norms surrounding retirement could be more strictly governed for men than for women due to women's greater probability of working part-time, earning lower wages, and having discontinuous employment histories (Ekerdt & Hackney, 2002; Gabriel & Schmitz, 2007; O'Rand, Henretta, & Krecker, 1992). Although there are more women in the labor force than years ago (United States Bureau of Labor Statistics, 2009), gender differences in employment still pervade. Thus, when men find themselves in situations where they want or need to work into old age or retire early, they may feel out of step in comparison to their family and friends, which could influence day-to-day living.

Another plausible reason for these findings could be that these groups of men are the most disadvantaged because of the real concerns in their daily lives. Take older workers for example. In the past, older workers were less likely to experience job layoffs because employers have invested many years in these workers and terminating these individuals would result in investment loss for the companies (Farber, 2005; Rodriguez & Zavodny, 2003). In recent years, the difference in displacement rates between younger and older workers has disappeared

(Munnell, Muldoon, & Sass, 2009). Munnell and colleagues (2009) attributed the finding to a decrease in the tenure of older workers as well as an increase in the displacement of older workers in the manufacturing sector. Older workers, especially men, are as susceptible as other workers to experience job loss. No longer having a sense of job security, older working men may be more likely to be impacted by the day-to-day stressors experienced. Because women are more likely than men to occupy part-time jobs, earn lower wages, and have a lower access to benefits than men, they might be less impacted by the sense of job insecurity. The insecurity and unpredictability that often accompany part-time and lower wage jobs may better prepare women for these uncertain economic conditions.

#### *Employment and Marital Status Among Women*

Findings from this study showed the important influences of gender and marital status on aspects of daily experiences. In particular, gender is important in shaping time spent on daily household chores. Reinforcing past research demonstrating that women do more of the household work (Coltrane, 2000; Presser, 1994; Steil, 1997), this study showed that working women reported spending more than 100% of the time on daily household chores than working men. In retirement, however, men appeared to pick up more of the daily household chores. It is also important to note that retirement does not appear to offer women a reprieve in the hours spent performing daily household chores since both working women and retired women report a similar amount of time spent on daily household chores. This finding is consistent with past research documenting women participating in more domestic labor in the household than do their partners (e.g., Brines 1994; Bianchi, Milkie, Sayer, & Robinson 2000). Moreover, this set of findings suggest that men pick up more day-to-day household responsibilities that they might not have carried out during their employment years, perhaps due to time restrictions associated with

work. After all, research has shown that employed men worked about 0.9 hour (54 minutes) more than employed women on the days they worked (USBLS, 2009). Now retired, men may have fewer restrictions imposed on their daily time use and have more time to spend on daily activities, including household responsibilities.

Consistent with the LCDS perspective's emphasis of the importance of social embeddedness in shaping one's life, this study found marital status to be an important moderator of the association between employment status and time spent on daily household chores. In comparison to their counterparts, unmarried workers spent the least amount of time on daily household chores. One plausible reason for the least amount of time spent on daily household chores by unmarried workers could be due to the challenges of balancing work and home responsibilities. Past research has shown that paid employment affects time spent doing housework (Goldscheider & Waite, 1991). Especially for unmarried workers, the combination of working and not having a spouse to help pick up the slack or share the division of labor could explain the least amount of time allocated toward daily household chores. In contrast, retirement appears to offer unmarried individuals more time for daily household chores.

This study also found that individuals in the United States are participating in socially responsible behaviors on a day-to-day basis. In particular, giving help to individuals outside the household appears to be greater in retirement, especially for unmarried individuals, than during employment. Retirement may offer individuals, especially those who are unmarried, greater opportunities to help others and to stay engaged with the community (Atchley, 1989; Mor-Barak, 1995).

Similar to the findings on time spent on daily chores, unmarried workers spent the least amount of time providing unpaid assistance outside the household when compared to their

counterparts. This finding provides further evidence suggesting the complexity and challenges of balancing work and family lives without a married spouse to compensate. Unlike an unmarried worker, a married worker who spends an hour a night helping someone outside of the household has a partner who can pick up the unmet responsibilities (e.g., cooking a meal, doing laundry, paying bills). Having someone else to share the division of labor may make it more feasible for individuals to participate in other activities, such as giving assistance to those outside the household. Perhaps, this is a luxury that unmarried workers do not have.

### *Limitations and Conclusions*

Limitations to this study need to be addressed. Participants in the MDUS and NSDE are more likely to be White, college-educated, healthier, and have higher than average levels of socioeconomic status. The participants also may be more agreeable in their willingness to participate in the study in that they were interviewed for eight consecutive days for approximately 15 to 20 minutes each day. Thus, the issue of selection must be considered when generalizing the findings.

In this study, employment status was defined using a self-assessment. Arguments could be made regarding the arbitrariness of using a self-definition of employment status in that there are no definite or concrete criteria (e.g., pension receipt) in identifying whether one is working or retired. However, the advantage of using a self-assessment is that the respondent's perception of his/her own employment status is obtained. Because perceptions often influence behaviors (e.g., Dijksterhuis & Bargh, 2001; Ferguson & Bargh, 2004), a self-assessment of employment status may provide insight to how individuals think or behave. In subsequent studies, it would be advantageous to explore whether different conceptualization of employment status (e.g., pension receipt, self-definition) lead to similar findings.

A consideration when interpreting the findings is that this study utilized cross-sectional data. Because cross-sectional data is used, one might question whether it is employment status (e.g., retirement) that is influencing well-being and health or vice-versa. Past studies have demonstrated that poor physical health often is an important reason that pushes individuals out of the labor force and into retirement (Mutchler et al., 1999; Szinovacz & Davey, 2005b). In addition to health, finance could be an important push and pull factor influencing the decision to work or retire. Although the data does not have information on whether individuals retired because of health problems, all of the analyses controlled for chronic health conditions experienced by the respondents as well as total household income. After controlling for chronic health conditions and total household income, the findings still stand.

In conclusion, recent social and economic conditions of the 21<sup>st</sup> century have reshaped retirement in the United States. Not only has the trend toward earlier retirement halted (Munnell et al., 2009), the decision to work in old age is becoming more of a necessity rather than an option for many Americans. The changing nature of employment in the United States points to the need to examine how employment shapes daily well-being. Importantly, findings from this study indicate the need to pay greater attention to older working men and younger retired men, who seemed to be facing greater day-to-day challenges than their counterparts. By understanding the challenges faced by these individuals at risk, better employment and retirement policies and programs can be implemented.



## References

- Almeida, D.M. (2005). Resilience and vulnerability to daily stressors assessed via diary methods. *Current Directions in Psychological Science, 14*(2), 64-68.
- Almeida, D. M., & Horn, M. C. (2004). Is daily life more stressful during middle adulthood? In O. G. Brim, C. D. Ryff, & R. C. Kessler (Eds.), *How healthy are we? A national study of well-being at midlife* (425-451). Chicago: The University of Chicago Press.
- Almeida, D. M., & Kessler, R. C. (1998). Everyday stressors and gender differences in daily distress. *Journal of Personality and Social Psychology, 75*, 670-680.
- Almeida, D.M., & McDonald, D. A. (2005). The national story: How Americans spend their time on work, family and community. In J. Heymann & C. Beem (Eds.), *Unfinished Work: Building Equality and Democracy in an Era of Working Families* (pp.180-203). New York: New Press.
- Almeida, D. M., McDonald, D., Havens, J., & Schervish, P. (2001). Temporal patterns in social responsibility. In A. Rossi (Ed.), *Caring and doing for others: Social responsibility in the domains of family, work, and community* (pp. 135-156). Chicago: The University of Chicago Press.
- Almeida, D. M., Mroczek, D. K., & Neiss, M. (2006). Can self-regulation explain age differences in daily, weekly, and monthly reports of psychological distress? In L. Carstensen & K.W. Schaie (Eds.), *Social Structure, Aging and Self-Regulation*. New York: Springer.
- Almeida, D. M., Neupert, S. D., Banks, S. R., & Serido, J. (2005). Do daily stress processes account for socioeconomic health disparities? *Journal of Gerontology: Series B, 60*, 34-39.

- Almeida, D. M., Wethington, E., & Kessler, R. C. (2002). The daily inventory of stressful experiences (DISE): An interview-based approach for measuring daily stressors. *Assessment, 9*, 41-55.
- Almeida, D. M., & Wong, J. D. (2009). Life transitions and daily stress processes. In G. H., Elder, Jr., & J. Z. Giele (Eds.), *The craft of life course research* (pp. 141-162). New York: Guilford Press.
- Andrew, F. M., & Withey, S. B. (1976). *Social indicators of well-being*. New York: Plenum Press.
- Antonucci, T. C., & Jackson, J. S. (1987). Social support, interpersonal efficacy, and health: A life course perspective. In L. L. Carstensen & B. A. Edelstein (Eds.), *Handbook of clinical gerontology* (pp. 291-311). New York: Pergamon Press.
- Atchley, R. (1989). A continuity theory of aging. *Gerontologist, 29*, 183–190.
- Bianchi, S. M., Milkie, M. A., Sayer, L. C., & Robinson, J. P. (2000). Is anyone doing the housework? Trends in the gender division of household labor. *Social Forces, 79*, 191-228.
- Blau, D. M. (1998). Labor force dynamics of older married couples. *Journal of Labor Economics, 16*, 595-629.
- Bloom, B. L., Asher, S. J., & White, S. W. (1978). Marital disruption as a stressor: A review and analysis. *Psychological Bulletin, 85*, 867-894.
- Bolger, N., Davis, A., & Rafaeli, E. (2003). Diary methods: Capturing life as it is lived. *Annual Review of Psychology, 54*, 579-616.
- Bolger, N., DeLongis, A., Kessler, R. C., & Schilling, E. A. (1989). Effects of daily stress on negative mood. *Journal of Personality and Social Psychology, 57*, 808-818.
- Bradburn, B. M., (1969). *The structure of psychological well-being*. Chicago: Aldine.

- Brantley, P. J., Dietz, L. S., McKnight, G. T., Jones, G. N., & Tulley, R. (1988) Convergence between the daily stress inventory and endocrine measures of stress. *Journal of Consulting and Clinical Psychology, 56*, 549–551.
- Brim, O. G., & Ryff, C. D. (1980). On the properties of life events. In P. B. Baltes & O. G. Brim, Jr. (Eds.), *Life-span development and behavior* (Vol. 3, pp. 363-387). New York: Academic Press.
- Brines, J. (1994). Economic dependency, gender and the division of labor at home. *American Journal of Sociology, 100*, 652-688.
- Burtless, G. (2004). *Social norms, rules of thumb, and retirement: Evidence for rationality in retirement* (Center for Social and Economic Dynamics Working Paper No. 37). Washington, DC: The Brookings Institution.
- Butterworth, P., Gill, S. C., Rodgers, B., Anstey, K. J., Villamil, E., & Melzer, D. (2006). Retirement and mental health: Analysis of the Australian national survey of mental health and well-being. *Social Science and Medicine, 62*, 1179-1191.
- Buxton, J. W., Singleton, N., & Melzer, D. (2005). The mental health of early retirees: National interview survey in Britain. *Social Psychiatry and Psychiatric Epidemiology, 40*, 99-105.
- Charles, S. T., & Almeida, D. M. (2006). Daily reports of symptoms and negative affect: Not all symptoms are the same. *Psychology and Health, 21*, 1-17.
- Cleary, P. D., Zaborski, L. B., & Ayanian, J. Z. (2004). Sex differences in health over the course of midlife. In O. G. Brim, C. D. Ryff & R. C. Kessler (Eds.), *How healthy are we?: A national study of well-being at midlife*, (pp. 37 - 63). Chicago: Univ. of Chicago Press.
- Coile, C., & Gruber, J. (2000). *Social Security and retirement* (NBER Working Paper No. 7830). Cambridge, MA: NBER.

- Coltrane, S. (2000). Research on household labor: Modeling and measuring the social embeddedness of routine family work. *Journal of Marriage and the Family*, 62, 1208-1233.
- Cox, H., Parks, T., Hammonds, A., & Sekhon, G. (2001). Work/retirement choices and lifestyle patterns of older Americans. *Journal of Applied Sociology*, 18, 131-149.
- Cutler, S. J., & Hendricks, J. (2000). Age differences in voluntary association memberships: Fact or artifact. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 55, S98-S107.
- Dardis, R., Soberon-Ferrer, H., & Patro, D. (1994). Analysis of leisure expenditures in the United States. *Journal of Leisure Research*, 26, 309-321
- Diefenbach, M. A., Leventhal, E. A., Leventhal, H., & Patrick-Miller, L. (1996). Negative affect relates to cross-sectional but not longitudinal symptom reporting: Data from elderly adults. *Health Psychology*, 15, 282-288.
- Dijksterhuis, A., & Bargh, J. A. (2001). The perception-behavior expressway: Automatic effects of social perception on social behavior. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 33, pp. 1-40). San Diego: Academic Press.
- Dohrenwend, B. S., & Dohrenwend, B. P. (1974). *Stressful life events: Their nature and effects*. Oxford, England: John Wiley & Sons.
- Drentea, P. (2002). Retirement and mental health. *Journal of Aging and Health*, 14, 167-94.
- Ekerdt, D. (2010). Frontiers of research on work and retirement. *Journal of Gerontology: Social Sciences*, 65, 69-80.
- Ekerdt, D. J., Bosse, R., & LoCastro, J. S. (1983). Claims that retirement improves health. *Journal of Gerontology*, 38, 231-236.

- Ekerdt, D. J., & Hackney, J. K. (2002). Workers' ignorance of retirement benefits. *The Gerontologist*, 42, 543-551.
- Elder, G. H., Johnson, M. K., & Crosnoe, R. (2003). The emergence and development of life course theory. In J. Mortimer & M. J. Shanahan (Eds.), *Handbook of the life course* (pp. 3-22). New York: Kluwer Academic.
- Farber, H. S. (2005). What do we know about job loss in the United States? Evidence from the displaced workers survey, 1984-2004. *Economic Perspective*, 29, 12-18.
- Ferguson, M. J. & Bargh, J. A. (2004). How social perception can automatically influence behavior. *Trends in Cognitive Sciences*, 8, 33-39
- Floyd, F. J., Haynes, S., Doll, E. R., Winemiller, D., Lemsky, C., Burgy, et al. (1992). Assessing retirement satisfaction and perceptions of retirement experiences. *Psychology and Aging*, 7, 609-621.
- Fryers, T., Melzer, D., Jenkins, R. (2003). Social inequalities and the common mental disorders: A systematic review of the evidence. *Social Psychiatry and Psychiatric Epidemiology*, 38, 229-237.
- Gabriel, P. E., & Schmitz, S. (2007). Gender differences in occupational distribution among workers. *Monthly Labor Review*, 130, 19-24.
- Gauthier, A. H., & Smeeding, T. M. (2003). Time use at older ages. *Research on Aging*, 25, 247-274.
- George, L. K. (1993). Sociological perspectives on life transitions. *Annual Review of Sociology*, 19, 353-373.
- Goldscheider, F. K., & Waite, L. J. (1991). *New Families, No Families? The Transformation of the American Home*. Berkeley, CA: University of California.

- Greenfield, E. A., & Marks, N. F. (2004). Formal volunteering as a protective factor for older adults' psychological well-being. *Journals of Gerontology: Series B: Psychological Sciences and Social Sciences*, 59, 258-S264.
- Grzywacz, J. G., Almeida, D. M., Neupert, S. D., Ettner, S. L. (2004). Socioeconomic status and health: A microlevel analysis of exposure and vulnerability to daily stressors. *Journal of Health and Social Behavior*, 45, 1-16.
- Gurin, G., Veroff, J., & Feld, S. (1960). Americans view their mental health: A nationwide interview survey. Oxford, England: Basic Books.
- Hochschild, A., & Machung, A. (1989). *The second shift*. New York: Avon.
- Honig, M. (1998). Married women's retirement expectations: Do pensions and social security matter? *American Economic Review*, 88, 202-206
- House, J. S., Lepkowski, J. M., Kinney, A. M., Mero, R. P., Kessler, R. C., & Herzog, A. R. (1994). The social stratification of aging and health. *Journal of Health and Social Behavior*, 35, 213-234.
- Institute for Women's Policy Research (2009, April). The gender wage gap by occupation. IWPR #C350a. *Institute for Women's Policy Research*. Washington DC.
- Jirovec, R. L., & Hyduk, C. A. (1998). Type of volunteer experience and health among older adult volunteers. *Journal of Gerontological Social Work*, 30, 29-42.
- Johnson, R. W. (2004). Do spouses coordinate their retirement decisions? *Issue in Brief* 19 (July). Chestnut Hill, MA: Center for Retirement Research at Boston College.
- Kessler, R. C. (1982). A disaggregation of the relationship between socioeconomic status and psychological distress. *American Sociological Review*, 47, 752-764.
- Kessler, R. C., Andrews, G., Colpe, L., Hiripi, E., Mroczek, D. K., Normand, S. L., et al. (2002).

- Short screening scales to monitor population prevalence and trends in nonspecific psychological distress. *Psychological Medicine*, 32, 959-976.
- Kessler, R. C., McGonagle, K. A., Zhao, S., Nelson, C. B., Hughes, M., Eshleman, S., et al. (1994). Lifetime and 12-month prevalence of DSM-II-R psychiatric disorders in the United States. *Archives of General Psychiatry*, 51, 8-19.
- Kiecolt-Glaser, J. K., & Newton, T. L. (2001). Marriage and health: His and hers. *Psychological Bulletin*, 127, 472-503.
- Kim, J. E., & Moen, P. (2002). Retirement transitions, gender, and psychological well-being: A life course, ecological model. *Journal of Gerontology: Psychological Sciences*, 57, 212-222.
- Kitson, G. C., & Morgan, L. A. (1990). The multiple consequences of divorce: A decade review. *Journal of Marriage & Family*, 54, 901-911.
- Krantz-Kent, R., & Stewart, J. (2007 May). How do older Americans spend their time? *Monthly Labor Review*.
- Larsen, R. J., & Kasimatis, M. (1991). Day-to-day physical symptoms: Individual differences in the occurrence, duration, and emotional concomitant of minor daily illnesses. *Journal of Personality*, 59, 387-423.
- Lawton, P. M., Kleban, M. H., Rajagopal, D., & Dean, J. (1992). Dimensions of affective experience in three age groups. *Psychology and Aging*, 7, 171-184.
- Lazarus, R. S. (1999). *Stress and emotion: A new synthesis*. New York: Springer.
- Luecken, L., Suarez, E., Kuhn, C., Barefoot, J., Blumenthal, J., Siegler, I., et al. (1997). Stress in employed women: Impact of marital status and children at home on neurohormone output and home strain. *Psychosomatic Medicine*, 59, 352-359.

- Macintyre, S., & Mutrie, N. (2004). Socio-economic differences in cardiovascular disease and physical activity: Stereotypes and reality. *J. R. Soc. Health*, 124, 66–69.
- Marks, N. F., & Shinberg, D. S. (1998). Socioeconomic status differences in hormone therapy. *American Journal of Epidemiology*, 148, 581–593.
- Martin-Matthews, A., & Brown, K. H. (1988). Retirement as a critical life event: The differential experiences of men and women. *Research on Aging*, 9, 548-557.
- McEwen, B. S. (1998). Protective and damaging effects of stress mediators. *New England Journal of Medicine*, 33, 171-179.
- Mein, G., Martikainen, P., Hemingway, H., Stansfeld, S., & Marmot, M. (2003). Is retirement good or bad for mental and physical health functioning? Whitehall II longitudinal study of civil servants. *Journal Epidemiology & Community Health*, 57, 46–49.
- Midanik, L. T., Soghikian, K., Ransom, L. J. & Tekawa, I. S. (1995). The effect of retirement on mental health and health behaviors: The Kaiser Permanente Retirement Study. *Journal of Gerontology Social Sciences*, 50, 59-61.
- Mobily, K. E., Lemke, J. H., & Gisin, G. J. (1991). The idea of leisure repertoire. *Journal of Applied Gerontology*, 10, 208-223.
- Moen, P. (2001). The gendered life course. In L. George & R. H. Binstock (Eds.), *Handbook of aging and the social sciences* (5<sup>th</sup> ed. pp.179-196). San Diego, CA: Academic Press, Inc.
- Moen, P. (2003). Midcourse: Navigating retirement and a new life stage. In J. Mortimer & M. J. Shanahan (Eds.), *Handbook of the life course* (pp. 269-291). New York: Kluwer Academic.



- Mor-Barak, M. E. (1995). The meaning of work for older adults seeking employment: The generativity factor. *International Journal of Aging and Human Development*, *41*, 325–344.
- Mroczek, D. K., & Kolarz, C. M. (1998). The effect of age on positive and negative affect: A developmental perspective on happiness. *Journal of Personality and Social Psychology*, *75*, 1333-1349.
- Munnell, A., Muldon, D., & Sass, S. A. (2009 January). *Recession and older workers*. (An issue in brief Center for Retirement Research at Boston College, No. 9-2). Boston, MA: Boston College.
- Musick, M. A., Herzog, A. R., & House, J. S. (1999). Volunteering and mortality among older adults: Findings from a national sample. *Journal of Gerontology: Social Sciences*, *54*, 1373-S180.
- Mutchler, J. E., Burr, J. A., Massagli, M. P., Pienta, A. (1999). Work transitions and health in later life. *The Journals of Gerontology*, *54*, 252-261.
- Neugarten, B. L. (1979). Time, age, and the life cycle. *The American Journal of Psychiatry*, *136*, 887-894.
- Nickols, S. Y., & Abdel-Ghany, M. (1983). Leisure time of husbands and wives. *Home Economics Research Journal*, *12*, 189-198.
- Niedhammer, I., Goldberg, M., & Leclerc, A. (1998). Psychosocial work environment and cardiovascular risk factors in a occupational cohort in France. *Journal of Epidemiology of Community Health*, *52*, 93-100.
- Nisbett, R. E., & Wilson, T. D. (1977). The halo effect: Evidence for unconscious alteration of judgments. *Journal of Personality and Social Psychology*, *35*, 250-256.

- O’Rand, A. M., Henretta, J. C., & Krecker, M. (1992). Family pathways to retirement. In M. Szinovacz, D. Ekerdt, & B. Vinick (Eds.), *Families and retirement* (pp. 81-98). Newbury Park, CA: Sage Publications.
- Pearlin, L. I., Schieman, S., Fazio, E. M., & Meersman, S. C. (2005). Stress, health, and the life course: Some conceptual perspectives. *Journal of Health and Social Behavior*, *46*, 205-219.
- Pienta, A. M., & Hayward, M. D. (2002). Who expects to continue working after age 62? The retirement plans of couples. *The Journal of Gerontology*, *57*, 199-208.
- Pienta, A. M., Hayward, M. D., & Jenkins, K. R. (2000). Health consequences of marriage for the retirement years. *Journal of Family Issues*, *21*, 559-586.
- President’s Council of Economic Advisors (2000). *Economic Report of the President 2000*. Washington, D.C.: U. S. Government Printing Office.
- Pressman, S. D., Matthew, K. A., Cohen, S., Martire, L. M., Scheier, M., Baum, A., et al. (2009). Association of enjoyable leisure activities with psychological and physical well-being. *Psychosomatic Medicine*, *71*, 725-732.
- Quick, H. E., & Moen, P. (1998). Gender, employment, and retirement quality: A life course approach to the differential experiences of men and women. *Journal of Occupational Health Psychology*, *3*, 44-64.
- Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, *1*, 385-401.
- Riddick, C. C. (1985). Life satisfaction and determinants of older males and females. *Leisure Sciences*, *7*, 47-63.
- Riddick, C. C., & Stewart, D. G. (1994). An examination of life satisfaction and importance of

- leisure in the lives of older female retirees: A comparison of Blacks and Whites. *Journal of Leisure Research*, 26, 75-87.
- Robinson, J. P., & Godbey, G. (1997). *Time for life: The surprising ways Americans use their time*. University Park: Pennsylvania State University Press.
- Rodriguez, D., & Zavodny, M. (2003). Changes in the age and education profile of displaced workers. *Industrial and Labor Relations Review*, 56, 498-510.
- Ross, C. E., & Drentea, P. (1998). Consequences of retirement activities for distress and the sense of personal control. *Journal of Health and Social Behavior*, 39, 317-334.
- Ross, C. E., & Wu, C. (1995). The links between education and health. *American Sociological Review*, 60, 719-745
- Rowe, J. W., & Kahn, R. L., (1987). Human aging: Usual and successful. *Science*, 237, 143-149
- Ryff, C. D., Singer, B. H., & Love, G. (2004). Positive health: Connecting well-being with biology. *Philosophical Transactions of the Royal Society of London*, B359, 1383-1394.
- Seeman, T. E., Berkman, L. F., Blazer, D., & Rowe, J. (1994). Social ties and support and neuroendocrine function: MacArthur studies of successful aging. *Annals of Behavioral Medicine*, 16, 95-106.
- Shelton, B. A., & John, D. (1993). Does marital status make a difference? *Journal of Family Issues*, 14, 401-420.
- Shuey, K. M. (2004). Worker preferences, spousal coordination, and participation in an employer-sponsored pension plan. *Research on Aging*, 26, 287-316.
- Smith, D. B., & Moen, P. (2004). Retirement satisfaction for retirees and their spouses: Do gender and the retirement decision-making process matter? *Journal of Family Issues*, 25, 262-285.

- South, S. J., & Spitze, G. (1994). Housework in marital and non-marital households. *American Sociological Review*, 59, 327-347.
- Stets, J. E. (1995). Job autonomy and control over one's spouse: A compensatory process. *Journal of Health and Social Behavior*, 36, 244-258.
- Stubbe, J. H., de Moor, M. H. M., Boomsma, D. I., & de Geus, E. J. C. (2007). The association between exercise participation and well-being: A co-twin study. *Preventive Medicine: An International Journal Devoted to Practice and Theory*, 44, 148-152.
- Szinovacz, M. E., & Davey, A. (2004). Honeymoons and joint lunches: Effects of retirement and spouse's employment on depressive symptoms. *Journal of Gerontology: Psychological Sciences*, 59B, P233-P245.
- Szinovacz, M. E., & Davey, A. (2005a). Retirement and marital decision making: Effects on retirement satisfaction. *Journal of Marriage and Family*, 67, 387-398.
- Szinovacz, M. E. & Davey, A. (2005b). Predictors of perceptions of involuntary retirement. *The Gerontologist*, 45, 36-47.
- Taylor, J. A. (1953) A personality scale of manifest anxiety. *Journal of Abnormal and Social Psychology*, 48, 285-290.
- Thompson, L., & Walker, A. J. (1989). Gender in families: Women and men in marriage, work, and parenthood. *Journal of Marriage and the Family*, 51, 845-871.
- Thrane, C. (2000). Men, women, and leisure time: Scandinavian evidence of gender inequality. *Leisure Sciences*, 22, 109-122.
- Umberson, D. (1987). Family status and health behaviors: Social control as a dimension of social integration. *Journal of Health and Social Behavior*, 28, 306-319.
- United States Bureau of Labor Statistics (2000). Number of jobs held, labor or market activity,

- and earnings growth over two decades: Results from a longitudinal survey. USDL 00-119. *Bureau of Labor Statistics*. US Department of Labor, Washington DC.
- United States Bureau of Labor Statistic (2009). American time use survey summary. USDL 09-0704. *Bureau of Labor Statistics*. US Department of Labor, Washington DC.
- United States Bureau of Labor Statistics (2009 Winter). Labor force. *Occupational Outlook Quarterly*, 30-36.
- van Solinge, H., & Henkens, K. (2008). Adjustment to and satisfaction with retirement: Two of a kind? *Psychology and Aging*, 23, 422-434.
- Van Willigen, M. (2000). Differential benefits of volunteering across the *life* course. *Journals of Gerontology: Series B: Psychological Sciences and Social Sciences*, 55B, S308-318.
- Wheaton, B. (1990). Life transitions, role histories, and mental health. *American Sociological Review*, 55, 209-223.
- Wolf, J. L., Starfield, B., & Anderson, G. (2002). Prevalence, expenditures, and complications of multiple chronic conditions in the elderly. *Archives of Internal Medicine*, 62, 2269-2276.
- Zautra, A. J. (2003). *Emotions, stress, and health*. New York, NY: Oxford University Press.
- Zautra, A. J., Finch, J. F., Reich, J. W., & Guarnaccia, C. A. (1991). Predicting the everyday life events of older adults. *Journal of Personality*, 59, 3, 507-38.

Table 2.1 Socio-demographic Characteristics by Employment Status

		Workers ( <i>n</i> = 126)	Retirees ( <i>n</i> = 76)
Age***	<i>M</i>	60.1	65.9
	<i>SD</i>	4.6	5.3
Gender**			
Men	%	35.3	53.3
Women	%	64.7	46.7
Marital Status			
Unmarried	%	39.8	32.6
Married	%	60.2	67.4
Education			
High School or Less	%	40.6	43.0
Some College or More	%	59.4	57.0
Chronic Conditions	<i>M</i>	3.3	3.7
	<i>SD</i>	2.1	3.3
Total Household Income (logged)**	<i>M</i>	10.6	10.3
	<i>SD</i>	0.7	1.3

Difference significant at \**p*<.05; \*\*<.01; \*\*\**p*<.001

Table 2.2 Hierarchical Multiple Regression Modeling Time Spent on Daily Activities

	Daily Chores			Helping Others			Giving Emotional Support		
	$\beta$	SE	R <sup>2</sup>	$\beta$	SE	R <sup>2</sup>	$\beta$	SE	R <sup>2</sup>
Step 1									
Constant	1.62	0.97		-3.37	3.76		0.92	0.72	
Employment Status	-0.57**	0.20	0.12	-0.87	0.61	0.10	-0.11	0.16	0.04
Age	-0.01	0.02		-0.05	0.05		-0.01	0.01	
Gender	0.82***	0.18		0.96	0.55		0.01	0.15	
Marital Status	0.24	0.20		0.46	0.58		-0.05	0.15	
Education	-0.26	0.18		0.62	0.53		-0.04	0.14	
Chronic Conditions	-0.02	0.03		0.13	0.11		0.05*	0.02	
Logged Household Income	0.05	0.09		0.48	0.37		0.00	0.07	
Step 2									
Employment Status x Age	0.06	0.03		-0.05	0.11		0.01	0.03	
Employment Status x Gender	1.29**	0.35		0.52	1.08		0.09	0.32	
Employment Status x Marital Status	0.81*	0.36		2.05*	1.09		0.29	0.33	
Employment Status x Education	0.44	0.34	0.20	-1.19	1.05	0.14	-0.46	0.33	0.06
Step 3									
Age x Gender x Employment Status							0.01	0.06	
Age x Marital x Employment Status							0.05	0.06	
Age x Education x Employment Status							-0.04	0.06	0.09
Marital x Gender x Employment Status							1.27*	0.64	

Note: Employment Status (0=Retired, 1=Working); Gender (1=Women); Marital Status (1=Married); Education (1=Some College or Higher).

<sup>1</sup>Age was centered at mean of 62.9.

Difference significant at \*p<.05, \*\*p<.01, \*\*\*p<.001.

Table 2.3 Hierarchical Multiple Regression Modeling Daily Psychological Distress

	Daily Psychological Distress		
	$\beta$	SE	R <sup>2</sup>
<b>Step 1</b>			
Constant	-0.01	0.22	
Employment Status	-0.07	0.04	0.06
Age	-0.01	0.00	
Gender	0.01	0.04	
Marital Status	-0.06	0.04	
Education	-0.04	0.04	
Chronic Conditions	0.02**	0.01	
Logged Household Income	0.02	0.02	
<b>Step 2</b>			
Employment Status x Age	0.00	0.01	
Employment Status x Gender	0.06	0.09	
Employment Status x Marital Status	-0.08	0.09	
Employment Status x Education	-0.09	0.09	
<b>Step 3</b>			
Age x Gender x Employment Status	-0.04*	0.02	
Age x Marital x Employment Status	0.00	0.02	
Age x Education x Employment Status	0.02	0.02	
Marital x Gender x Employment Status	-0.02	0.18	0.11

Note: Employment Status (0=Retired, 1=Working); Gender (1=Women); Marital Status (1=Married); Education (1=Some College or Higher).

<sup>1</sup>Age was centered at mean of 62.9.

Difference significant at \*p<.05, \*\*p<.01, \*\*\*p<.001.



Table 2.4 Hierarchical Multiple Regression Modeling Any Daily Stressor Exposure

	Any Daily Stressor Exposure		
	$\beta$	SE	R <sup>2</sup>
<b>Step 1</b>			
Constant	0.08	0.18	
Employment Status	0.04	0.04	
Age	0.00	0.00	
Gender	0.14***	0.03	
Marital Status	0.06	0.04	
Education	0.09**	0.03	
Chronic Conditions	0.01	0.01	
Logged Household Income	0.00	0.02	0.14
<b>Step 2</b>			
Employment Status x Age	0.00	0.01	
Employment Status x Gender	0.10	0.07	
Employment Status x Marital Status	0.01	0.08	
Employment Status x Education	-0.14	0.07	0.17
<b>Step 3</b>			
Age x Gender x Employment Status	-0.03*	0.01	
Age x Marital x Employment Status	0.00	0.01	
Age x Education x Employment Status	0.01	0.01	
Marital x Gender x Employment Status	0.04	0.15	0.20

Note: Employment Status (0=Retired, 1=Working); Gender (1=Women); Marital Status (1=Married); Education (1=Some College or Higher).

<sup>1</sup>Age was centered at mean of 62.9.

Difference significant at \*p<.05, \*\*p<.01, \*\*\*p<.001.

Table 2.5a Hierarchical Multiple Regression Modeling Appraisal of Risk that Daily Stressors Posed on Areas of Lives

	Daily Routine			Financial Situation			Feel About Yourself		
	$\beta$	SE	R <sup>2</sup>	$\beta$	SE	R <sup>2</sup>	$\beta$	SE	R <sup>2</sup>
Step 1									
Constant	-0.12	0.74		-0.42	0.50		-0.01	0.57	
Employment Status	-0.08	0.18		0.10	0.12		-0.07	0.14	
Age	0.00	0.02		0.01	0.01		0.00	0.01	
Gender	-0.05	0.17		-0.22*	0.11		0.16	0.13	
Marital Status	0.08	0.17		-0.14	0.11		0.09	0.13	
Education	-0.48***	0.16		-0.12	0.11		-0.15	0.12	
Chronic Conditions	0.02	0.03		0.01	0.02		0.06*	0.03	
Logged Household Income	0.14*	0.07	0.09	0.09	0.05	0.08	0.03	0.06	0.09
Step 2									
Employment Status x Age	0.06	0.03		0.02	0.02		0.01	0.02	
Employment Status x Gender	0.14	0.39		-0.12	0.26		0.11	0.25	
Employment Status x Marital Status	0.48	0.38		0.25	0.25		0.36	0.25	
Employment Status x Education	0.14	0.38	0.17	-0.02	0.25	0.17	0.46*	0.24	0.14
Step 3									
Age x Gender x Employment Status	-0.16*	0.08		-0.21**	0.05				
Age x Marital x Employment Status	-0.06	0.07		-0.04	0.04				
Age x Education x Employment Status	-0.01	0.07		-0.01	0.04				
Marital x Gender x Employment Status	-0.37	0.75	0.20	-0.81	0.47	0.30			

Note: Employment Status (0=Retired, 1=Working); Gender (1=Women); Marital Status (1=Married); Education (1=Some College or Higher).

<sup>1</sup>Age was centered at mean of 62.9.

Difference significant at \*p<.05, \*\*p<.01, \*\*\*p<.001.

Table 2.5b Hierarchical Multiple Regression Modeling Appraisal of Risk that Daily Stressors Posed on Areas of Lives

	Other People Feel About You			Your Physical Health or Safety			Your Future Plans		
	$\beta$	SE	R <sup>2</sup>	$\beta$	SE	R <sup>2</sup>	$\beta$	SE	R <sup>2</sup>
Step 1									
Constant	0.24	0.48		-0.50	0.49		-0.63	0.52	
Employment Status	-0.17	0.12		-0.10	0.12		-0.01	0.12	
Age	-0.02	0.01		-0.01	0.01		0.01	0.01	
Gender	-0.16	0.11		-0.09	0.11		0.00	0.12	
Marital Status	-0.05	0.11		-0.05	0.11		-0.11	0.12	
Education	-0.02	0.10		-0.24*	0.10		-0.17	0.11	
Chronic Conditions	0.02	0.02		0.03	0.02		0.05*	0.02	
Logged Household Income	0.02	0.05	0.06	0.09*	0.05	0.08	0.09	0.05	0.07
Step 2									
Employment Status x Age	0.04	0.02		0.03	0.02		0.01	0.02	
Employment Status x Gender	0.06	0.21		0.14	0.26		0.23	0.28	
Employment Status x Marital Status	0.08	0.21		0.29	0.25		0.22	0.27	
Employment Status x Education	0.55**	0.20	0.15	0.17	0.25	0.14	0.06	0.27	0.15
Step 3									
Age x Gender x Employment Status				-0.11*	0.05		-0.17**	0.05	
Age x Marital x Employment Status				0.00	0.04		-0.06	0.04	
Age x Education x Employment Status				-0.02	0.04		-0.06	0.04	
Marital x Gender x Employment Status				-0.24	0.49	0.19	0.07	0.50	0.26

Note: Employment Status (0=Retired, 1=Working); Gender (1=Women); Marital Status (1=Married); Education (1=Some College or Higher).

<sup>1</sup>Age was centered at mean of 62.9.

Difference significant at \*p<.05, \*\*p<.01, \*\*\*p<.001.

Figure 2.1 Life Course Daily Stress Model.

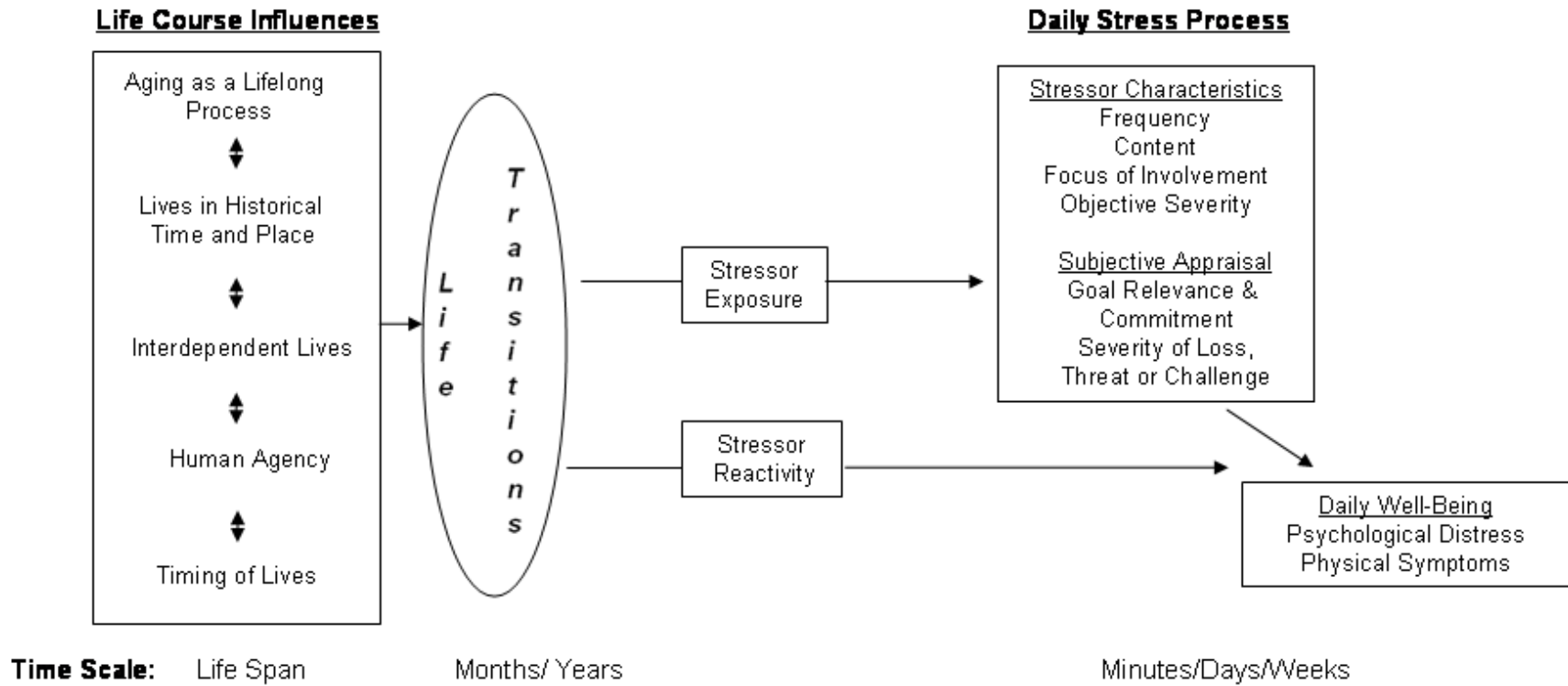


Figure 2.2 Employment Status and Gender on Time Spent on Daily Household Chores.

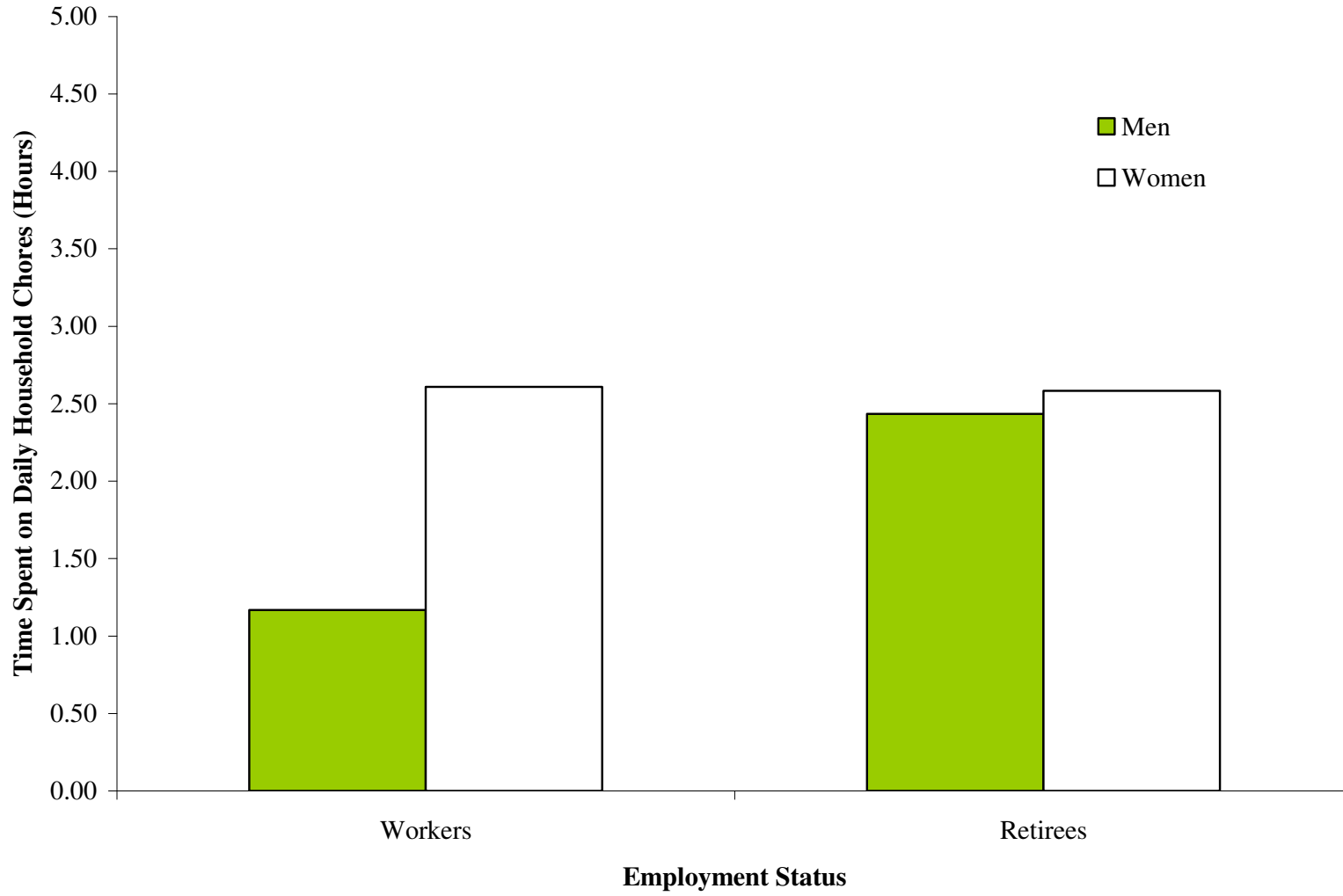


Figure 2.3 Employment and Marital Status on Time Spent on Daily Household Chores.

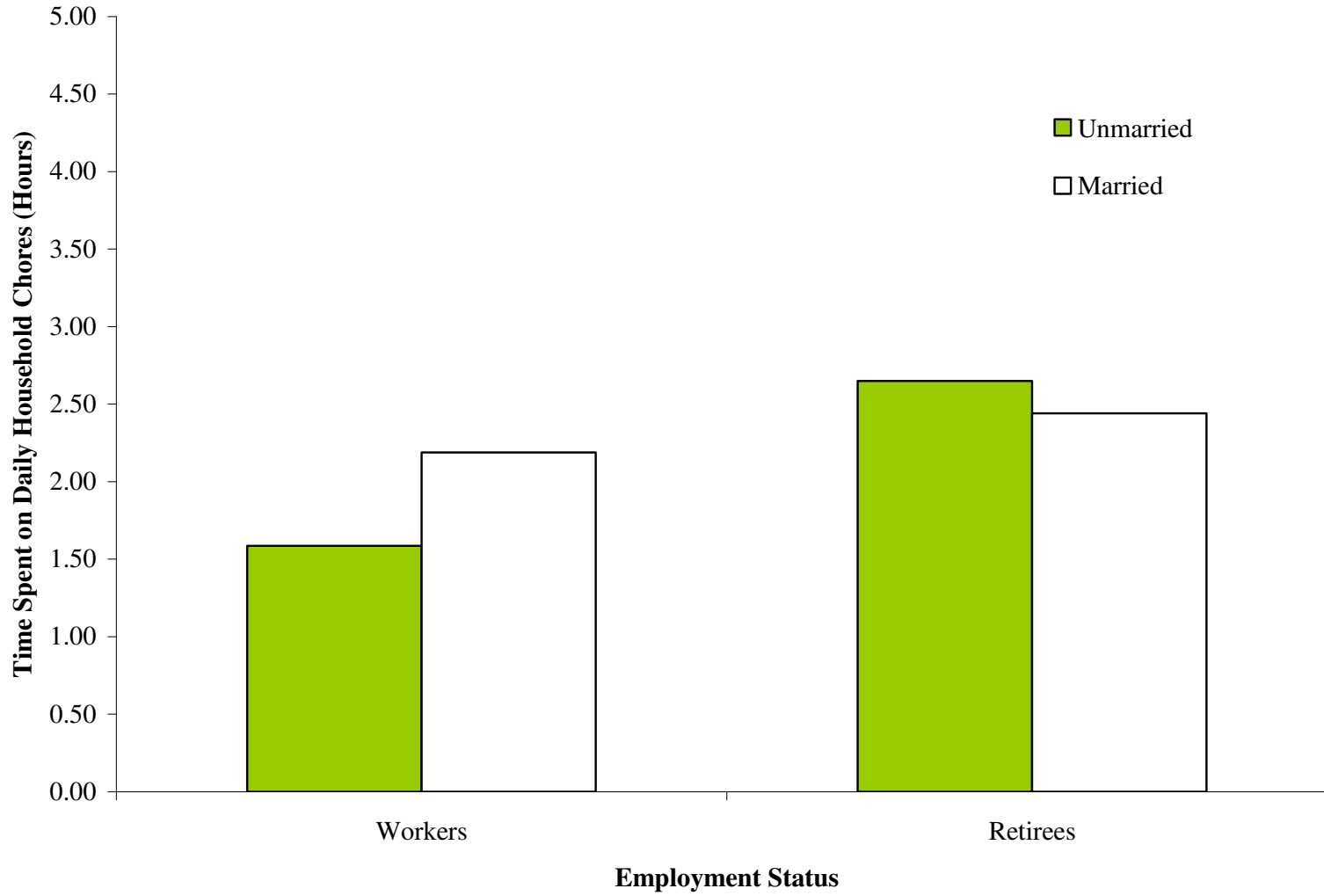


Figure 2.4 Marital, Gender, and Employment Status on Time Spent on Giving Daily Emotional Support.

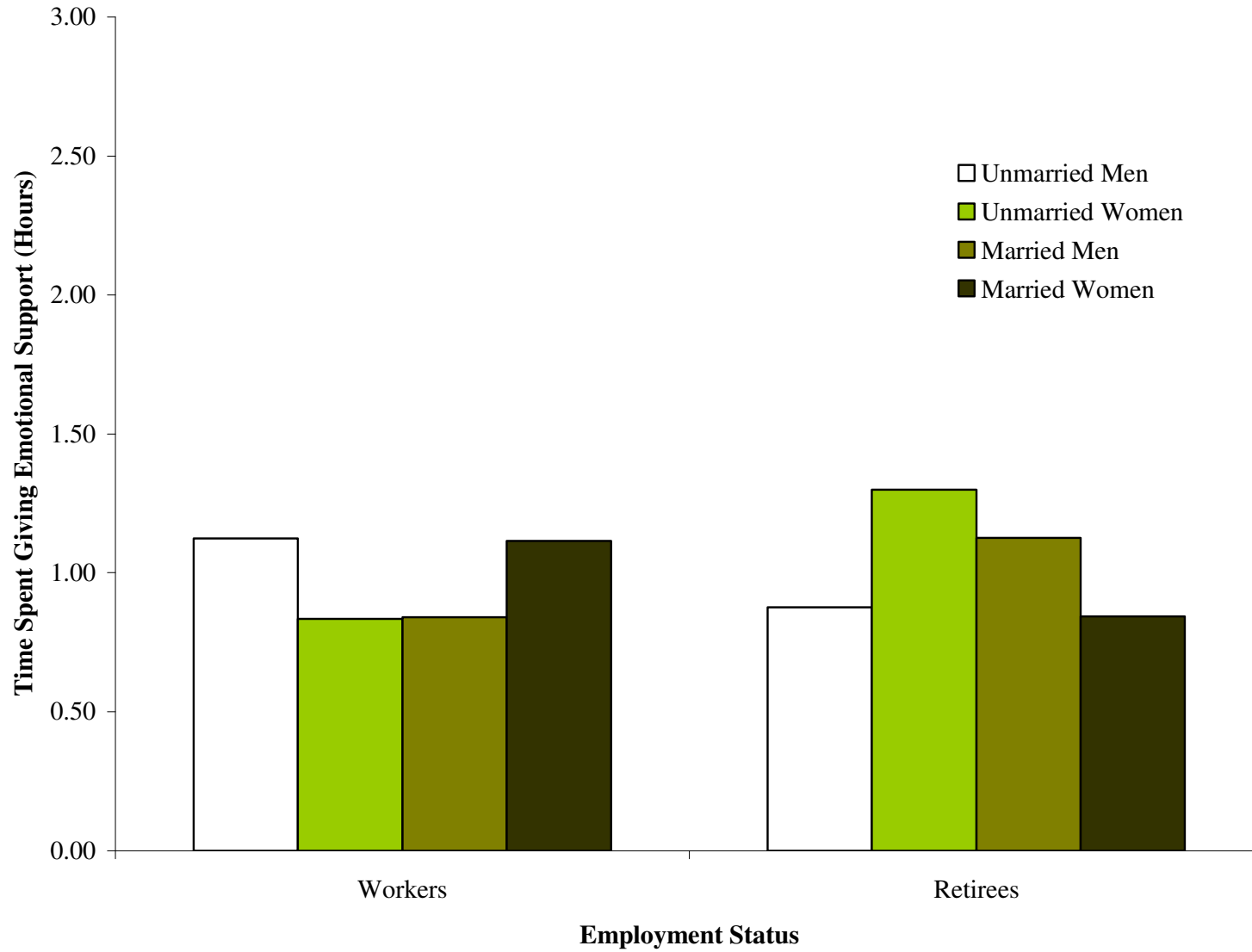


Figure 2.5 Age, Gender, and Employment Status on Daily Psychological Distress.

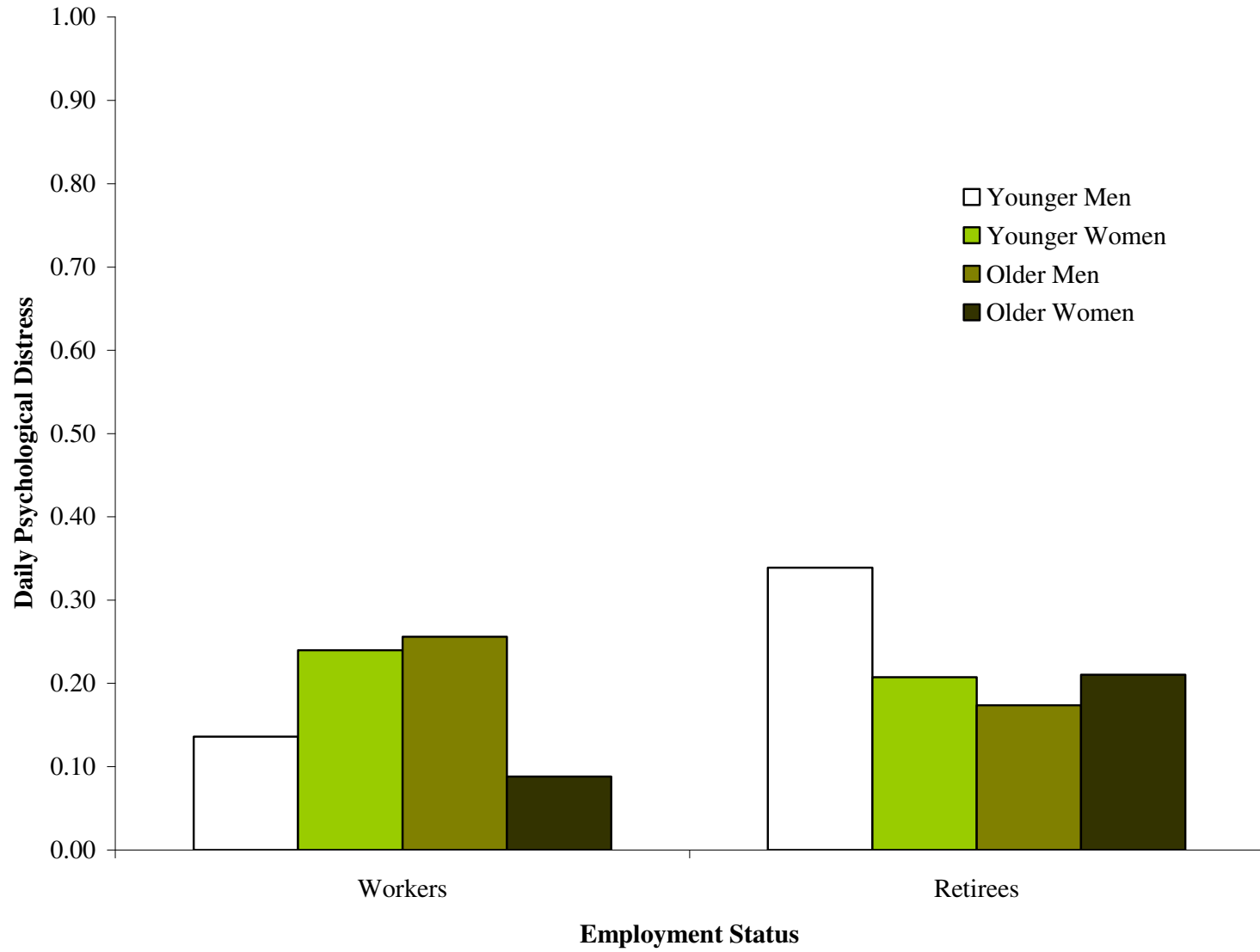
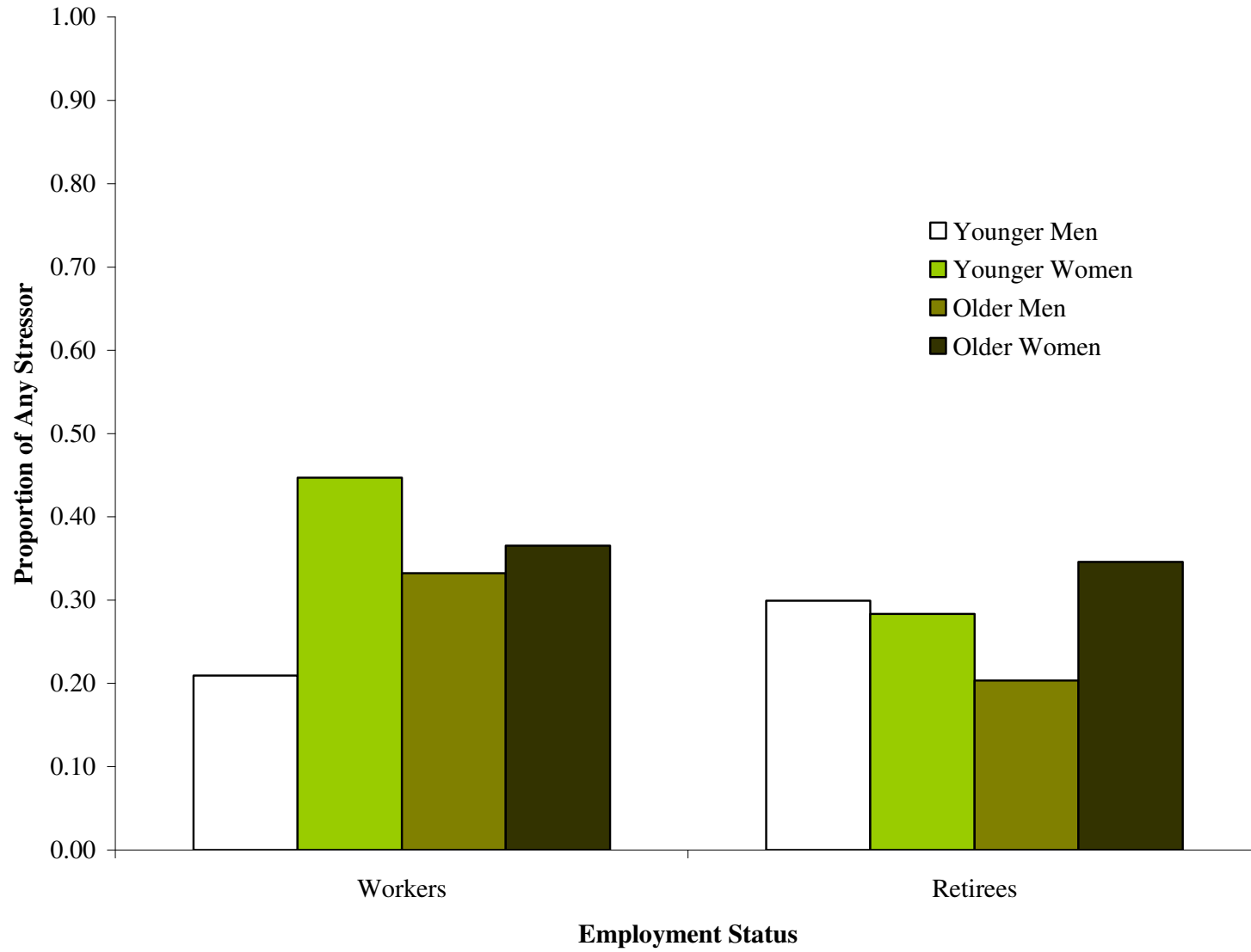




Figure 2.6 Age, Gender, and Employment Status on Daily Stressor Exposure.



## CHAPTER III

### THE EFFECTS OF RETIREMENT TRANSITION ON DAILY EXPERIENCES

## Abstract

The goals of this study are to (1) examine the associations between retirement transition (stayed working vs. transitioned into retirement) and aspects of daily experiences (time use, psychological distress, and stressor characteristics) across a 10-year span; and (2) assess whether midlife and older adults' stressor reactivity to daily time use and psychological distress differ as a function of retirement transition and life course influences (e.g., timing, gender). Using data from the first and second waves of the National Survey of Midlife Development in the United States (MIDUS) and the National Study of Daily Experiences (NSDE), this study is comprised of 202 men and women (126 who stayed working and 76 who transitioned into retirement) between 55 and 74 years of age. Part one of the study used a series of hierarchical regression models to explore the effects of retirement transition, age, gender, marital status, and education, and their interactions, on daily time use, psychological distress, and stressor characteristics. Part two of the study utilized multilevel models to explore how individuals exhibit reactivity in areas of daily time use and psychological distress to the stressors they reported. Results from part one showed that older individuals who transitioned into retirement reported the greatest stressor exposure at wave 2 than younger retirees and those who stayed working. Working individuals with a high school or less education reported the greatest stressor severity of all groups. Results from part two revealed that being older and working was associated with the least amount of time spent on daily household chores on stressor days. Whereas men who made the transition into retirement spent the most amount of time on daily physical activities on stressor days, men who stayed working spent the least. Findings suggest the importance of considering stressor characteristics as well as life course influences in understanding the associations between retirement transition and aspects of daily experiences.

## Introduction

### *Retirement as a Transition*

The passage from employment to retirement can reshape and transform one's psychological, social, and physical worlds (e.g., relationships, daily routines) through opportunities to participate in meaningful activities (Kim & Moen, 2001). In contrast to paper one of this dissertation, which explored retirement as a status, the current study examines retirement as a transition. Whereas status characterizes one's social role at a particular point in time, transition, by nature, involves role entry and role exit (Allen & van de Vilert, 1984; George, 1980). Because transitions are "changes in status that are discrete and bounded in duration" (George, 1993, p. 358), transitions also may lead to changes in individuals' internal states. These changes can be disruptive or empowering; thereby, resulting in some degree of stress, either positive or negative (George, 1993). Studying retirement as a transition, rather than as a status, allows for the examination of individuals' internal changes over time due in part to the dynamic process involving role entry and exit.

### *Transition Timing*

The study of retirement as a transition also is informed by the consideration of transition timing. Timing refers to the idea that "developmental antecedents and consequences of life transitions, events, and behavioral patterns vary according to their timing in a person's life" (Elder, Johnson, & Crosnoe, 2003, p. 12). The meaning of a transition varies and affects individuals differently depending on when it occurs in the life course (Wheaton, 1990). In general, transitions are normatively governed (George, 1993). According to Neugarten (1979, p. 888), most people hold a concept of 'normal, expectable life cycle'. Individuals typically have a set of expectations of *whether* and *when* certain life events and transitions will occur (Neugarten,

1979). These expectations usually are accompanied by mental clocks that inform individuals whether they are on- or off-time (Neugarten, 1979). The age norms and expectations that influence whether a transition is on- or off-time also are reflections of socially defined time and timing (Neugarten, 1979). The current study utilizes the Life Course Daily Stress perspective (Almeida & Wong, 2009) to examine the effects of retirement transition and timing on aspects of daily experiences, including time use and exposure and reactivity to daily stressors.

#### *Retirement Transition and Life Course Daily Stress Perspective (LCDS)*

In the study of retirement, the life course perspective (Elder et al., 2003) has long been important with its focus on development as a lifelong process, human agency, transition timing, social embeddedness, and historical context. One limitation of the life course perspective is that it does not account for the role that day-to-day stressors play in health and emotional adjustment (Zautra, 2003). According to the stress perspective, stress tends to increase during periods of uncertainty (e.g., transitioning from employment to retirement). Transitions, such as marital disruption and retirement, often challenge past routines and require new adaptation (Brown & Harris, 1989; Dohrenwend & Dohrenwend, 1974; Holmes & Rahe, 1967; Hultsch & Plemons, 1979). Changes in status, especially those that are off-time, may adversely affect psychological well-being and physical health. In the study of transitions, it is important to consider social structures, timing, and context; however, these considerations often are overlooked in the stress literature (George, 1993).

#### *Assessment of Retirement Transition and Well-being*

In the study of retirement transition and well-being, there have been two defining features. First, much of the retirement transition literature has utilized a within-group approach. Focusing on only those who transitioned into retirement, this approach allows for the

examination of factors (e.g., duration of retirement) that are pertinent and applicable to this particular group of individuals (e.g., Smith & Moen, 2004; van Solinge, 2007). However, this approach does not allow for the comparison of individuals who experienced a retirement transition to those who did not. Rather, only information on factors that promote or hinder well-being in retirement is obtained.

Another defining feature of the literature on retirement transition and well-being is the emphasis on global well-being. Much of the retirement literature has focused on the areas of satisfaction (Smith & Moen, 2004), adjustment (van Solinge & Henkens, 2008), and depression (Butterworth et al., 2006). Although global measures of retirement well-being can be informative, the retirement transition literature can be benefited by utilizing measures of daily well-being. In contrast to global measures of well-being, assessments of daily well-being, through daily diary methods, may better capture the responsibilities, opportunities, and psychological challenges that individuals experience day-to-day. From a methodological perspective, the use of a daily approach also helps to minimize the amount of time that elapsed between an experience and the account of the experience, which can provide a less distorted account of one's well-being (Bolger, Davis, & Rafaeli, 2003; Nisbett & Wilson 1977). The final strength of the daily diary method is the ability to assess within-person processes. This approach allows for the charting of day-to-day fluctuation in stress and well-being within an individual (Reis & Gable, 2000); thereby, providing another level of understanding to the retirement transition literature.

The current study, therefore, compares the well-being of individuals who experienced a retirement transition to those who stayed working. This study also shifts the examination of

retirement transition from a global to daily well-being approach by focusing on three aspects of daily experiences: stressors, time use, and psychological distress.

### *Aspects of Daily Experiences*

#### *Daily Stressors*

Daily stressors are defined as the routine challenges of day-to-day living, such as caring for other people and commuting between work and home (Almeida, 2005). Daily stressors also are the unexpected small occurrences, such as arguments with a family member, unexpected work deadlines, and getting stuck in traffic. In contrast to major life events, minor daily stressors occur more frequently and can disrupt daily lives; thereby, having immediate and negative impact on psychological and physical functioning (Almeida, 2005; Almeida, Wethington, & Kessler, 2002; Bolger, DeLongis, Kessler, & Schilling, 1989). Daily stressors can pile up over time and may result in more severe psychological and physical difficulties (e.g., depression, anxiety; Lazarus, 1999; Zautra, 2003).

#### *Stressor Exposure and Reactivity*

Although life transitions, such as retirement, occur over longer periods than daily stress processes, life transitions affect daily well-being by increasing exposure and reactivity to daily stressors (see Figure 3.1, Almeida & Wong, 2009). Exposure is the likelihood that an individual will experience a daily stressor based on life course factors. Differences in stressor exposure often result from individual's sociodemographic, psychosocial, and situational factors rather than chance or bad luck (Pearlin, 1999; Wheaton, 1999). As illustrated in Figure 3.1, daily stress exposure processes may be precipitated by life transitions. Life transitions, such as retirement, involve changes in states that are likely to expose individuals to unique daily stressors and require them to elect strategies for a successful adaptation.

Additionally, life transitions may occupy an important role in daily stressor reactivity (see Figure 3.1). Stressor reactivity is the likelihood that an individual will react emotionally or physically to daily stressors (Almeida, 2005). How an individual will react to daily stressors also depends on the individual's resilience or vulnerability (e.g., psychosocial and health characteristics). The resources of an individual as well as his/her environments can limit or enhance the possibilities and opportunities for coping with daily experiences (Lazarus, 1999). Depending on these resources, reactivity to stressors, therefore, is likely to differ across people as well as situations (Almeida, 2005). Thus, the emotional and physical impacts of minor day-to-day stressors may be magnified in the context of a major life transition such as retirement.

In line with the argument that transitions affect daily well-being by increasing exposure and reactivity to daily stressors, it is predicted that individuals who made the transition into retirement are expected to report greater daily stressor exposure and appraise stressors more negatively (e.g., stressor severity, risks of stressors on daily life) than those who stayed working. This study also assesses how individuals exhibit reactivity in areas of daily time use and psychological distress to the stressors they reported. Stressor reactivity predictions are discussed below.

#### *Daily Time Use*

In accordance with Pearlin, Schieman, Fazio, and Meersman (2005), disruptions or changes in highly salient roles may result in disruptions in other aspects of one's life. The transition from work to retirement, therefore, may lead to a recalibration of one's time use in everyday activities. According to the United States Bureau of Labor Statistic (USBLS; 2009), employed individuals in the United States averaged 7.6 hours on they days they work for pay. The transition from employment to retirement could may free up time that otherwise would have



been allocated to work. Research has shown that individuals out of the labor force, when compared to employed individuals, reported spending significantly more time in activities such as sports and reading (Krantz-Ken & Stewart, 2007; Rosenkoetter, Garris, & Engdahl, 2001). Because participation and interests in leisure activities have been associated with increased well-being and life satisfaction (Floyd et al., 1992; Riddick & Stewart, 1994; Stubbe, de Moor, Boomsma, & de Geus, 2007), individuals making the transition into retirement may find these activities to be more important as they shift away from their worker role.

This study explores the effects of experiencing a retirement transition (stayed working vs. transitioned into retirement) on the amount of time spent on daily sleep, household chores, leisure activities, and physical activities. It is expected that individuals who made the transition into retirement will report spending more time on daily sleep, household chores, leisure activities, and physical activities than individuals who stayed working due to the time freed up by no longer having to work for pay (Krantz-Ken & Stewart, 2007; Rosenkoetter et al., 2001). In the examination of stressor reactivity, it is expected that time spent on daily activities will be reduced on stressor days as compared to non-stressor days. Because of the possible changes entailing the transition into retirement, individuals who experienced a retirement transition are expected to report greater reduction in time spent on daily activities on stressor days when compared to their working counterparts.

#### *Daily Psychological Distress (Negative Affect)*

Much of the retirement literature has focused on psychological distress primarily in the areas of neurotic disorders (Buxton, Singleton, & Melzer, 2005), depression (Butterworth et al., 2006), and life satisfaction (Kim & Moen, 2002). The different measurements of psychological distress have resulted in incongruent findings. Whereas Kim and Moen (2002) reported newly

retired men had higher morale scores than those not yet retired from their career jobs; others found earlier/younger retired men exhibited a higher prevalence of a mental disorder (e.g., depressive and anxiety disorders) than their working counterparts (e.g., Butterworth et al., 2006; Buxton et al., 2005). In the study of retirement, less attention has focused on the affective component of subjective well-being (see Andrew & Withey, 1976 for description of the two components of subjective well-being—life satisfaction and affect). Although interrelated, affect measures an aspect of subjective well-being that differs from life satisfaction (Diener, 1994; Lucas, Diener, & Suh, 1996). Shifting from a global to a daily assessment of psychological distress, daily psychological distress will be explored with respect to retirement transition. This study also will examine individuals' emotional reactivity to the stressors they reported experiencing.

Although the findings on retirement transition and psychological distress have been inconsistent due in part to measurement issues, it is expected that individuals who transitioned into retirement will exhibit greater daily psychological distress than their working counterparts due in part to the changes and disruptions in social roles that often accompany life transitions (George, 1993). Additionally, individuals will exhibit greater emotional reactivity (daily psychological distress) on stressor days as compared to non-stressor days. This association is expected to be exacerbated by the transition into retirement.

### *Life Course Influences*

As highlighted in the LCDS perspective, the resources of an individual can limit or enhance how one copes with daily experiences. These resources also are important to the study of reactivity to daily stressors. Although there are a number of resources that are important to the

study of retirement transition and well-being, this study focus primarily on retirement timing (assessed by chronological age), gender, martial status, and education.

### *Transition Timing (Age)*

Retirement became ‘tightly keyed’ to chronological age due to the passage of the Social Security Act in 1935 as well as mandatory retirement age in most industries (SSA; George, 1993). The passage of the SSA helped to institutionalize the normal age of retirement in the United States. Retirement in the United States is concentrated primarily at ages 62 and 65. Age 62 reflects early eligibility for Social Security benefits while age 65 reflects normal retirement; however, eligibility for normal is being raised from age 65 to age 67 for workers born after 1959 (Johnson, 2004). The concentration of retirement at age 65 also could be a reflection of Medicare eligibility since Medicare is the primary source of health insurance for most older Americans (PCEA, 2000).

Whether through age expectations or social timetables, it is important to account for transition timing. In contrast to transitions that occur on-time, individuals who experience an off-time transition may not have the anticipatory skills and social resources to prepare them for the changes that they face (Hagestad & Neugarten, 1985). The experience of an off-time transition also may be even more exacerbated by being the only person (or a small group of people) who has not experienced the transition. Although some studies have documented that off-time retirement transition has positive or no changes in health (e.g., Barfield & Morgan, 1968; McGoldrick & Cooper, 1988), much of the literature has shown that off-time transition into retirement is associated with negative psychological outcomes (e.g., Buxton et al., 2005; Butterworth et al., 2006).

Utilizing a sample of British men and women between ages 50 to 64, Buxton and colleagues (2005) found that earlier retired men reported a higher prevalence of any neurotic disorders than men and women still in the labor force. Differences in prevalence of neurotic disorders did not exist between women who retired early and those who remained in the labor force. Similarly, Butterworth and colleagues (2006) found younger retired men (age groups of 45 to 54), in comparison to working men, were more likely to have a common mental disorder (depressive and anxiety disorders). Szinovacz and Davey (2004) found that women who perceived their retirement as too early reported more depressive symptoms. Meanwhile, Quick and Moen (1998) found women who retired 'on-time' (between ages 60 and 65) were more likely than women who retired before age 60 and after age 65 to be satisfied with retirement. These studies suggest that off-time transitions of established roles are particularly stressful and may lead to distress in other areas of one's life (George, 1993; Pearlin et al., 2005).

In this study, retirement timing will be assessed using chronological age. Age is expected to moderate the association between retirement transition and aspects of daily experiences. In the area of daily time use, it is predicted that younger working individuals, when compared to older workers and those who transitioned into retirement, will report spending the least amount of time on all daily activities. This prediction is based in part on younger working individuals' time use is more restricted by work as well as the multiple social roles and responsibilities that they occupy (Lachman & James, 1997).

In the area of daily psychological distress, younger individuals who transitioned into retirement are expected to report the greatest daily psychological distress than other groups. This prediction is based on previous findings documenting younger adults reported more psychological distress than older adults (e.g., Almeida, Mroczek, & Neiss, 2006; Mroczek, &

Kolarz, 1998). Furthermore, making a transition into retirement early may go against social norms, which may have negative implications for daily well-being.

Past studies examining age differences in exposure to daily stressors typically have found younger adults reported more number of daily stressors than older adults (Almeida & Horn, 2004; Almeida et al., 2002; Stawski, Sliwinski, Almeida, & Smyth, 2008; Zautra, Finch, Reich, & Guarnaccia, 1991). In comparison to older adults, younger adults were likely to appraise stressors more negatively (Aldwin, 1991; Almeida & Horn, 2004). Additionally, in the examination of stressor reactivity, studies generally have found middle-aged and older adults were less physically and emotionally reactive to stressors than their younger counterparts (Birditt, Fingerman, & Almeida, 2005; Neupert, Almeida, & Charles 2007). In this study, younger individuals who transitioned into retirement are expected to report greater number of daily stressors because experiencing the transition into retirement at a younger age may expose these individuals to more daily stressors. Younger individuals who transitioned into retirement also are expected to appraise stressors more negatively than other groups. In the examination of stressor reactivity, younger individuals who experienced the retirement transition will exhibit greater reduction in time spent on daily activities and greater daily psychological distress on stressor days as compared to non-stressor days.

### *Gender*

Retirement transition and daily experiences also must be examined within the context of gender. Gender represents an important key factor in shaping employment patterns and subsequent well-being. Although in recent years more women have occupied both work and family roles, women still are more likely to work in part-time jobs and have less continuous employment trajectories than men (Laczko & Phillipson, 1991; United States Bureau of Labor

Statistics, 2000). Because women are more likely than men to place greater emphasis on the importance of familial relationships (Kiecolt-Glaser & Newton, 2001), women also are more likely to experience career interruptions due to childrearing and caregiving demands (Hatch & Thompson, 1992; O’Rand, Henretta, & Krecker, 1992). The combination of these factors may place women at a greater disadvantage than men at retirement in the areas of psychological, physical, and financial well-being (Slevin & Wingrove, 1995). The literature on the effects of gender on the retirement experiences has been mixed. Whereas some studies have found men to be more satisfied and better adjusted to retirement than women (e.g., Gall, Evans, & Howard, 1997; Quick & Moen, 1998), others found that women are psychologically better equipped for retirement than men due to more experiences with role transitions and career interruptions (Price, 2003; Talaga & Beehr, 1995).

This study will examine gender as a moderator of retirement transition and aspects of daily experiences. In the areas of daily time use, men and women who made the transition into retirement are expected to report greater time spent on daily activities than their working counterparts. Especially in the area of daily household chores, women who transitioned into retirement are expected to report the most amount of time (Szinovacz & Harpster, 1994). Due to work responsibilities, time restrictions, and gender differences in activities, men who stayed working are expected to spend the least amount of time in all areas, especially in daily household chores, as compared to others.

Studies examining gender differences in psychological distress typically have found women were more likely to exhibit greater psychological distress than men (e.g., Almeida & Horn, 2004; Almeida & Kessler, 1998; Mirowsky & Ross, 1995). Considering that transition by nature is associated with changes and that women may be at a disadvantage for retirement (e.g.,

Quick & Moen, 1998; Slevin & Wingrove, 1995), it is expected that women who transitioned into retirement will exhibit the greatest level of daily psychological distress.

In the area of stressor exposure and appraisal, studies have shown that women are more likely to report greater frequency of daily stressors and appraised daily stressors as more severe than men (Almeida et al., 2002; Almeida & Horn, 2004; Bolger et al., 1989). Due to the combination of changes associated with the transition into retirement and the psychological and financial disadvantages at retirement for women (e.g., Quick & Moen, 1998; Slevin & Wingrove, 1995), the transition into retirement may be worse for women with respect to stressor exposure, appraisal, and reactivity.

#### *Social Embeddedness (Marital Status)*

The decision to retire is not made in isolation; rather, employment decisions are influenced by the social networks in which individuals are embedded (Elder et al., 2003). Marital status, especially, plays an important role in shaping retirement transition (Johnson, 2004; Kim & Moen, 2002; Smith & Moen, 1998, 2004). Especially for women, marriage can safeguard and buffer them from financial insecurity by offering another avenue of access to financial resources (e.g., husband's pension). Furthermore, marriage also increases access to social and human capital (Pienta, Hayward, & Jenkins, 2000), which can better prepare individuals for retirement as well as help ease the retirement transition.

In this study, married individuals who transitioned into retirement are expected to spend the most time on daily activities, especially daily household chores. Unmarried individuals who stayed working are predicted to spend the least amount of time in all areas of daily time use because of greater time restriction resulting from employment.

The literature on marital status and psychological distress generally show higher levels of distress among individuals who are divorced or separated when compared to married individuals (Bloom, Asher, & White, 1978; Kitson & Morgan, 1990). However, these studies often are plagued by methodological and selection issue; thereby resulting in studies that focus on the effects of marital quality on psychological distress. A problem with examining the effects of marital quality on psychological distress is that only married individuals are studied. Because this study is interested in whether being married moderates the relationship between retirement transition and daily psychological distress, this study will focus on the comparison of those married to unmarried. Unmarried individuals who transitioned into retirement are expected to report the greatest level of daily psychological distress. Being unmarried combined with the changes associated with the transition into retirement may contribute to the increase in daily psychological distress.

Additionally, unmarried individuals, especially those who transitioned into retirement, are expected to report greater number of stressors and appraise the stressors more negatively than their counterparts. Because the literature on marital status and stressor reactivity is limited, the direction of association is not specified.

### *Education*

Education is another important consideration to the study of retirement and well-being. Past studies have documented educational differences in physical, leisure, and volunteering activities (e.g., Almeida & McDonald, 2005; Macintyre & Mutrie, 2004). In general, these studies found individuals with higher education were more likely to participate in physical activities, spend less time watching television, and contribute time to their community than individuals with lower education. In this study, it is expected that individuals who transitioned



into retirement with some college or higher education will report the most amount of time spent on daily leisure and physical activities than other groups due to the combination of having less restricted time and more resources.

In the examination of education differences on psychological distress, findings typically have shown that individuals with lower education reported more psychological distress than those with higher education (Almeida, Neupert, Banks, & Serido, 2005; Belek, 2000; Fryers, Melzer, & Jenkins, 2003; Grzywacz, Almeida, Neupert, & Ettner, 2004; Kessler, 1982; Ross & Huber, 1985). Based on these studies, individuals with a high school or less education are expected to exhibit greater daily psychological distress than those with some college or higher education. Specifically, it is predicted that individuals who transitioned into retirement with a high school or less education will report greater daily psychological distress because of the changes associated with retirement transition and the vulnerability associated with lower education.

The literature on education differences and daily stressors has shown that individuals with higher education reported more daily stressors than those with lower education (Almeida et al., 2005; Grzywacz et al., 2004). Although individuals with higher education reported greater stressor exposure than individuals with lower education, these studies also found that the better-educated individuals actually reported stressors to be less severe (Almeida et al., 2005; Grzywacz et al., 2004). Building upon the research on education and stressor exposure and appraisal (Almeida et al., 2005; Grzywacz et al., 2004), education is expected to moderate the association between retirement transition and daily stressors in the following ways. Due in part to the changes embedded with experiencing a transition, it is predicted that individuals with some college or higher education who transitioned into retirement will report greater exposure to

daily stressors. In areas of stressor appraisal (e.g., stressor severity, risks of stressors), individuals who transitioned into retirement with high school or less education are predicted to appraise stressors to be the most severe. This specific prediction is based on the changes associated with experiencing a transition and the possibility of having fewer coping resources. Similarly, individuals who transitioned into retirement with a high school or less education are expected to report the greatest reduction in daily time use and the greatest increase in psychological distress to the stressors they experienced.

The overall goal of this study is to assess the association between retirement transition and aspects of daily experiences across a 10-year span. The first goal explores the association between retirement transition (stayed working vs. transitioned into retirement) and aspects of daily experiences (e.g., time use, psychological distress, stressor characteristics). The second goal of this study examines how individuals exhibit stressor reactivity in the areas of daily time use and psychological distress to the stressors they experienced. This study also assesses how life course influences, such as transition timing and gender, shape the associations between retirement transition and aspects of daily experiences.

## Method

### *Sample and Procedure*

This study utilized data from the first and second waves of the National Study of Daily Experiences (NSDE), which is one of the in-depth studies that is a part of the National Survey of Midlife in the United States (MIDUS). The MIDUS is a national probability sample of English speaking, non-institutionalized adults. Respondents in the NSDE randomly were selected from the MIDUS sample and received \$20 for their participation in each wave. The first wave of NSDE (data collection spanned from March 1996 to 1997) is comprised of 1031 men and

women between 25 to 74 years of age. In the second wave of NSDE (data collection spanned from April 2004 to 2009), there are 2,022 participants (1141 random digit dialed respondents, 516 twins, 185 siblings, and 180 Milwaukee) between 33 to 84 years of age. The National Study of Daily Experiences (NSDE) wave 2 dataset has two types of biological dependency in the data – those existing among main sample respondents and their siblings, and those existing among twins. Because of these biological dependencies in the dataset, assumptions of independence of observations or scores are violated in analyses using all respondents. Using information from “Guidelines for Dealing with Dependencies in MIDUS Data (5/7/09).doc” and the proposed guides from NSDE, a non-dependent dataset was constructed. Details on the procedures for dealing with dependencies in the NSDE Wave 2 data are found in the “NSDE Wave 2: Non-Dependent Data Construction.pdf”. From the 2022 respondents, there were 1509 unrelated respondents in NSDE Wave 2. Of the 1509 unrelated men and women, the sample is comprised of 1113 random digit dialed respondents (RDD), 358 twins, and 38 siblings between ages 33 to 84. The NSDE respondents completed daily telephone interviews about time use, psychological distress, physical symptoms, productivity, and stressors over eight consecutive days. In the second wave of NSDE, respondents also provided four saliva samples across four consecutive days. Data was collected during separate “flights” of interview with each “flight” representing the 8-day sequence. To account for potential confound between day of study and day of week, the specific day of the week in which the session began varied across days of the week.

Respondents in this study were selected based on several criteria (see Table 3.1). Because the primary goal of this study was to examine how retirement transition is associated with daily experiences, respondents must have participated in both waves of NSDE. There were 712 respondents who participated in both waves of NSDE. The second criterion required valid

responses for employment status at both waves. Of the 712 longitudinal participants, 543 had valid responses for employment status at both waves (76.3%). Employment compositions at wave 2 for the 543 respondents were as followed: stayed retired (13.4%), stayed working (70.0%), transitioned into retirement (15.8%), and transitioned back to employment (0.7%). Thirdly, this study was interested in comparing those who transitioned into retirement to those who stayed working; thereby, reducing the sample to 466 respondents (85.8%). Lastly, age has been associated with the likelihood to work (i.e., younger individuals more likely to work; older individuals more likely to retire). Respondent were selected into this study if they were between ages 55 to 74 at wave 2 of the data collection. In this study, the age range of 55 to 74 had the most even distribution of individuals who stayed working and transitioned into retirement. Of the 466 respondents, 202 individuals (126 stayed working and 76 transitioned into retirement) between aged 55 to 74 qualified for this study.

Presented in Table 3.2 are the socio-demographic characteristics of the respondents by study selection status. As presented in the table, the two groups differed only in age with those selected into this study were older than those excluded. The two groups did not differ by gender, marital status, chronic conditions, or education level.

### *Descriptive Statistics*

Table 3.3 presents the socio-demographic characteristics of the respondents by retirement transition (stayed working vs. transitioned to retirement). Individuals who stayed working were significantly younger ( $M=60.8$ ,  $SD=4.9$ ) than those who transitioned into retirement from wave 1 to wave 2 ( $M=66.0$ ,  $SD=4.9$ ). Results also showed that individuals who transitioned into retirement were more likely to report more chronic conditions than those who stayed working. Although no significant mean differences were found in gender, marital status, education, or

household income (logged) between those who stayed working and those who transitioned into retirement, the sample consisted of more individuals who are women, married, and with some college or more education.

### *Measures*

#### *Predictor Variables*

*Retirement transition.* Conceptualization of retirement transition was based on the self-definition of employment status. A self-definition approach was utilized because how individuals define their employment status is likely to shape their attitudes and behaviors in their daily lives. Furthermore, social roles typically entail some type of expectations that are specific to the role (e.g., retiree, worker). For both waves of data collection, respondents were asked about their employment status using the following questions: “*What is your current employment situation?*” Respondents reported yes, no, or do not know to each of the following response options: working now, self-employed, unemployed, temporarily laid off, retired, homemaker, full-time student, and part-time student. Respondents were instructed to select all response options that apply. Do not know responses were eliminated from all analyses. Additionally, conflicting employment status responses (e.g., working and retired, self-employed and retired) were excluded. This selection approach attempted to reduce murkiness and aimed for a mutually exclusive conceptualization of employment status at both waves. In this study, respondents who reported working at both waves were compared with those who transitioned into retirement from wave 1 to wave 2. There were 126 who stayed working (62.4%) and 76 who transitioned into retirement (37.6%).

*Timing (age).* In this study, timing of retirement transition was explored through chronological age. As indicated earlier, retirement became ‘tightly keyed’ to chronological age

with the passage of the Social Security Act as well as mandatory retirement age in most industries (SSA; George, 1993). Age 65 became an important marker of retirement when it was designated as the full-benefit age for Social Security retirement pensions. However, the full-benefit age for Social Security retirement pensions is being raised to 66 and eventually to 67 (Ekerdt, 2010; Johnson, 2004). Age 65, as indicated by Ekerdt (2010, p. 69) may ‘become less relevant to the organization of actual behavior.’ Rather than using age 65, 66, or even 67 as marker of ‘normal’ or ‘on-time’ retirement, this study utilized the sample mean at wave 2 ( $M=63.0$ ;  $SD=5.5$ ) as the reference point, with  $-1$  SD and  $+1$  SD as early and late. It is important to note that this conceptualization of timing does not aim to provide information on when individuals actually made the transition into retirement. Instead, this study’s conceptualization of timing functioned as a proxy to individuals’ placement in the life course at the end of the study period (wave 2). This approach also provided timing information on those who stayed working rather than simply for those who transitioned into retirement.

*Gender.* Coded as 0 for men and 1 for women, gender was examined as a moderator of retirement transition and daily well-being.

*Social embeddedness (marital status).* Another important consideration in the association between retirement transition and aspects of daily experiences is marital status. At wave 2, respondents identified their marital status from the following: married, separated, divorced, widowed, or never married. Because of the small percentage of respondents in the unmarried categories, the non-married categories were combined, resulting in a contrast between unmarried (0) and married (1).

*Education.* Education has been linked to aspects of daily experiences (Almeida et al., 2005; Grzywacz et al., 2004). Respondents’ education level at wave 2 was utilized. In this study,

education was operationalized as a contrast between high school or less (0) and some college or more (1).

### *Daily Outcome Variables*

At both waves of data collection, respondents completed daily telephone interviews about their experiences in the previous 24 hours concerning time use, psychological distress, and stressors over the course of eight consecutive days. For each outcome variable in part one of the study, difference scores between the two waves (difference score = wave 2 – wave 1) were constructed such that a positive value denotes response values higher at wave 2 and a negative value indicates response values higher at wave 1. A difference score was used in this study because it is an “unbiased estimator of the underlying true change” (Willett, 1994, p 672). A difference score is especially a useful assessment of individual change when the reliability is low (Rogosa, Brandt, & Zimowski, 1982). In spite the criticisms of a difference score, a difference score cannot detect individual differences in change that do not exist (Rogosa & Willett, 1983). Therefore, analyses for part one of this study were conducted for scores at wave 2 and the difference scores (wave 2 - wave 1). In the second part of this study, only wave 2 scores were examined.

*Time use.* At waves 1 and 2, respondents reported the amount of time they spent in each of the following activity during the previous 24 hours: a) sleeping, b) household chores, c) physical activities, and d) leisure activities. In part one of the study, a mean score of time spent on each activity was calculated across the eight study days. Wave 2 and difference scores (wave 2 – wave 1) were examined. Whereas part one of the study aggregated time spent in each activity across the study days, part two of the study utilized scores (at wave 2) on each study day.

*Psychological distress.* Measure of psychological distress was limited to symptoms of depression and anxiety, which are two emotions commonly used to defined negative affect (Diefenbach, Leventhal, Leventhal, & Patrick-Miller, 1996; Mroczek & Kolarz, 1998). Taken from the following well-known and valid instruments: The Affect Balance Scale (Bradburn, 1969), the University of Michigan Composite International Diagnostic Interview (Kessler et al., 1994), the Manifest Anxiety Scale (Taylor, 1953) and the Center for Epidemiological Studies Depression Scale (Radloff, 1977), Kessler et al. (2002) developed the scale using Item Response Theory. On a 5-point scale from 0 (none of the time) to 4 (all of the time), respondents were asked how much time today did they feel: ‘restless or fidgety’, ‘nervous’, ‘worthless’, ‘so sad nothing cheer you up’, ‘everything was an effort’, and ‘hopeless’? For part one of the study, scores were averaged across items and then across the study days. Wave 2 and difference scores (wave 2 – wave 1) were examined. The mean Cronbach’s alpha for negative affect at waves 1 and 2 were .71 and .72, respectively. Instead of aggregating psychological distress scores across the study days, part two of the study utilized psychological distress score (at wave 2) on each study day.

*Stressors.* Using the semi-structured Daily Inventory of Stressful Events (DISE; Almeida et al., 2002), daily stressors were assessed at both waves. The DISE is consisted of a series of seven stem questions for identifying whether certain types of daily stressor (i.e., arguments, home stressors, and network stressors) had occurred in past 24 hours. Based on the responses, the *frequency* of any stressors across the seven questions over study days was calculated, with a higher score indicating greater stressor exposure. Respondents also rated how stressful was the reported stressor(s) across the study days using a 4-point scale from 0 (not at all) to 3 (very). For each respondent, mean of *subjective severity* score across stressors over study days was



calculated. In addition to rating the severity of the stressors, respondents also appraised the degree of risk the stressors posed to areas of their lives using a 4-point scale (0=not at all risk to 3=at risk a lot). Areas of risk included: a) disruption of daily routines, b) finances, c) how respondents feel about self, d) how others feel about respondents, e) personal health or safety, and f) plans for the future. Mean for degree of risk across all stressors over study days was calculated. Difference scores between the two waves were calculated for stressor frequency, stressor subjective severity, and areas of risk that stressors posed. Both wave 2 and difference scores (wave 2 – wave 1) were examined.

In part two of this study, information on whether respondents reported experiencing at least one stressor on each study was used for the examination of stressor reactivity. Part two of this study only utilized responses from wave 2.

*Control variables.* To control for potential health influences, the number of chronic health conditions experienced in the past year reported at wave 2 was included (Cleary, Zaborski, & Ayanian, 2004). Respondents indicated whether they experienced or were treated for any of the following: a) asthma, bronchitis, or emphysema, b) tuberculosis, c) other lung problems, d) arthritis, rheumatism, or other bone or joint diseases, e) sciatica, lumbago, or recurring backache, f) persistent skin trouble (e.g. eczema), g) thyroid disease, h) hay fever, i) recurring stomach trouble, indigestion, or diarrhea, j) urinary or bladder problems, k) being constipated all or most of the time, l) gall bladder trouble, m) persistent foot trouble (e.g., bunions, ingrown toenails), n) trouble with varicose veins requiring medical treatment, o) AIDS or HIV infection, p) lupus or other autoimmune disorders, q) persistent trouble with your gums or mouth, r) persistent trouble with your teeth, s) high blood pressure or hypertension, t) anxiety, depression, or other emotional disorder, u) alcohol or drug problems, v) migraine headaches, w) chronic sleeping problems, x)

diabetes or high blood sugar, y) multiple sclerosis, epilepsy, or other neurological disorders, z) stroke, aa) ulcer, bb) hernia or rupture, cc) piles or hemorrhoids, and dd) swallowing problems. Because workers and retirees may differ in their income, total household income (logged) reported at wave 2 also was included as a control.

Presented in Table 3.4 are results from a series of T-tests examining the mean differences of the outcome variables by retirement transition (stayed working vs. transitioned into retirement). From this set of analyses, there was a main effect of retirement transition on time spent on daily leisure activities and how stressor posed a risk to one's physical health and safety with workers rated higher on both. Results from the T-tests suggest that aspects of daily experiences may be best explored through the interactive effect of retirement transition and life course influences (e.g., timing, gender) rather than a simple main effect of retirement transition.

#### *Part 1: Retirement Transition and Stressor Exposure*

##### Hierarchical Regression Results

###### *Analyses*

Using a series of hierarchical regression models, part one of this study examined whether experiencing a retirement transition (stayed working vs. transitioned into retirement) was associated with aspects of daily experiences (time use, psychological distress, and stressor characteristics). On step one of the model, the main effects of experiencing a retirement transition (stayed working vs. transitioned into retirement), age, gender, marital status, and education were entered. On step 2, two-way interactions between retirement transition and life course influences were entered. Chronic health condition and logged total household income were included as controls in all models.

### *Time Use Results*

In the first set of analyses, the association between experiencing a retirement transition (stayed working vs. transitioned to retirement) and daily time use (wave 2 and difference scores) was explored. The only significant finding for areas of daily time use was for the difference scores in time spent on daily leisure activities. As presented in Table 3.5, there was an interactive effect of retirement transition and age. To graphically depict the results, age was recoded as a contrast between younger (one standard deviation below the sample mean) and older (one standard deviation above the sample mean) individuals. The sample mean age and standard deviation are 63.0 and 5.5. Figure 3.2 shows that among those who transitioned into retirement, there was an increase in time spent on daily leisure activities from wave 1 to wave 2. In particular, younger individuals who transitioned into retirement reported the greatest increase in time spent on daily leisure activities. In contrast, younger individuals who stayed working actually reported a decrease in time spent on daily leisure activities from wave 1 to wave 2. This particular finding is consistent with the expectation that younger working individuals will report spending the least amount of time on daily activities.

### *Psychological Distress Results*

This study also explored the effect of retirement transition on daily psychological distress, however, no significant findings were found for wave 2 or difference scores.

### *Stressor Characteristics Results*

Lastly, part one of this study examined the association between retirement transition and daily stressor characteristic. Regression coefficients are presented in Tables 3.6 and 3.7. The association between retirement transition and stressor exposure first was assessed. Results showed the effect of retirement transition on the number of daily stressors at wave 2 differed by

age (see Figure 3.3). Contrary to expectation that younger individuals who transitioned into retirement would report the greatest stressor exposure, findings showed that older individuals who transitioned into retirement reported the greatest number of daily stressors of all groups. Of those who stayed working, younger individuals reported greater number of daily stressors than their older working counterparts. This set of findings also showed older working individuals reported the lowest number of daily stressors of all groups.

In addition to stressor exposure, respondents also appraised the stressors experienced. There was an association between retirement transition and averaged stressor severity scores at wave 2 (see Table 3.6 and Figure 3.4). This association was moderated by education level. Contrary to expectation, individuals who stayed working appraised daily stressors with more severity than individuals who transitioned into retirement. In particular, working individuals with a high school or less education reported the greatest stressor severity. Also contrary to expectation, individuals who transitioned into retirement with some college or more education reported greater stressor severity than those who transitioned into retirement with high school or less education.

In this study, there was an interactive effect of retirement transition and marital status on the difference scores in averaged stressor severity (see Table 3.7). The results are graphically depicted in Figure 3.5. In general, individuals who stayed working reported an increase in stressor severity from wave 1 to wave 2; whereas, individuals who transitioned into retirement reported a decrease in stressor severity from wave 1 to wave 2 with unmarried individuals reporting a greater decrease than married individuals. For those who stayed working, being unmarried, as compared to being married, was associated with a greater increase in stressor severity from wave 1 to wave 2.

This study also explored the degree of risk that stressors posed to different areas of respondents' lives (see Table 3.7). As presented in Figure 3.6, there was an interactive effect of retirement transition and gender on risk of respondent's own physical health or safety at wave 2. Results showed that men and women who stayed working, as compared to those who transitioned into retirement, reported stressors having greater risk on their physical health or safety. Gender moderated the association in the following ways. Among those who transitioned into retirement, women reported greater risk on physical health and safety than men. In contrast, men who stayed working reported greater risk that stressor posed on physical health and safety than women who stayed working.

Finally, results (see Table 3.7) from part one showed an interactive effect of retirement transition and marital status on risk that stressors had on one's financial situation (difference scores). The findings are graphically depicted in Figure 3.7. Contrary to prediction, the transition into retirement appeared to be the most advantageous for unmarried individuals than married individuals. Whereas unmarried individuals who transitioned into retirement reported a decrease in risk that stressors posed on financial situations from wave 1 to wave 2, married individuals who transitioned into retirement reported an increase from wave 1 to wave 2. Regardless of marital status, individuals who stayed working reported an increase in risk that stressors had on financial situation from wave 1 to wave 2. In particular, unmarried working individuals reported the greatest increase from wave 1 to wave 2.

## *Part 2: Retirement Transition and Stressor Reactivity*

### Multilevel Modeling Results

#### *Analyses*

Part two of this study utilized multilevel models (Proc Mixed in SAS) (Bryk & Raudenbush, 1992; Snijders & Bosker, 1999) to explore the effects of daily stressors on daily time use and psychological distress. Multilevel modeling allows for the examination of the associations between stressors and daily time use and psychological distress at both the within- and between-person levels (Levels 1 and 2). To model the effects of retirement transition, daily stressors, age, gender, and their interactions on daily time use as well as psychological distress, the following model was used. The original model also tested for the effects of marital status and education, however, no significant findings were found. A decision was made to include marital status and education as controls. For the ease of the reader, control variables are omitted in the equations below.

Level 1: (1)

$$\text{Psychological Distress}_{di} = \beta_{0i} + \beta_{1i} (\text{Any Stressor}_{di}) + e_{di}$$

Level 2: (2)

$$\beta_{0i} = \gamma_{00} + \gamma_{01} (\text{Any Stressor}_i) + \gamma_{02} (\text{Transition}) + \gamma_{03} (\text{Age}) + \gamma_{04} (\text{Gender}) + \gamma_{05}$$

$$(\text{Transition} \times \text{Age}) + \gamma_{06} (\text{Transition} \times \text{Gender}) + \mu_{0i}$$

$$\beta_{1i} = \gamma_{10} + \gamma_{11} (\text{Transition}) + \gamma_{12} (\text{Age}) + \gamma_{13} (\text{Gender}) + \gamma_{14} (\text{Transition} \times \text{Age}) + \gamma_{15}$$

$$(\text{Transition} \times \text{Gender})$$

In Equation 1, the intercept ( $\beta_{0i}$ ) is the expected level of psychological distress for person  $i$  on days when no stressors occurred (e.g., Any Stressor=0). The parameter  $\beta_{1i}$  is the within-person daily stress effect. Coded as 0=no stressor(s) reported and 1=at least one stressor reported,  $\beta_{1i}$  represents the difference in psychological distress on stressor days compared with non-stressor days. Finally,  $e_{di}$  is the within-person error or residual variance. The intercept and slope of the Level 1 within-person model become the outcomes for the Level 2 between-person

equations (see Equation 2). At Level 2,  $\beta_{0i}$ , is a function of the between-person intercept ( $\gamma_{00}$ ), the between-person daily stressor effect ( $\gamma_{01}$ ), transition ( $\gamma_{02}$ ), age ( $\gamma_{03}$ ), gender ( $\gamma_{04}$ ), the interactive effect of transition and age ( $\gamma_{05}$ ), the interactive effect of transition and gender ( $\gamma_{06}$ ), and the between-persons error term ( $\mu_{0i}$ ). The within-persons slope,  $\beta_{1i}$ , is a function of the mean slope between persons or the sample average within-person effect of daily stressor ( $\gamma_{10}$ ), transition ( $\gamma_{11}$ ), age ( $\gamma_{12}$ ), gender ( $\gamma_{13}$ ), the interactive effect of transition and age ( $\gamma_{14}$ ), and the interactive effect of transition and gender ( $\gamma_{15}$ ). All models were estimated with SAS Proc Mixed.

### *Stressor Reactivity Findings*

In each model, between- and within-person daily stress, retirement transition, age, gender, as well as their interactions were entered as predictors of daily time use and psychological distress. Results are presented in Tables 3.8 to 3.10.

### *Time Spent on Daily Household Chores*

As shown in Table 3.8, there was a stressor reactivity by transition and age for time spent on daily household chores. The findings graphically are depicted in Figure 3.8. In general, time spent on daily household chores decreased on stressor days as compared to non-stressor days. Contrary to prediction, results showed that, regardless of non-stressor or stressor days, individuals who transitioned into retirement reported more time spent on daily household chores than individuals who stayed working. This study also showed that being older and working was associated with the least amount of time spent on daily household chores. The amount of time older working individuals spent on daily household chores further decreased on days when they experienced a stressor.

### *Time Spent on Daily Physical Activities*

Presented in Table 3.9 are the stressor reactivity results for time spent on daily physical activities. Contrary to prediction, findings revealed that time spent on daily physical activities is higher for all groups on stressor days than non-stressor days (see Figure 3.9). On stressor days, men and women who transitioned into retirement reported more time spent on daily physical activities than their working counterparts. Findings also revealed the important consideration of gender in these associations. On both non-stressor and stressor days, men who made the transition into retirement spent more time on daily physical activities than women who transitioned into retirement. In contrast, men who stayed working reported spending the least amount of time on daily physical activities than working women on both non-stressor and stressor days.

#### *Daily Psychological Distress*

Finally, results from part two of this study showed a trend towards significance for daily psychological distress (see Table 3.10). As predicted, daily psychological distress is lower on non-stressor days than stressor days for all groups (see Figure 3.10). In contrast to expectation, reactivity in daily psychological distress on stressor days was greater for those who stayed working than those who transitioned into retirement. In particular, younger working individuals exhibited the greatest reactivity in daily psychological distress to the stressor reported.

### Discussion

The current paper moved the study of retirement as a status to a transition in the examination of daily experiences. The goals for this study were two fold. Part one of this study assessed whether experiencing a retirement transition (stayed working vs. transitioned into retirement) was associated with time use and exposure to daily stressors. Part two of this study explored how individuals exhibited stressor reactivity in areas of daily time use and daily



psychological distress. This study highlighted the importance of life course influences in better understanding the association between retirement transition and aspects of the daily experiences.

### *Retirement Transition and Aspects of Daily Experiences*

In accordance with literature viewing retirement as a period for increased opportunities for leisure and social activities (e.g., Krantz-Ken & Stewart, 2007; Rosenkoetter et al., 2001), findings from this study showed that the transition into retirement is associated with an increase in time spent on daily leisure activities. Contrary to expectation, younger individuals who transitioned into retirement from wave 1 to wave 2 reported the greatest increase in time spent on daily leisure activities. The observed difference between younger and older individuals who made the transition into retirement is in line with the literature suggesting that older individuals tend to allocate less time to physically demanding leisure activities than do younger adults (e.g., Cutler & Hendricks, 1990; Jones, 1990). It also could be that, among those who transitioned into retirement, older adults were more likely to restrict their range of activities than younger adults (Herzog, Kahn, Morgan, Jackson, & Antonucci, 1989). Perhaps the combination of greater flexibility in daily time use and the willingness to participate in a host of leisure activities may help to explain the time use differences in leisure activities among individuals who transitioned into retirement.

In interpreting this set of findings, it is important to consider issues of measurement. In the NSDE, respondents are asked, 'How much time did you spend relaxing or doing leisure activities?' Instead of defining a specific set of leisure activities, respondents are given the following prompt when necessary, 'Leisure activities mean actively choosing to do things for yourself'. In contrast to other time use studies (e.g., Rosenkoetter et al., 2001; Szinovacz & Harpster, 1994), the operationalization of leisure activities in this study is more subjective.

Although more subjective, the NSDE approach may be more advantageous than asking respondents to specify time spent on a particular leisure activity (e.g., television watching). Whereas the specification of a single activity is helpful in identifying how individuals differ on a particular leisure activity, this approach may not capture all of the different types of leisure activities that are important to the respondents.

Findings from this study also revealed the important impact of retirement transition on daily stressor characteristics. In contrast to expectation, findings showed that individuals who transitioned into retirement at an older age reported the greatest number of daily stressors of all groups. One plausible explanation could be that the transition into retirement, which entails changes and the need for new adaptation (George, 1993; Wheaton, 1990), exposes older individuals to more daily stressors. In contrast to younger individuals who transitioned into retirement, older individuals who transitioned into retirement may be more susceptible to stressors because of other changes (e.g., loss of spouse, poor health) that are happening due in part to aging. Of those who stayed working, younger workers reported greater stressor exposure than older workers. The observed difference could be due to the nature of work and age. In contrast to older workers who may have more job experiences, younger workers may still be honing their skills and encountering things that they have never experienced. Considering that these younger workers also are experiencing the period of midlife, they are more likely than their older working counterparts to be managing and balancing different types of social role and responsibilities (Lachman & James, 1997). This finding is in line with past studies documenting greater stressor exposure in midlife than in old age (e.g., Almeida & Horn, 2004; Almeida & Kessler, 2002).

An advantage of using the DISE stressor assessment is that information on how individuals appraise the stressors experienced is obtained. Contrary to prediction, experiencing a retirement transition was not associated with more negative appraisal of daily stressors. Instead, individuals who stayed working appraised stressors having a more negative impact on their daily lives. Working individuals with high school or less education appraised stressors having greater severity than those with some college or more education. This finding is consistent with past research documenting individuals with lower education are more vulnerable to daily stressors (Almeida et al., 2005; Grzywacz et al., 2004). Important to this set of finding is the reverse pattern observed for those who transitioned into retirement. Among those who made the transition into retirement, individuals with high school or less education reported lower stressor severity than those with higher education. This set of finding suggests that the transition into retirement (thereby reducing exposure to work-related challenges) may be more beneficial for individuals with lower education than those with higher education in the severity of stressors experienced. In contrast to those with lower education, the transition into retirement may present more conflicting feelings for individuals with higher education, since they are more likely to have held jobs with greater flexibility, autonomy, and benefits (Reynolds & Ross, 1998). Not only are individuals with more education leaving these important resources behind, they also are moving into a more ambiguous phase of the life course called retirement (Ekerdt, 2010; Moen, 2003). The combination of these factors may place individuals, who transitioned into retirement with more education, at a greater vulnerability to the stressors experienced.

Another noteworthy finding from part one of this study is the influence of gender in the association between retirement transition and daily stressor characteristics. Because of the complexity between gender and employment, it was expected that the transition into retirement

would be the least beneficial for women than for men (Quick & Moen, 1998). In line with expectation, men who transitioned into retirement were more likely to report daily stressors having a lower risk on their physical health or safety than women who transitioned into retirement. Although it was expected that experiencing a transition would lead to distress and changes in one's life, this set of findings showed that individuals who stayed working, especially men, reported the greatest risk that daily stressors had on their health or safety. This set of findings suggests that the absence of a transition does not necessarily protect one from negative daily experiences.

As a whole, findings from part one of this study suggest several implications. The retirement transition encompasses both positive and negative aspects of daily experiences and depends on other life course characteristics. The transition into retirement may be advantageous (e.g., increased time spent on daily leisure activities, lower stressor severity). At the same time, the transition into retirement negatively may affect one's daily experiences. What is clear from this set of findings is the importance of life course influences in increasing or decreasing one's vulnerability to a transition.

#### *Stressor Reactivity and Aspects of Daily Experiences*

The second part of this study extended the literature on retirement transition by examining how individuals exhibit reactivity in areas of daily time use and daily psychological distress to the stressors experienced. In line with past studies documenting the impact that daily stressors have on disrupting one's daily lives (Almeida & Kessler, 1998; Bolger et al., 1989; Lazarus & Folkman, 1984), findings from this study revealed that daily stressors may alter one's daily routines and exacerbate one's daily psychological distress. Findings also showed that

certain life course influences placed individuals at a more advantageous position when faced with a stressful situation.

In accordance with past research documenting the impact and disruption that daily stressors have on one's life (e.g., Almeida & Kessler, 1998), the first set of stressor reactivity findings revealed that, for all groups, time spent on daily household chores decreased on days when one experienced a stressor. Perhaps in contrast to other daily activities, daily household chores can be set aside, especially when there is a more pressing issue or situation at hand.

Consistent with past findings that individuals who transitioned into retirement spent more time on household tasks than their working counterparts (e.g., Szinovacz & Harpster, 1994), this study also found individuals who transitioned into retirement reported spending more time on daily household chores when compared to their working counterparts on both non-stressor and stressor days. It also appears that the changes associated with experiencing a retirement transition may have less impact on time spent on day-to-day household chores. Rather, the effect of being an older worker combined with experiencing at least one daily stressor seemed to have the greatest disruption in time spent on daily household chores. Although the transition into retirement was associated with more time spent on daily household chores, even on stressor days, it does not mean that chores are not getting done in the households of working individuals. It could be that working individuals, due to the time restriction imposed by work, are outsourcing their chores. An important consideration when interpreting this set of results is the directionality of the findings. Daily household chores can be the source of stressors rather than the outcome. Considering, however, that all groups reported greater time spent on daily household chores on non-stressor days than stressor days, it is more likely that stressors are influencing time spent on daily household chores than vice-versa.

Another finding noteworthy of discussion is stressor reactivity and time spent on daily physical activities. Contrary to expectation, time spent on daily physical activities for all groups increased on stressor days as compared to non-stressor days. There are several possible explanations for the finding. It could be that on days individuals participate in physical activities, they also are more likely to experience stressors (e.g., traffic on the way to the gym). Another possibility could be that individuals are utilizing daily physical activities as coping tools to help manage the stressor experienced. This explanation would be in line with literature documenting the importance of physical activities in coping with stressors (see Taylor, 2000 for review). Further providing support to the set of literature that suggests retirement is better for men than women (e.g., Kim & Moen, 2002; Quick & Moen, 1998; Slevin & Wingrove, 1995), this study found that men who transitioned into retirement reported the most time spent on daily physical activities on both non-stressor and stressor days when compared to their counterparts. Employment, in contrast, appears to limit the amount of time that men allocated to physical activities on both non-stressor and stressor days. This set of findings shows that reactivity to stressors may not necessarily be entirely negative. It would be interesting in future studies to examine whether the physiological impact of experiencing a stressor can be offset by the advantages associated with more time spent on physical activities.

Finally, there was a trend toward significance in how individuals exhibit emotional reactivity to the stressors they experienced. As predicted, daily psychological distress increased for all groups when at least one daily stressor was reported. This finding reinforces past studies documenting the immediate and negative impact of daily stressors on psychological functioning (Almeida, 2005; Almeida et al., 2002; Bolger et al., 1989). In contrast to expectations, individuals who transitioned into retirement, regardless of age, reported the lowest reactivity in

daily psychological distress on stressor days. Workers, especially those younger, exhibited the greatest reactivity to daily psychological distress on stressor days. This set of finding suggests that the transition into retirement may be a protective factor for daily psychological distress on stressor days but not necessarily on non-stressor days. Furthermore, this set of finding highlights the vulnerability of younger adults, especially those who stayed working, in the presence of stressors (Birditt et al., 2005; Neupert et al., 2007).

### *Limitations and Future Directions*

Limitations in this study must be acknowledged. Similar to paper one of this dissertation, this study utilized a self-definition of retirement status to conceptualize retirement transition. The decision for a mutually exclusive conceptualization of retirement status at both waves, combined with the age range restriction of 55 to 74, contributed to the reduced sample size. Subsequent studies should consider whether the sample size can be increased by utilizing other retirement conceptualizations. For example, there is a question in the MIDUS survey that asks respondents to indicate yes, no, or do not know to ‘Are you currently working?’ In contrast to the approach used in this study, this question does not allow respondents to identify the multiple employment or non-employment situations that they may occupy. One limitation with the ‘Are you currently working?’ item is that it masks the heterogeneity that this study’s retirement conceptualization tried to tease out.

Another approach to conceptualizing retirement is through pension receipt. Several problems arise when utilizing pension receipt as the identifier of retirement. First and foremost, individuals who are recipients of employer-sponsor or government sponsor pensions (e.g., Social Security) can continue to work for pay. Here, the issue of multiple employment situations arises again. Another concern with using pension receipt is that individuals without pension access are

excluded, and sample size is a concern. The tie between pension access/wealth and employment histories still places women, who are more likely to have discontinuous employment histories than men, at a disadvantage (Kim & Moen, 2000; Moen, 1985; Springstead & Wilson, 2000; Yakoboski & Silverman, 1993). Future studies should consider whether different measurements of employment situations similarly predict aspects of daily experiences.

A limitation of this study that also must be acknowledged is the time lapse in the collection of respondents' employment situations and daily experiences. Due to the design of MIDUS, the daily diary portion (NSDE, Project 2) of the MIDUS is collected after the completion of the self-administered/phone questionnaires (Project 1; the portion of MIDUS where respondents provided information on a set of socio-demographic background). For example, in the first wave of MIDUS, the dairy diary portion was collected approximately a year after the completion of Project 1. Thus, one cannot out rule of the possibility that by the time a respondent reached the daily dairy portion of the study that he or she could have retired. Unfortunately, the daily diary portion does not have a question that asks respondents to identify their current employment situation. It is important to note that the overarching goal of MIDUS was to investigate the factors that influence age-related differences in physical and mental health. Unlike other studies (e.g., Health and Retirement Study), MIDUS was not designed for the study of retirement processes. Thus, it is important to keep this in mind when interpreting the study's findings.

In the study of retirement transition, it is important to take account of issues of selection and cohort differences. As indicated by Ekerdt (2010, p. 72), "retirement is one big selection mechanism". The decision to retire, stay working, or re-enter the labor force after a period of exit is a self-sorting process based on multiple factors, including employment situation, family



circumstances, health, and finances (e.g., Burr, Massagli, Mutchler, & Pienta, 1996; Johnson, 2004; McGarry, 2002). The decision to retire is further complicated by birth cohort as well as period effects. For example, in the period after War World II, workers exited the labor force earlier and earlier, and this trend toward early retirement was especially the norm for White men (Quinn, 2002). However, the combination of elimination of mandatory retirement in most industries in 1986, increased labor force participation of women, and the economic instabilities of the early 1990s and early 2000s has reversed the trend toward early retirement and even resulted in workers retiring at a later age (Burtless & Quinn, 2001; Cahill, Giandrea, & Quinn, 2006; Munnell, Muldon, & Sass, 2009; Quinn, 2002).

Finally, findings from this study point to the complexity in the examination of retirement transitions and aspects of daily experiences. Retirement transition is not an all good or bad experience. Rather, the quality of retirement transition must be explored in the context of life course influences, which becomes even more important with the greater heterogeneity of retirement in the United States in the 21<sup>st</sup> century.

## References

- Aldwin, C. M. (1991). Does age affect the stress and coping process? Implications of age differences in perceived control. *Journal of Gerontology, 46*, 174–180.
- Allen, V., & van de Vilert, E. (1984). A role theoretical perspective on transitional processes. In V. Allen & E. van de Vilert (Eds.), *Role transitions, explorations, and explanations* (pp. 3-18). New York, Plenum.
- Almeida, D.M. (2005). Resilience and vulnerability to daily stressors assessed via diary methods. *Current Directions in Psychological Science, 14*, 64-68.
- Almeida, D. M., & Horn, M. C. (2004). Is daily life more stressful during middle adulthood? In O.G. Brim, C. D. Ryff & R. C. Kessler (Eds.), *How healthy are we? A national study of well-being at midlife* (pp. 425-451). Chicago: The University of Chicago Press.
- Almeida, D. M., & Kessler, R. C. (1998). Everyday stressors and gender differences in daily distress. *Journal of Personality and Social Psychology, 75*, 670-680.
- Almeida, D. M., & McDonald, D. (2005). The time Americans spend working for pay, caring for families, and contributing to communities. In J. Heymann (Ed.) *Unfinished work: Balancing equality and democracy in an era of working families* (pp. 180-203). New York: The New Press.
- Almeida, D. M., Mroczek, D. K., & Neiss, M. (2006). Can self-regulation explain age differences in daily, weekly, and monthly reports of psychological distress. In L. Carstensen & K. W. Schaie (Eds.), *Social structure, aging and self-regulation in the elderly* (pp. 95-122). New York: Springer.

- Almeida, D. M., Neupert, S. D., Banks, S. R., & Serido, J. (2005). Do daily stress processes account for socioeconomic health disparities? *Journals of Gerontology: Social Science, 60*, 34-39.
- Almeida, D. M., Wethington, E., & Kessler, R. C. (2002). The daily inventory of stressful experiences (DISE): An interview-based approach for measuring daily stressors. *Assessment, 9*, 41-55.
- Almeida, D. M., & Wong, J. D. (2009). Life transitions and daily stress processes. In G. H., Elder, Jr., & J. Z. Giele (Eds.), *The craft of life course research* (pp. 141-162). New York: Guilford Press.
- Andrew, F. M., & Withey, S. B. (1976). *Social indicators of well-being*. New York: Plenum Press.
- Barfield, R., & Morgan, J. N. (1968). *Early retirement: The decision and the experiences*. Ann Arbor, MI: Institute for Social Research.
- Belek, I. (2000). Social class, income, education, area of residence and psychological distress: Does social class have an independent effect on psychological distress in Antalya, Turkey? *Social Psychiatry and Psychiatric Epidemiology, 35*, 94–101.
- Birditt, K. S., & Fingerman, K. S. (2003). Age and gender differences in adults' descriptions of emotional reactions to interpersonal problems. *Journals of Gerontology, Series B: Psychological Sciences and Social Sciences, 58*, P237–P245.
- Birditt, K. S., Fingerman, K. L., & Almeida, D. M. (2005). Age differences in exposure and reactions to interpersonal tensions: A daily diary study. *Psychology and Aging, 20*, 330-340.
- Bloom, B. L., Asher, S. J., & White, S. W. (1978). Marital disruption as a stressor: A review and analysis. *Psychological Bulletin, 85*, 867-894.

- Bolger, N., Davis, A., & Rafaeli, E. (2003). Diary methods: Capturing life as it is lived. *Annual Review of Psychology, 54*, 579-616.
- Bolger, N., DeLongis, A., Kessler, R. C., & Schilling, E. (1989). Effects of daily stress on negative mood. *Journal of Personality and Social Psychology, 57*, 808 - 818.
- Bradburn, N. (1969). *The structure of psychological well-being*. Chicago: Aldine.
- Brown, G. W., & Harris, T. O. (1989). *Life events and illness*. New York: Guilford Press.
- Bryk, A. S., & Raudenbush, S. W. (1992). *Hierarchical linear models*. Newbury Park, CA: Sage.
- Burtless, G., & Quinn, J. F. (2001). Retirement trends and policies to encourage work among older Americans. In P. P. Budetti, R. V. Burkhauser, J. M. Gregory & H. A. Hunt (Eds.), *Ensuring Health and Income Security for an Aging Workforce* (pp. 375-415). Kalamazoo: W.E. Upjohn Institute for Employment Research.
- Burr, J. A., Massagli, M. P., Mutchler, J. E., & Pienta, A. M. (1996). Labor force transitions among older African American and White Men. *Social Forces, 74*, 963-982.
- Butterworth, P., Gill, S. C., Rodgers, B., Anstey, K. J., Villamil, E., & Melzer, D. (2006). Retirement and mental health: Analysis of the Australian national survey of mental health and well-being. *Social Science and Medicine, 62*, 1179-1191.
- Buxton, J. W., Singleton, N., & Melzer, D. (2005). The mental health of early retirees: National interview survey in Britain. *Social Psychiatry and Psychiatric Epidemiology, 40*, 99-105.
- Cahill, K. E., Giandrea, M. D., & Quinn, J. F. (2006). Retirement patterns from career employment. *The Gerontologist, 46*, 514-523.
- Cutler, S. J., & Hendricks, J. (1990). Leisure and time use across the life course. In R. H. Binstock & L. K. George, *Handbook of aging and the social sciences* (pp. 169-85). New York: Academic Press.

- Diefenbach, M., Leventhal, E. A., Leventhal, H., & Patrick-Miller, L. (1996). Negative affect relate to cross-sectional but not to longitudinal symptom reporting: Data from elderly adults, *Health Psychology, 15*, 282-288.
- Dohrenwend, B. S., & Dohrenwend, B. P. (1974). *Stressful life events: Their nature and effects*. Oxford, England: John Wiley & Sons.
- Ekerdt, D. (2010). Frontiers of research on work and retirement. *Journal of Gerontology: Social Sciences, 65*, 69-80.
- Elder, G. H., Johnson, M. K., & Crosnoe, R. (2003). The emergence and development of life course theory. In J. Mortimer & M. J. Shanahan (Eds.), *Handbook of the life course* (pp. 3-22). New York: Kluwer Academic.
- Floyd, F. J., Haynes, S., Doll, E. R., Winemiller, D., Lemsky, C., Burgy, et al. (1992). Assessing retirement satisfaction and perceptions of retirement experiences. *Psychology and Aging, 7*, 609–621.
- Fryers, T., Melzer, D., Jenkins, R. (2003). Social inequalities and the common mental disorders: A systematic review of the evidence. *Social Psychiatry and Psychiatric Epidemiology, 38*, 229–237.
- Gall, T. L., Evans, D. R., & Howard, J. (1997). The retirement adjustment process: Changes in the well-being of male retiree across time. *The Journals of Gerontology, 52*, 110-117.
- George, L. K. (1993). Sociological perspectives on life transitions. *Annual Review of Sociology, 19*, 353-373.
- George, L. K. (1980). *Role Transitions in Later Life: A Social Stress Perspective*. Monterey, CA: Brooks/Cole Publishing Co.

- Grzywacz, J. G., Almeida, D. M., Neupert, S. D., & Ettner, S. L. (2004). Stress and socioeconomic differentials in physical and mental health: A daily diary approach. *Journal of Health and Social Behavior, 45*, 1–16.
- Hagestad, G. O., & Neugarten, B. L. (1985). Age and the life course. In R. H. Binstock, & E. Shanas (Eds.), *Handbook of aging and the social sciences 2nd edition* (pp. 46-61). New York: Van Nostrand Reinhold.
- Hatch, L., & Thompson, A. (1992). Family responsibilities and women's retirement. In M. Szinovacz, D. Ekerdt, & B. Vinick (Eds.) *Families and retirement* (pp. 99-113). Newbury Park, CA: Sage Publications.
- Herzog, R. A., Kahn, R. L., Morgan, J. N., Jackson, J. S., & Antonucci, T. C. (1989). Age differences in productive activities. *Journals of Gerontology, 44*, 129–38.
- Holmes, T. H., & Rahe, R. H. (1967). Holmes-Rahe life changes scale. *Journal of Psychosomatic Research, 11*, 213-218.
- Hultsch, D. F., & Plemons, J. K. (1979). Life events and life-span development. In P. B. Baltes & O. G. Brim (Eds.) *Life-span development and behavior*, (Vol. 2, pp. 1-36). New York: Academic.
- Johnson, R. W. (2004). Do spouses coordinate their retirement decisions? *Issue in Brief* 19 (July). Chestnut Hill, MA: Center for Retirement Research at Boston College.
- Jones, M. (1990). Time use of the elderly. *Canadian Social Trends, 28–30*.
- Kessler, R. C. (1982). A disaggregation of the relationship between socioeconomic status and psychological distress. *American Sociological Review, 47*, 752-764.

- Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S. L., et al. (2002). Short screening scales to monitor population prevalences and trends in non specific psychological distress. *Psychological Medicine, 32*, 959-976.
- Kessler, R. C., McGonagle, K. A., Zhao, S., Nelson, C. B., Hughes, M., Eshleman, S, et al. (1994). Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: Results from the National Comorbidity Survey. *Archives of General Psychiatry, 51*, 8–19.
- Kiecolt-Glaser, J. K., & Newton, T. L. (2001). Marriage and health: His and hers. *Psychological Bulletin, 127*, 472-503.
- Kim, J. E, & Moen, P. (2000). Is retirement good or bad for subjective well-being? *Current Directions in Psychological Science, 10*, 83-86.
- Kim, J. E., & Moen, P. (2001). Is retirement good or bad for subjective well-being. *Current Directions in Psychological Science, 10*, 83-86.
- Kim, J. E., & Moen, P. (2002). Retirement transitions, gender, and psychological well-being: A life course, ecological model. *Journal of Gerontology: Psychological Sciences, 57*, 212-222.
- Kitson, G. C., & Morgan, L. A. (1990). The multiple consequences of divorce: A decade review. *Journal of Marriage & Family, 54*, 901-911.
- Krantz-Kent, R., & Stewart, J. (2007 May). How do older Americans spend their time? *Monthly Labor Review*.
- Lachman, M. E. & James, J. B. (Eds.) (1997). *Multiple paths of midlife development*. Chicago: University of Chicago Press.

- Laczko, F., & Phillipson, C. (1991). *Changing work and retirement: Social policy and the older worker*. Philadelphia: Milton Keynes.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, Appraisal, and Coping*. New York: Springer.
- Macintyre, S., & Mutrie, N. (2004). Socio-economic differences in cardiovascular disease and physical activity: Stereotypes and reality. *J. R. Soc. Health*, 124, 66–69.
- McGarry, K. (2002). *Health and retirement: Do changes in health affect retirement expectations?* (National Bureau of Economic Research Working Paper No. 9317). Cambridge, MA: National Bureau of Economic Research.
- McGoldrick, A. E., & Cooper, C. L. (1988). *Early Retirement*. Aldershot, Hants, England: Gower.
- Mirowsky, J., & Ross, C. E. (1995). Sex differences in distress: Real or artifact? *American Sociological Review*, 60, 449-468.
- Moen, P. (1985). Continuities and discontinuities in women's labor force activity. In G. H. Elder (Ed.), *Life course dynamics: Trajectories and transitions, 1968-1980* (pp.113-155). New York: Cornell University Press.
- Moen, P. (2001). The gendered life course. In L. George & R. H. Binstock (Eds.), *Handbook of aging and the social sciences* (5<sup>th</sup> ed. pp.179-196). San Diego, CA: Academic Press, Inc.
- Moen, P. (2003). Midcourse: Navigating retirement and a new life stage. In J. Mortimer & M. J. Shanahan (Eds.), *Handbook of the life course* (pp. 269-291). New York: Kluwer Academic.
- Mroczek, D. K., & Kolarz, C. M. (1998). The effect of age on positive and negative affect: A developmental perspective on happiness. *Journal of Personality and Social Psychology*, 75, 1333-1349.



- Munnell, A., Muldon, D., & Sass, S. A. (2009 January). *Recession and older workers*. (An issue in brief Center for Retirement Research at Boston College, No. 9-2). Boston, MA: Boston College.
- Neugarten, B. L. (1979). Time, age, and the life cycle. *The American Journal of Psychiatry*, *136*, 887-894.
- Neupert, S. D., Almeida, D. M., & Charles, S. T. (2007). Age differences in reactivity to daily stressors: The role of personal control. *Journals of Gerontology: Psychological Sciences*, *62*, 216-225.
- Nisbett, R. E., & Wilson, T. D. (1977). The halo effect: Evidence for unconscious alteration of judgments. *Journal of Personality and Social Psychology*, *35*, 250-256.
- O'Rand A. M., Henretta J. C., & Krecker M. (1992). Family pathways to retirement. In M. Szinovacz, D. Ekerdt, & B. Vinick (Eds.). *Families and retirement* (pp. 81-98). Newbury Park, CA: Sage Publications.
- Pearlin, L.I. (1999). The stress process revisited: Reflections on concepts and their interrelationships. In C.S. Aneshensel, & J.C. Phelan (Eds.), *Handbook of the Sociobiology of Mental Health* (pp. 395-415). New York, NY: Kluwer Academic.
- Pearlin, L. I., Schieman, S., Fazio, E. M., & Meersman, S. C. (2005). Stress, health, and the life course: Some conceptual perspectives. *Journal of Health and Social Behavior*, *46*, 205-219.
- Pienta, A. M., & Hayward, M. D. (2002). Who expects to continue working after age 62? The retirement plans of couples. *The Journal of Gerontology*, *57*, 199-208.
- Pienta, A. M., Hayward, M. D., & Jenkins, K. R. (2000). Health consequences of marriage for the retirement years. *Journal of Family Issues*, *21*, 559-586.

- President's Council of Economic Advisors (2000). *Economic Report of the President 2000*. Washington, D.C.: U. S. Government Printing Office.
- Price, C. A. (2003). Professional women's retirement adjustment: The experience of reestablishing order. *Journal of Aging Studies, 17*, 341-355.
- Quick, H. E., & Moen, P. (1998). Gender, employment, and retirement quality: A life course approach to the differential experiences of men and women. *Journal of Occupational Health Psychology, 3*, 44-64.
- Quinn, J. F. (2002). Changing retirement trends and their impact on elderly entitlement programs. In S. H. Altman & D. I. Shactman (Eds.), *Policies for an aging society* (pp. 293-315). Baltimore: The Johns Hopkins University Press.
- Radloff, L. S. (1977). The CES-D scale: a self-report depression scale for research in the general population. *Applied Psychological Measurement, 1*, 385-401.
- Reis, H. T., & Gable, S. L. (2000). Event-sampling and other methods for studying everyday experience. In H.T. Reis, & C.M. Judd (Eds.), *Handbook of research methods in social and personality psychology* (pp.190–222). New York: Cambridge University Press.
- Reynolds, J. R., & Ross, C. E. (1998). Social stratification and health: Education's benefit beyond economic status and social origins source. *Social Problems, 45*, 221-247.
- Riddick, C. C., & Stewart, D. G. (1994). An examination of life satisfaction and importance of leisure in the lives of older female retirees: A comparison of Blacks and Whites. *Journal of Leisure Research, 26*, 75-87.
- Rogosa, D. R., Brandt, D., & Zimowski, M. (1982). A growth curve approach to the measurement of change. *Psychological Bulletin, 90*, 726-748.

- Rogosa, D. R., & Willett, J. B. (1983). Demonstrating the reliability of the difference score in the measurement of change. *Journal of Educational Measurement, 20*, 335-343.
- Rosenkoetter, M., Garris, J., & Engdahl, R. (2001). Postretirement use of time: Implications for preretirement planning and postretirement management. *Activities, Adaptation & Aging, 25*, 1-17.
- Ross, C. E., & Huber, J. (1985). Hardship and depression. *Journal of Health and Social Behavior, 26*, 312-327.
- Ryder, N. B. (1965). The cohort as a concept in the study of social change. *Sociological Review, 30*, 843-861.
- Slevin, K. F., & Wingrove, C. R. (1995). Women in retirement: A review and critique of empirical research since 1976. *Social Inquiry, 65*, 1-21.
- Smith, D. B., & Moen, P. (1998). Spousal influence on retirement: His, her, and their perceptions. *Journal of Marriage and Family, 60*, 734-744.
- Smith, D. B., & Moen, P. (2004). Retirement satisfaction for retirees and their spouses: Do gender and the retirement decision-making process matter? *Journal of Family Issues, 25*, 262-285.
- Snijders, T., & Bosker, R. (1999). *Multilevel analysis*. London: Sage Publications.
- Springstead, G. R., & Wilson, T. M. (2000). Participation in voluntary individual savings accounts: An analysis of IRAs, 401(k)s, and the TSP. *Social Security Bulletin, 63*, 34-39.
- Stawski, R. S., Sliwinski, M. J., Almeida, D. M., & Smyth, J. M. (2008). Reported exposure and emotional reactivity to daily stressors: The roles of adult-age and global perceived stress. *Psychology and Aging, 23*, 52-61.

- Stubbe, J. H., de Moor, M. H. M., Boomsma, D. I., & de Geus, E. J. C. (2007). The association between exercise participation and well-being: A co-twin study. *Preventive Medicine: An International Journal Devoted to Practice and Theory*, *44*, 148-152.
- Szinovacz, M. E., & Davey, A. (2004). Honeymoons and joint lunches: Effects of retirement and spouse's employment on depressive symptoms. *Journal of Gerontology: Psychological Sciences*, *59B*, P233-P245.
- Szinovacz, M. E. & Harpster, P. (1994). Couples' employment/retirement status and the division of household tasks. *Journal of Gerontology*, *49*, 125-S136.
- Talaga, J. T., & Beehr, T. A. (1995). Are there gender differences in predicting retirement decisions. *Journal of Applied Psychology*, *80*, 16-28.
- Taylor, J. A. (1953). A personality scale of manifest anxiety. *The Journal of Abnormal and Social Psychology*, *48*, 285-290.
- Taylor, A. H. (2000). Physical activity, anxiety, and stress. In S. J. H. Biddle, K. R., Fox, C. H. Boutcher (Eds.), *Physical activity and psychological well-being* (pp. 10-45). New York: Routledge.
- United States Bureau of Labor Statistic (2009). American time use survey summary. USDL 09-0704. *Bureau of Labor Statistics*. US Department of Labor, Washington DC.
- United States Bureau of Labor Statistics (2000). Number of jobs held, labor or market activity, and earnings growth over two decades: Results from a longitudinal survey. USDL 00-119. *Bureau of Labor Statistics*. US Department of Labor, Washington DC.
- van Solinge, H. (2007). Health change in retirement: A longitudinal study among older workers in the Netherlands. *Research on Aging*, *29*, 225-256.

- van Solinge, H., & Henkens, K. (2005). Couples' adjustment to retirement: a multi-actor panel study. *Journal of Gerontology: Social Sciences, 60*, 11-20.
- van Solinge, H., & Henkens, K. (2008). Adjustment to and satisfaction with retirement: Two of a kind? *Psychology and Aging, 23*, 422-434.
- Wheaton, B. (1990). Life transitions, role histories, and mental health. *American Sociological Review, 55*, 209-223.
- Wheaton, B. (1999). The nature of stressors. In A.V. Horowitz & T.L. Scheid (Eds.), *A handbooks for the study of mental health: Social contexts, theories, and systems* (pp. 176-197). New York: Cambridge University Press.
- Willett, J. B. (1994). Measurement of change. In T. Husen, & T. N. Postlethwaite (Eds.), *The international encyclopedia of education* (2<sup>nd</sup> ed., pp. 671-678). Oxford, UK: Pergamon Press.
- Yakoboski, P., & Silverman, C. (1993). Baby boomers in retirement: What are their prospects. Pp. 13-62 in *Retirement in the 21<sup>st</sup> Century...Ready or Not*. Washington, D.C.; Employee Benefit Research Institute.
- Zautra, A. J. (2003). *Emotions, stress, and health*. New York, NY: Oxford University Press.
- Zautra, A. J., Finch, J. F., Reich, J. W., & Guarnaccia, C. A. (1991). Predicting the everyday life events of older adults. *Journal of Personality, 59*, 507-538.

Table 3.1 Sample Selection Criterion

Selection Criteria			<i>N</i>
<i>Step 1: Respondents in both waves of NSDE</i>			
	<i>n</i>	<i>%</i>	
Stayed Retired	73	10.3	
Stayed Working	380	53.3	
Transitioned into Retirement	86	12.1	
Transitioned Back to Work	4	0.6	
Missing Values	169	23.7	712
 <i>Step 2: Select only those with valid employment responses</i>			
	<i>n</i>	<i>%</i>	
Stayed Retired	73	10.3	
Stayed Working	380	53.3	
Transitioned into Retirement	86	12.1	
Transitioned Back to Work	4	0.6	543
 <i>Step 3: Select only those who stayed working or transitioned into retirement</i>			
	<i>n</i>	<i>%</i>	
Stayed Working	380	81.5	
Transitioned into Retirement	86	18.5	466
 <i>Step 4: Select only those aged 55 to 74</i>			
	<i>n</i>	<i>%</i>	
Stayed Working	126	40.5	
Transitioned into Retirement	76	24.4	202

Table 3.2 Socio-demographic Characteristics at Wave 2 by Study Inclusion Status

		Included ( <i>n</i> = 202)	Excluded ( <i>n</i> = 510)
Age***	<i>M</i>	62.8	53.5
	<i>SD</i>	5.5	13.5
Gender			
Men	%	44.1	43.7
Women	%	55.9	56.3
Marital Status			
Unmarried	%	30.2	26.3
Married	%	69.8	73.7
Education			
High School or Less	%	33.2	32.7
Some College or More	%	66.3	67.3
Chronic Conditions			
	<i>M</i>	2.4	2.4
	<i>SD</i>	2.2	2.5
Total Household Income (logged)			
	<i>M</i>	10.3	10.5
	<i>SD</i>	2.5	2.2

---

Difference significant at \**p*<.05; \*\**p*<.01; \*\*\**p*<.001

Table 3.3 Socio-demographic Characteristics at Wave 2 by Retirement Transition

		Stayed Working ( <i>n</i> = 126)	Transitioned into Retirement ( <i>n</i> =76)
Age***	<i>M</i>	60.8	66.0
	<i>SD</i>	4.9	4.9
Gender			
Men	%	42.1	47.4
Women	%	57.9	52.6
Marital Status			
Unmarried	%	30.2	30.3
Married	%	69.8	69.7
Education			
High School or Less	%	28.6	40.8
Some College or More	%	70.6	59.2
Missing	%	0.8	
Chronic Conditions***	<i>M</i>	2.0	3.1
	<i>SD</i>	1.9	2.6
Total Household Income (logged)	<i>M</i>	10.5	10.0
	<i>SD</i>	2.6	2.4

Difference significant at \**p*<.05; \*\*<.01; \*\*\**p*<.001



Table 3.4 T-Tests of Outcome Variables at Wave 2 by Retirement Transition

Variables at Wave 2	Stayed Working		Transitioned into Retirement		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Areas of Daily Time Use					
Time Spent Sleeping	7.14	0.90	7.23	0.91	-0.73
Time Spent on Chores	1.37	1.07	1.63	1.15	-1.64
Time Spent on Leisure Activities*	2.97	1.97	3.53	2.03	-1.93
Time Spent on Physical Activities	0.80	1.29	0.77	0.74	0.18
Daily Psychological Distress					
Psychological Distress	0.13	0.20	0.14	0.22	-0.57
Daily Stressor Characteristics					
Number of Stressors	0.44	0.34	0.42	0.46	0.34
Any Stressors	0.88	0.33	0.82	0.39	1.28
Stressor Severity-Average	1.73	0.70	1.58	0.92	1.23
Risk on Daily Routine	0.83	0.71	0.73	0.67	0.96
Risk on Financial Situation	0.22	0.41	0.20	0.51	0.35
Risk on How You Feel About Yourself	0.28	0.50	0.29	0.53	-0.12
Risk on How Others Feel About You	0.22	0.36	0.22	0.40	-0.05
Risk on Your Physical Health*	0.23	0.49	0.08	0.20	2.27
Risk on Health of Someone You Care	0.49	0.72	0.39	0.61	0.85
Risk on Future Plans	0.22	0.45	0.31	0.48	-1.31

Difference significant at \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

Table 3.5 Hierarchical Multiple Regression Analyses Predicting Daily Time Use From Retirement Transition and Life Course Influences

Variable	$\Delta$ Time Spent on Daily Leisure Activities		
	$\beta$	SE	R <sup>2</sup>
Step 1			
Constant	0.26	0.74	0.04
Retirement Transition	0.19	0.35	
Age	-0.04	0.03	
Gender	-0.34	0.31	
Marital Status	-0.18	0.33	
Education	-0.24	0.32	
Chronic Conditions	0.12	0.07	
Logged Household Income	0.01	0.06	
Step 2			
Retirement Transition x Age	-0.13*	0.06	0.09
Retirement Transition x Gender	-0.35	0.63	
Retirement Transition x Marital Status	-1.22	0.71	
Retirement Transition x Education	0.73	0.65	

Note: Retirement Transition (0=Stayed Working, 1=Transitioned in Retirement); Gender (1=Women); Marital Status (1=Married); Education (1=Some College or Higher).

<sup>1</sup>Age was centered at mean of 63.

<sup>2</sup>  $\Delta$  denotes difference scores (Wave 2 - Wave 1).

Difference significant at \*p<.05, \*\*p<.01, \*\*\*p<.001.

Table 3.6 Hierarchical Multiple Regression Analyses Predicting Daily Stressor Characteristics From Retirement Transition and Life Course Influences

Variable	Number of Stressors			Average Stressor Severity			Δ Average Stressor Severity		
	β	SE	R <sup>2</sup>	β	SE	R <sup>2</sup>	β	SE	R <sup>2</sup>
Step 1									
Constant	0.26**	0.09	0.07	1.65***	0.20	0.13	0.06	0.23	0.03
Retirement Transition	0.04	0.07		-0.09	0.15		-0.20	0.18	
Age	0.00	0.01		-0.02	0.01		0.01	0.02	
Gender	0.09	0.06		0.34**	0.13		-0.04	0.15	
Marital Status	-0.01	0.07		-0.18	0.15		-0.03	0.17	
Education	0.16**	0.06		-0.01	0.14		0.12	0.16	
Chronic Conditions	-0.02	0.01		0.07*	0.03		-0.01	0.04	
Logged Household Income	0.01	0.01		0.03	0.03		0.04	0.03	
Step 2									
Retirement Transition x Age	0.03**	0.01	0.11	-0.02	0.03	0.16	0.01	0.03	0.07
Retirement Transition x Gender	-0.11	0.13		0.42	0.28		0.57	0.32	
Retirement Transition x Marital Status	-0.03	0.14		0.27	0.31		0.74*	0.36	
Retirement Transition x Education	-0.04	0.13		0.57*	0.29		0.40	0.34	

Note: Retirement Transition (0=Stayed Working, 1=Transitioned in Retirement); Gender (1=Women); Marital Status (1=Married); Education (1=Some College or Higher).

<sup>1</sup>Age was centered at mean of 63.

<sup>2</sup> Δ denotes difference scores (Wave 2 - Wave 1).

Difference significant at \*p<.05, \*\*p<.01, \*\*\*p<.001.

Table 3.7 Hierarchical Multiple Regression Analyses Predicting Daily Stressor Characteristics (Areas of Risk) From Retirement Transition and Life Course Influences

Variable	Risk Your Physical Health or Safety			Δ Risk Financial Situation		
	β	SE	R <sup>2</sup>	β	SE	R <sup>2</sup>
Step 1						
Constant	0.39***	0.11	0.07	0.25***	0.14	0.05
Retirement Transition	-0.18	0.08		0.04	0.11	
Age	0.00	0.01		-0.01	0.01	
Gender	-0.10	0.07		-0.07	0.09	
Marital Status	-0.15	0.08		-0.17	0.10	
Education	0.02	0.08		-0.03	0.10	
Chronic Conditions	0.00	0.02		0.01	0.02	
Logged Household Income	-0.01	0.02		-0.03	0.02	
Step 2						
Retirement Transition x Age	0.00	0.02	0.09	0.00	0.02	0.10
Retirement Transition x Gender	0.30*	0.16		0.09	0.19	
Retirement Transition x Marital Status	0.12	0.18		0.53**	0.21	
Retirement Transition x Education	-0.02	0.16		0.17	0.20	

Note: Retirement Transition (0=Stayed Working, 1=Transitioned in Retirement); Gender (1=Women); Marital Status (1=Married); Education (1=Some College or Higher).

<sup>1</sup>Age was centered at mean of 63.

<sup>2</sup> Δ denotes difference scores (Wave 2 - Wave 1).

Difference significant at \*p<.05, \*\*p<.01, \*\*\*p<.001.

Table 3.8 Fixed Effects Estimates for Model of the Predictors of Time Spent on Daily Household Chores

Parameters	Estimate (se)
Intercept	2.08 (0.23)***
Within-Person Stress	-0.40 (0.28)
Between-Person Stress	0.17 (0.36)
Retirement Transition	-0.10 (0.25)
Age	0.01 (0.03)
Gender	-0.43 (0.27)
Education	-0.38 (0.18)*
Marital Status	-0.35 (0.19)
Chronic Conditions	-0.03 (0.04)
Logged Total Household Income	-0.05 (0.03)
Transition x Age	0.05 (0.04)
Transition x Gender	-0.21 (0.34)
Within-Person Stress x Age	0.08 (0.04)*
Within-Person Stress x Gender	0.52 (0.36)
Within-Person Stress x Transition	0.25 (0.33)
<i>Within-Person Stress x Transition x Age</i>	<i>-0.12 (0.05)**</i>
Within-Person Stress x Transition x Gender	-0.60 (0.45)

Note: Retirement Transition (1=Transitioned into Retirement), Age (Centered at Mean of 63), Gender (1=Women), Education (1=Some College or Higher), Marital Status (1=Married).

\*p <.05; \*\*p<.01; \*\*\*p<.001.

Table 3.9 Fixed Effects Estimates for Model of the Predictors of Time Spent on Daily Physical Activities

Parameters	Estimate (se)
Intercept	0.49 (0.23)*
Within-Person Stress	-0.10 (0.19)
Between-Person Stress	-0.48 (0.36)
Retirement Transition	0.12 (0.25)
Age	0.01 (0.03)
Gender	0.50 (0.27)
Education	-0.05 (0.18)
Marital Status	-0.13 (0.19)
Chronic Conditions	0.01 (0.04)
Logged Total Household Income	-0.10 (0.03)**
Transition x Age	0.03 (0.34)
Transition x Gender	0.02 (0.03)
Within-Person Stress x Transition	0.05 (0.23)
Within-Person Stress x Age	-0.00 (0.03)
Within-Person Stress x Gender	0.49 (0.25)*
Within-Person Stress x Transition x Age	0.02 (0.03)
<i>Within-Person Stress x Transition x Gender</i>	<i>-0.74 (0.31)*</i>

Note : Retirement Transition (1=Transitioned into Retirement), Age (Centered at Mean of 63), Gender (1=Women), Education (1=Some College or Higher), Marital Status (1=Married).

\*p <.05; \*\*p<.01; \*\*\*p<.001.

Table 3.10 Fixed Effects Estimates for Model of the Predictors of Daily Psychological Distress

Parameters	Estimate (se)
Intercept	0.08 (0.04)*
Within-Person Stress	0.09 (0.04)*
Between-Person Stress	0.25 (0.06)***
Retirement Transition	0.01 (0.04)
Age	-0.00 (0.01)
Gender	0.03 (0.05)
Education	0.04 (0.03)
Marital Status	0.06 (0.03)*
Chronic Conditions	0.02 (0.01)**
Logged Total Household Income	-0.01 (0.01)
Transition x Age	-0.00 (0.01)
Transition x Gender	-0.01 (0.06)
Within-Person Stress x Transition	0.03 (0.05)
Within-Person Stress x Age	-0.01 (0.01)
Within-Person Stress x Gender	0.03 (0.05)
<i>Within-Person Stress x Transition x Age</i>	<i>0.01 (0.01) †</i>
<i>Within-Person Stress x Transition x Gender</i>	<i>-0.00 (0.07)</i>

Note : Retirement Transition (1=Transitioned into Retirement), Age (Centered at Mean of 63), Gender (1=Women), Education (1=Some College or Higher), Marital Status (1=Married).  
<sup>†</sup>p =.06; \*p <.05; \*\*p<.01; \*\*\*p<.001.

Figure 3.1 Life Course Daily Stress Model

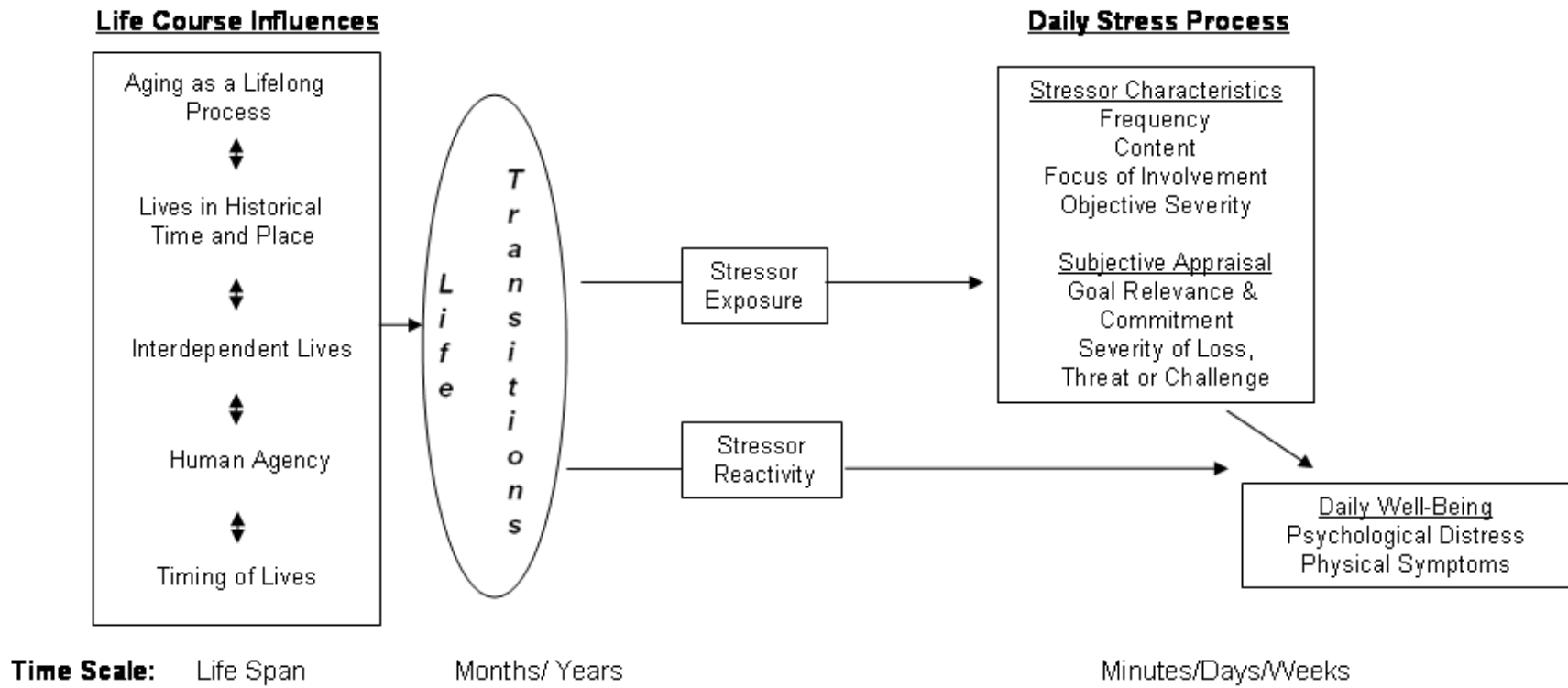




Figure 3.2 Transition and Age on Difference Scores in Time Spent on Daily Leisure Activities.

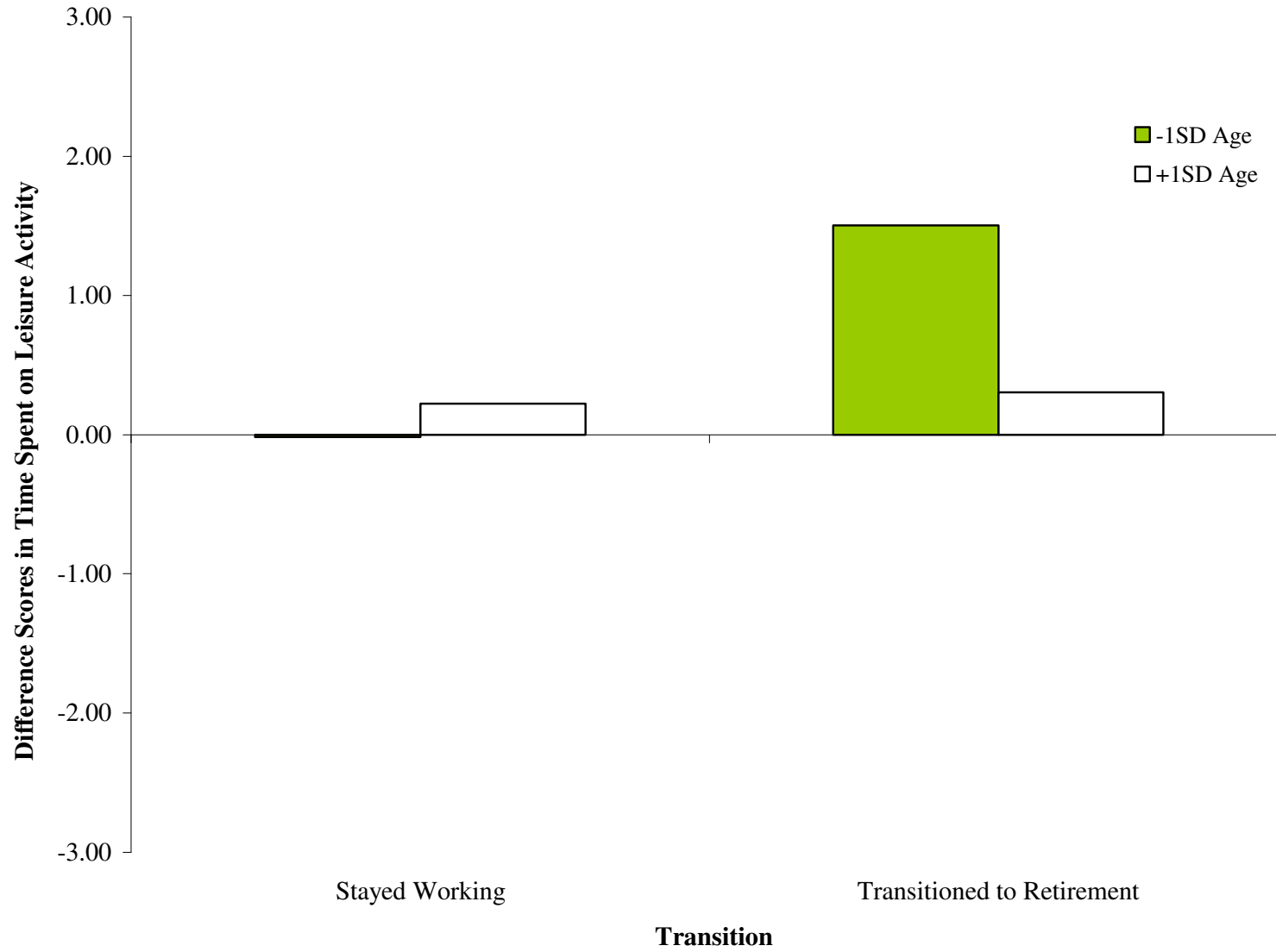


Figure 3.3 Transition and Age on Number of Stressors at Wave 2.

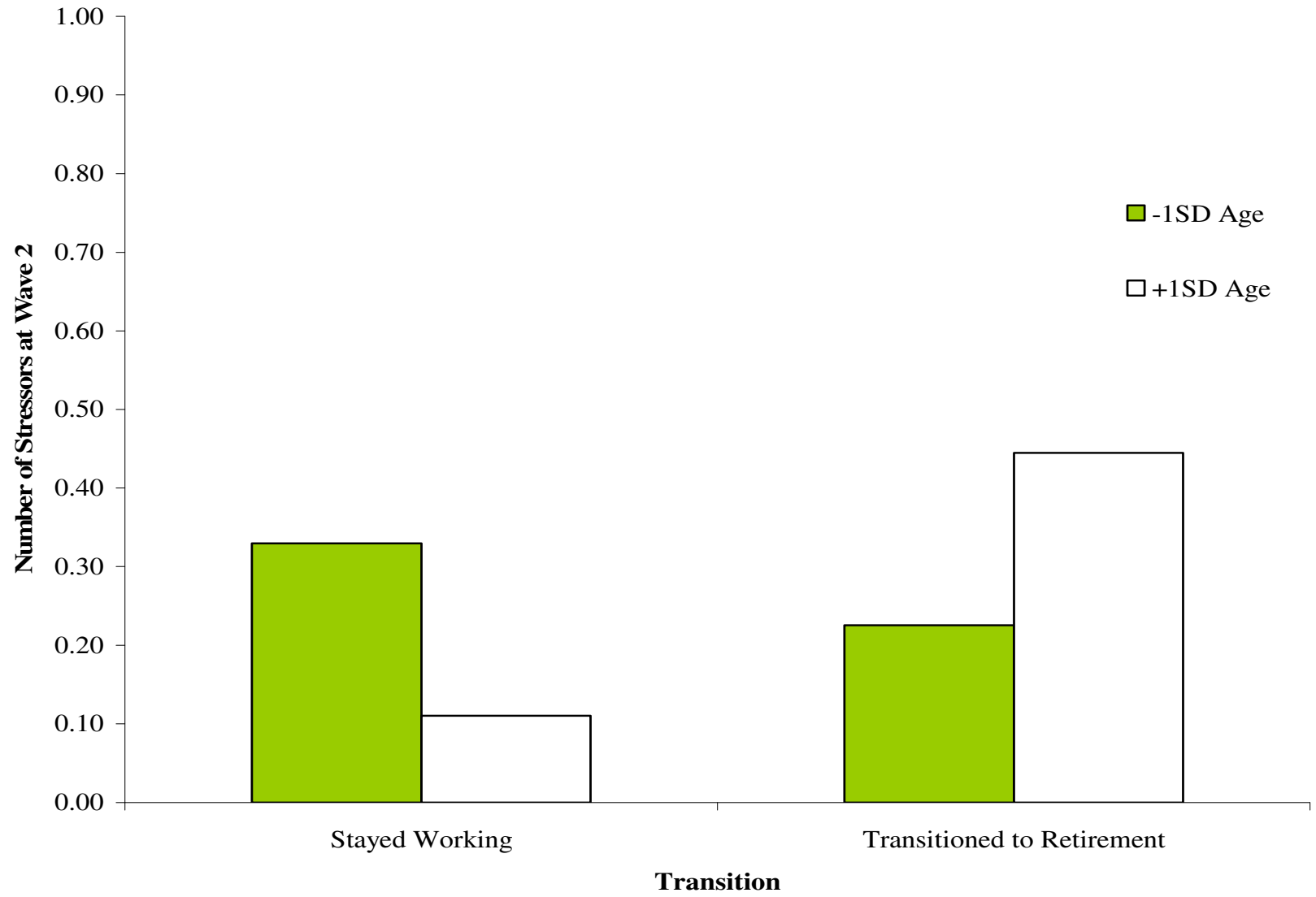


Figure 3.4 Transition and Education on Averaged Stressor Severity at Wave 2.

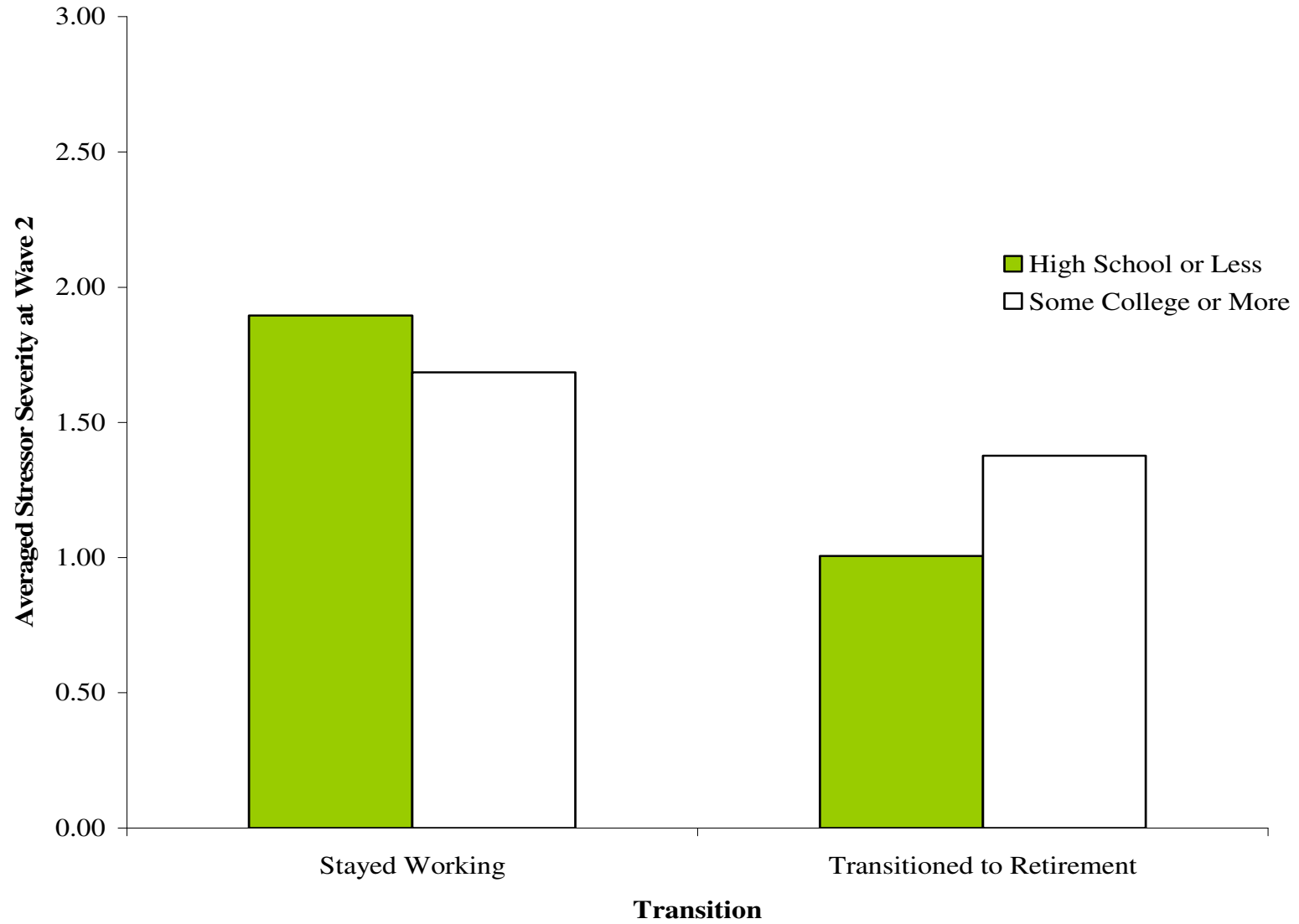


Figure 3.5 Transition and Marital Status on Difference Scores in Averaged Stressor Severity.

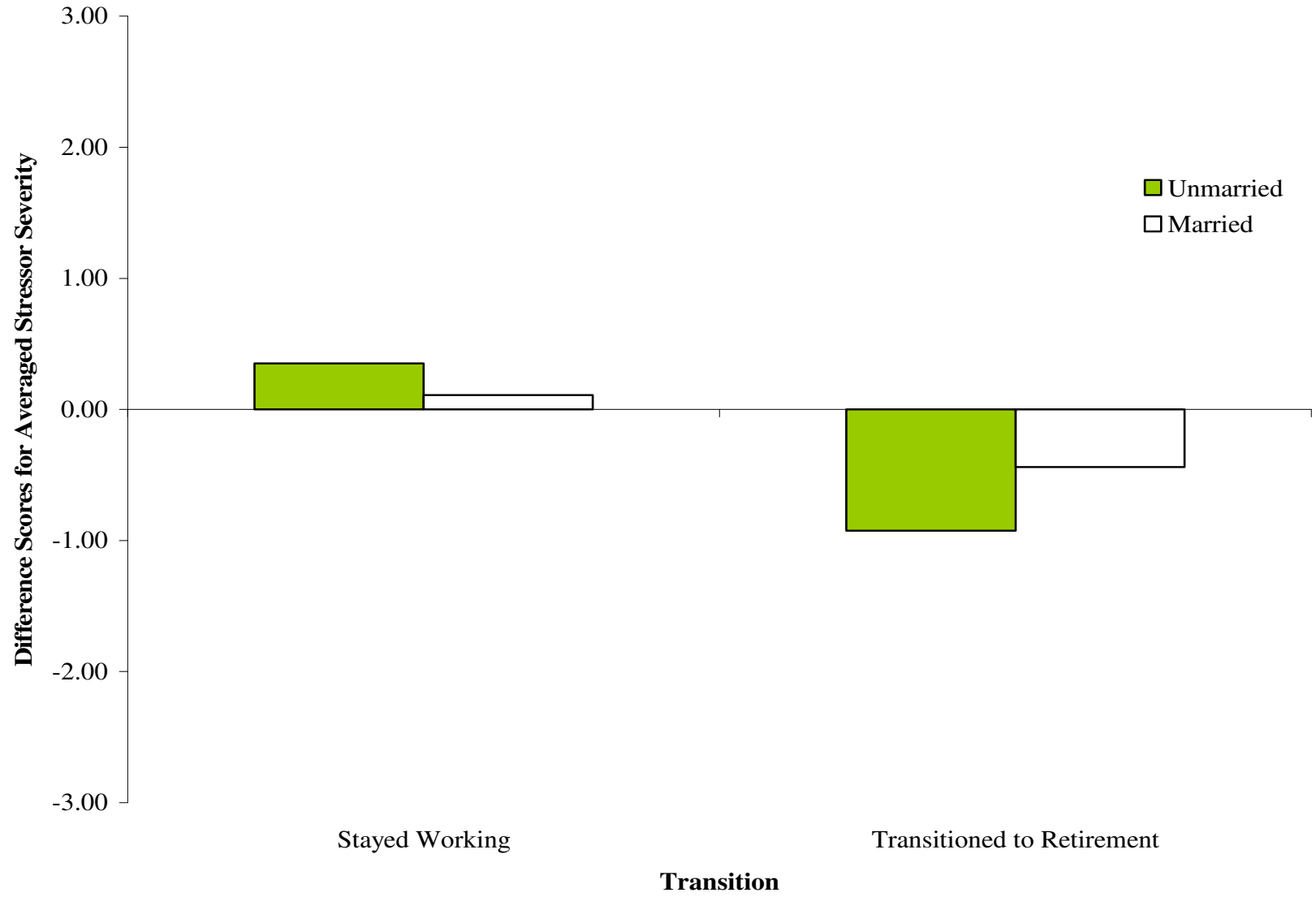


Figure 3.6 Transition and Gender on Risk of Stressors on Your Physical Health or Safety at Wave 2.

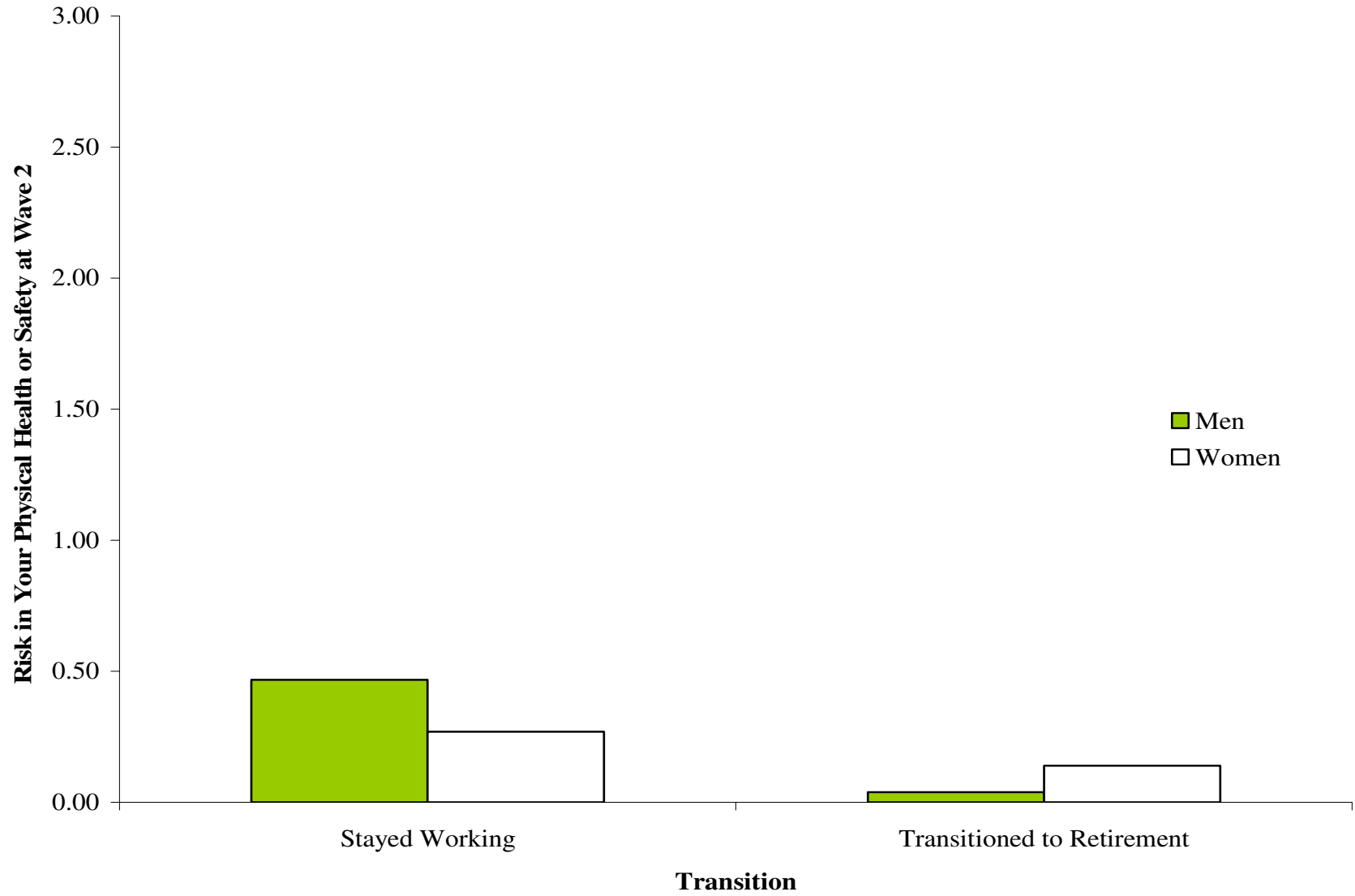


Figure 3.7 Transition and Marital Status on Difference Scores in Risk of Stressors on Financial Situation.

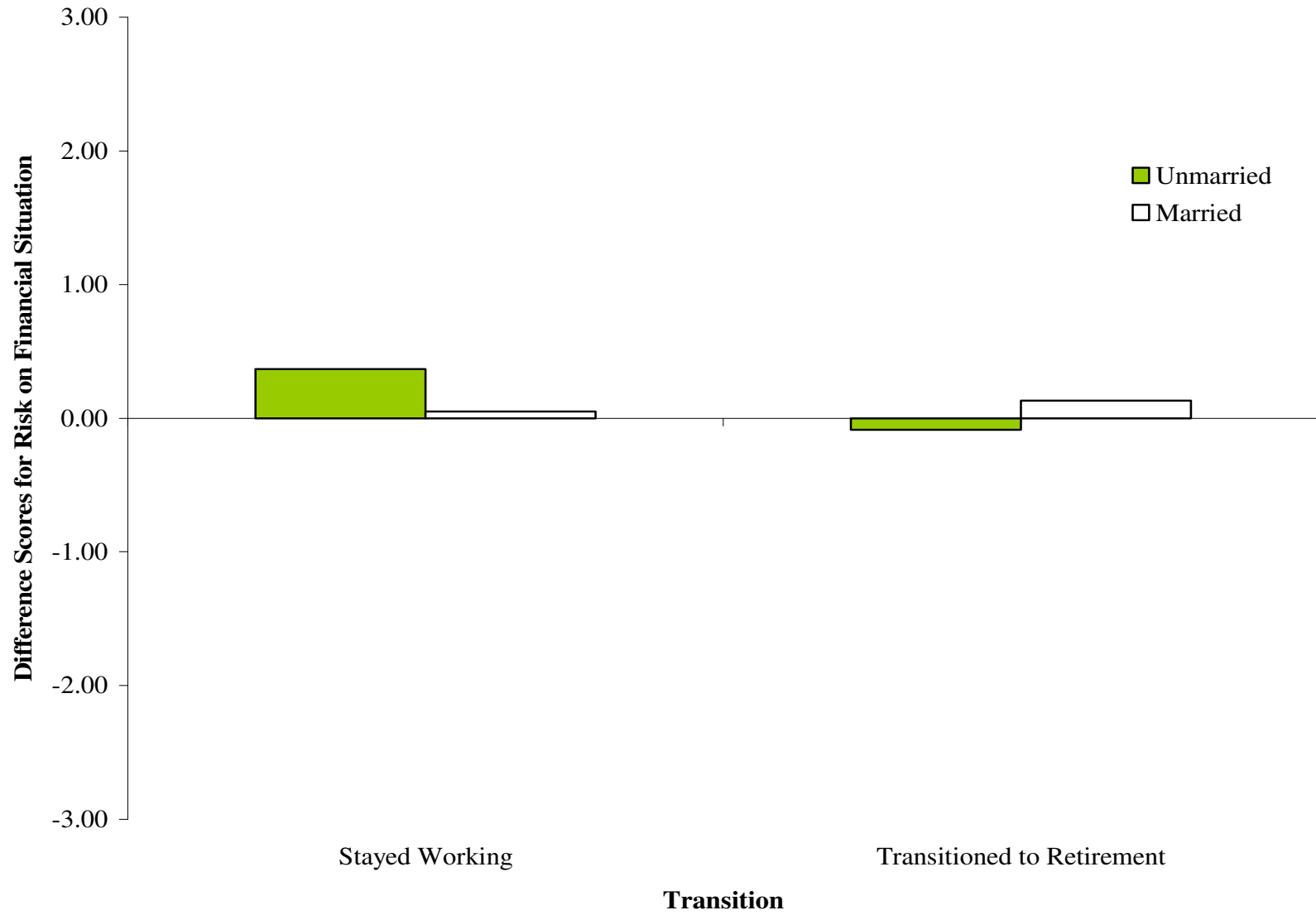


Figure 3.8 Stressor Reactivity by Retirement Transition and Age on Time Spent on Daily Household Chores.

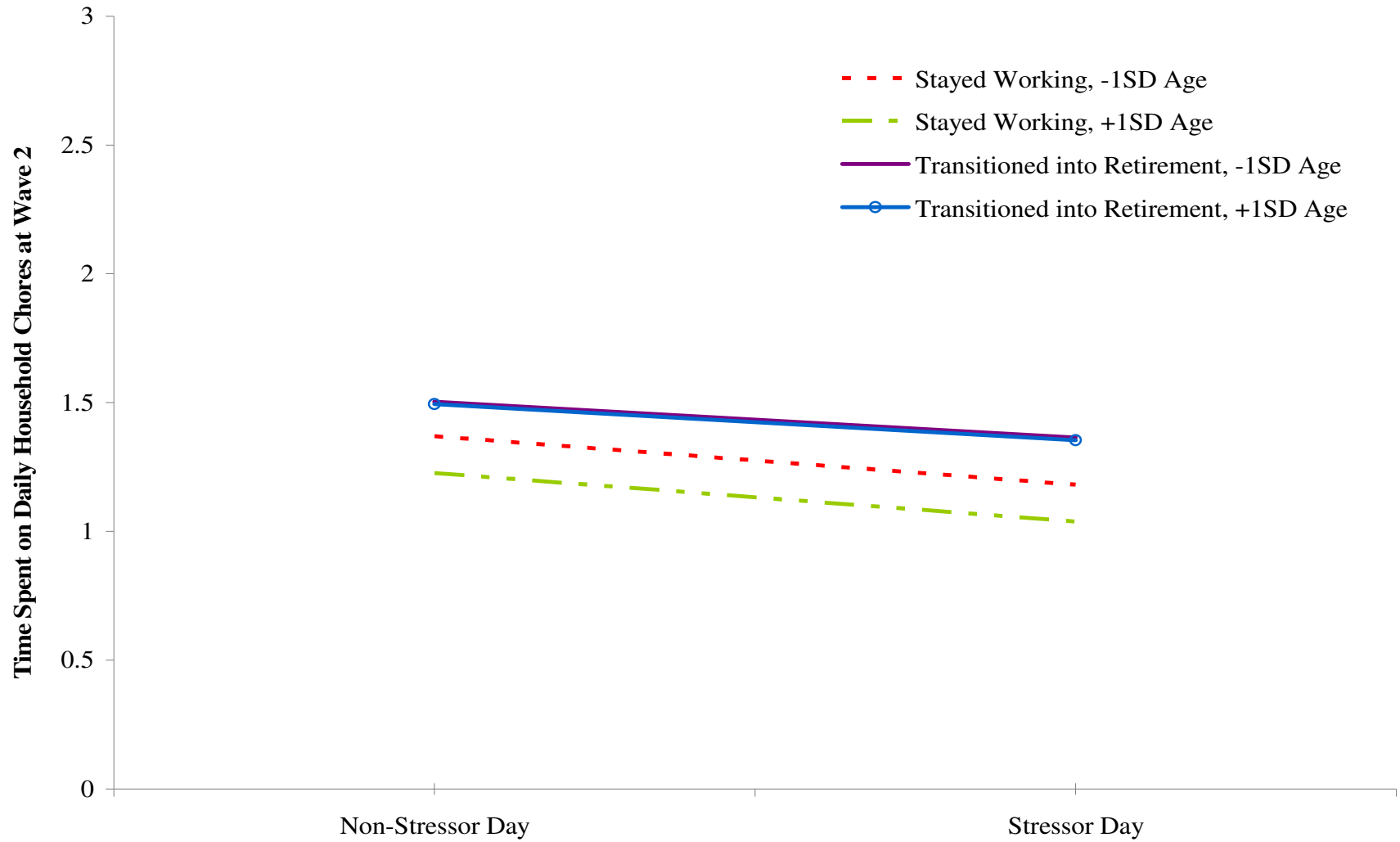


Figure 3.9 Stressor Reactivity by Retirement Transition and Gender on Time Spent on Daily Physical Activities.

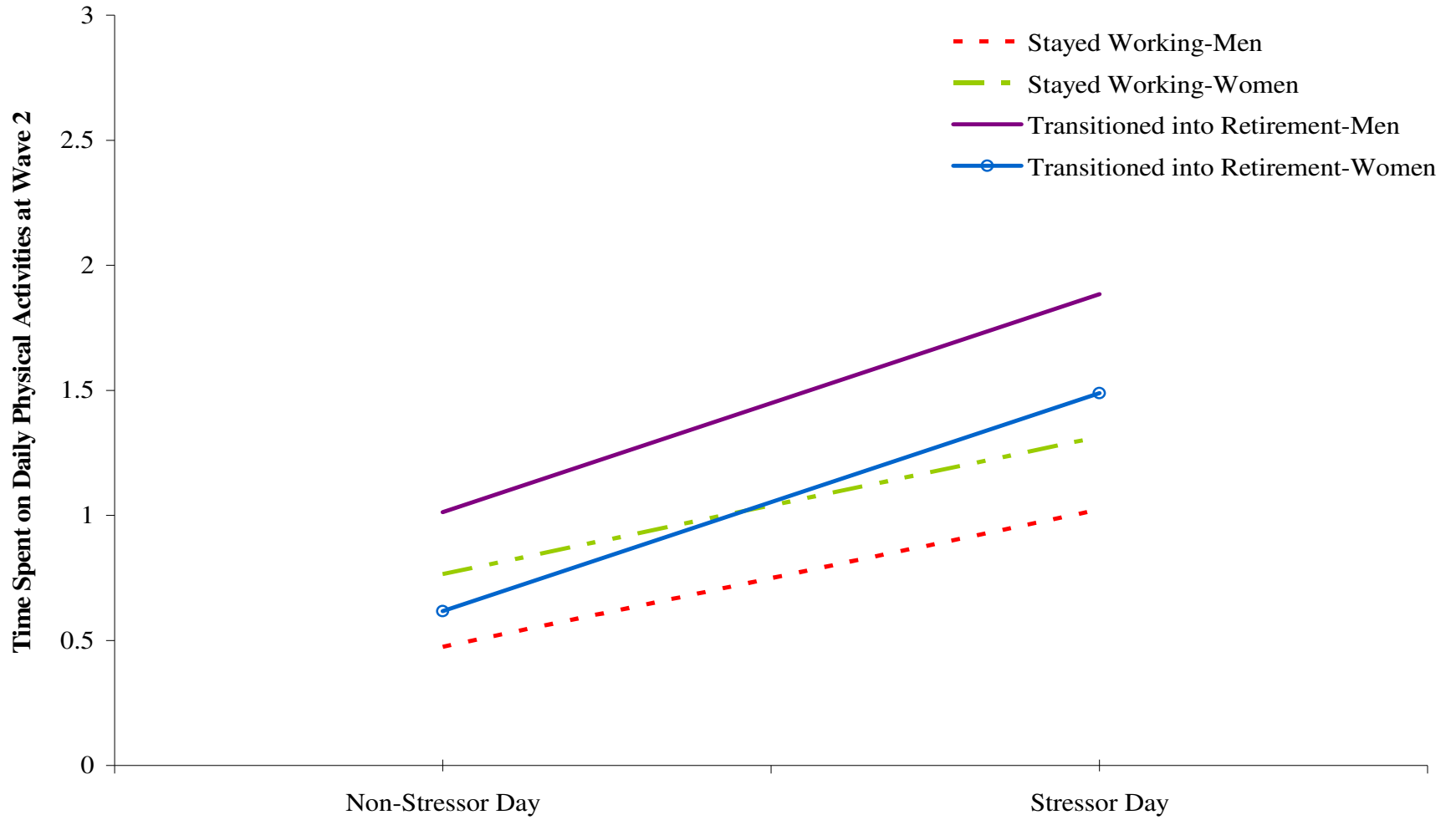
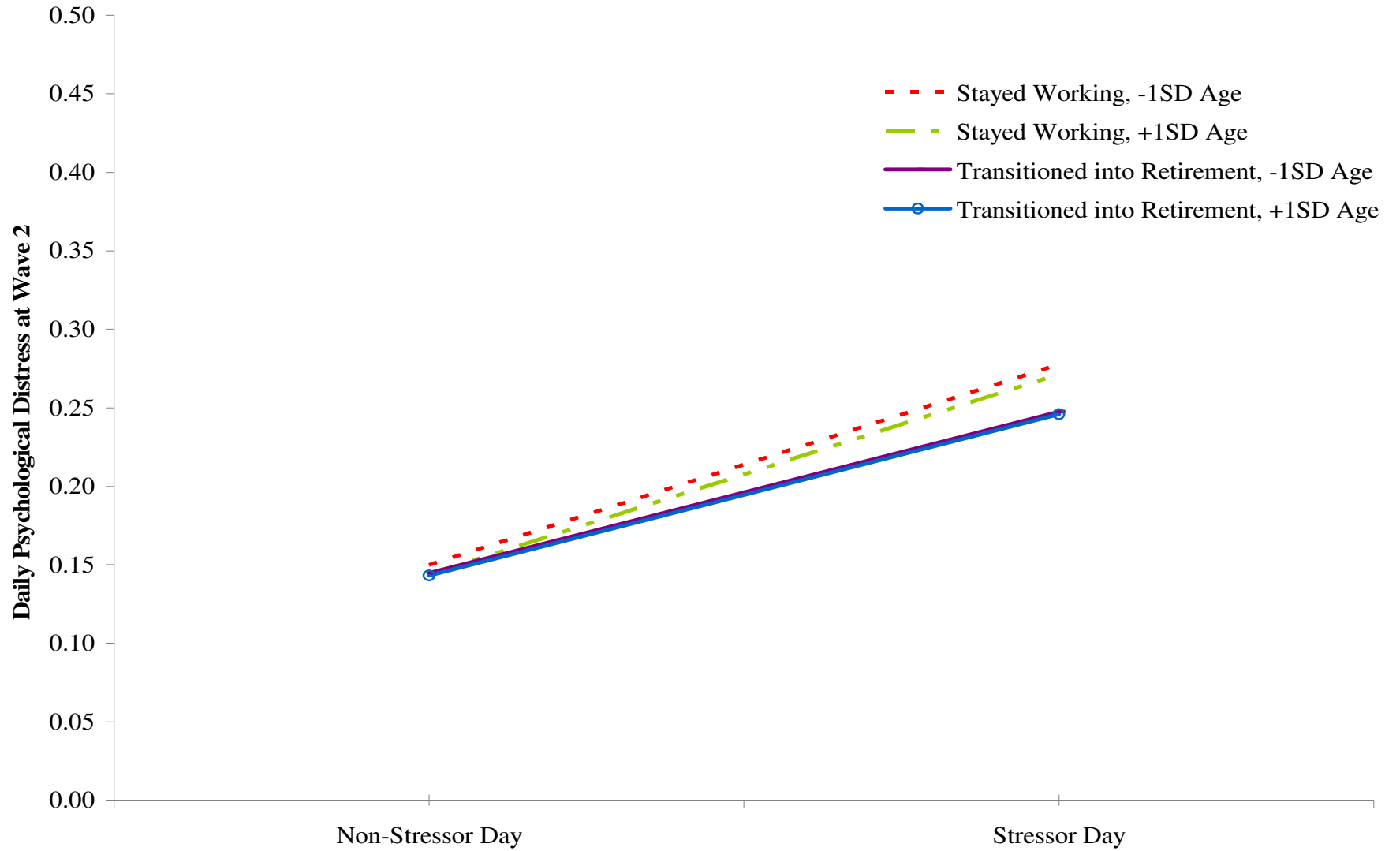




Figure 3.10 Stressor Reactivity by Retirement Transition and Age on Daily Psychological Distress.



## CHAPTER IV

### THE EFFECTS OF EMPLOYMENT STATUS ON SALIVARY CORTISOL IN MID- AND LATE-LIFE ADULTS

## Abstract

The current study explores the association between employment status (worker vs. retiree) and salivary cortisol. Data from the second wave of the National Survey of Midlife Development in the United States (MIDUS) and the National Study of Daily Experiences (NSDE) was utilized. Over eight consecutive days, participants from the NSDE completed telephone interviews about time use, psychological distress, physical symptoms, productivity, and stressors. Saliva samples were obtained at awakening, 30 minutes after awakening, before lunch, and before bed across four consecutive days. The current study consisted of 500 men and women (256 workers and 244 retirees) between ages 55 to 74. The parameters of the diurnal cortisol rhythm (cortisol awakening response and afternoon decline) were estimated with three-level multilevel models. Cortisol secretion level at each sampling occasion was estimated using two-level multilevel models. Employment status was not associated with the parameters of diurnal cortisol rhythm. In the examination of cortisol secretion level at each sampling occasion on all study days, older retirees displayed the greatest cortisol level at 30 minutes after awakening and younger retirees exhibited the lowest. On stressor days, there was an interactive effect of employment status and gender on awakening cortisol with retired men exhibiting the greatest awakening cortisol level. Additionally, an employment status and age effect was found for bedtime cortisol level on stressor days with older workers and younger retirees displaying the greatest bedtime cortisol level. This set of findings highlights the need to pay close attention to the health and well-being of older workers and younger retirees, for they appear to be at a greater risk for hypothalamic-pituitary-adrenocortical dysregulation.

## Introduction

Work stress (e.g., demands, pressure) has been associated with a number of psychological and physical illnesses, including depression and cardiovascular diseases (Kivimaki et al., 2002; Stansfeld & Candy, 2006). One pathway in which work stress affects health is through the allostatic dysregulation of the hypothalamic-pituitary-adrenocortical (HPA) axis by the way of cortisol. The effects of workplace experiences often operate through job demand, pressure, and support, which in turn, affect cortisol regulation. Lacking in the study of employment and cortisol is how the absence of work, thereby the withdrawal of work demands and pressure, is associated with cortisol regulation. Much of the literature examining the association between employment and cortisol has focused on cortisol differences between workers and unemployed individuals (e.g., Arnetz et al., 1991; Ockenfels et al., 1995) or exclusively on individuals who experienced short- or long-term unemployment (e.g., Grossi, Ahs, & Lungberg, 1998; Grossi, Perski, Lundberg, & Soares, 2001; Maier et al., 2006). Little attention has been directed toward the effect of retirement on cortisol. The purpose of this study is to examine how workers and retirees differ in their salivary cortisol.

### *Cortisol as a Marker of Health*

Cortisol is the main product of the HPA axis and is considered to be a primary marker of biological stress reactivity (Adam & Gunnar, 2001). Under conditions of threat or distress, the HPA axis activates and secretes cortisol (Dickerson & Kemeny, 2004). When activated, cortisol helps the body adapt to the environment and maintain homeostasis through various processes including the stabilization of glucose levels, cell metabolism, and inflammatory responses (Heim, Ehlert, & Hellhammer, 2000). Cortisol has been implicated in a host of psychological, physiological, and physical health functioning, such as depression, immune functioning, and

cardiovascular diseases (Bhattacharyya, Molloy, & Steptoe, 2008; Deuschle, Weber, Colla, Depner, & Heuser, 1998; McEwen et al., 1997; Rosmond & Bjorntorp, 2000).

In humans, cortisol secretion typically peaks 20 to 30 minutes after awakening (see Figure 4.1; Dallman, Bhatnagar, & Viau, 2000; Fries, E., Dettenborn, L., & Kirschbaum, 2009). In absence of external stimuli, cortisol secretion typically declines gradually throughout the remainder of the day, where it reaches the lowest point during the first few hours of sleep (Ice, Katz-Stein, Himes, & Kane, 2004). The cortisol awakening response (CAR) is a distinct part of the diurnal pattern of cortisol and is considered a reliable marker of the HPA axis (Clow, Thorn, Evans, & Hucklebridge, 2004; Hellhammer et al., 2007; Schmidt-Reinwald et al., 1999). The decline in cortisol at the end of the day has been equated to the body's way of regulating its system throughout the day and restoring its system in preparation for the challenges of the next day (Ice et al., 2004).

In healthy functioning adults, there is a distinct pattern of diurnal rhythm of cortisol, with a distinct peak in the morning and decline across the day (Price, Close, & Fielding, 1983; Van Cauter, Leproult, & Kupfer, 1996). Weak, inconsistent, or the absence of a cortisol diurnal rhythm could be signs of dysregulation in the HPA axis (Caplan, Cobb, & French, 1979; Stone et al., 2001). Cortisol levels that are too low or high can be indicators of illnesses (Caplan et al., 1979). Prolonged cortisol activation, for example, has been associated with negative biological and health outcomes such as diabetes and hypertension (McEwen, 1998). A flatter cortisol decline through the remainder of the day also has been implicated in illnesses (Matthews, Schwartz, Cohen, & Seeman, 2006).

### *Employment and Cortisol*

The vast majority of research on cortisol has focused on work stress and unemployment but with little attention paid to the effects of retirement. In their examination of work stress and cortisol activity, Caplan and colleagues (1979) found individuals who experienced high levels of work stress were more likely to display lower morning cortisol levels and less of a drop in the afternoon levels when compared to individuals who experienced low levels of work stress. Individuals who reported greater job demands also were more likely to exhibit greater CAR (Kunz-Ebrecht, Kirschbaum & Steptoe, 2004; Steptoe, Cropley, Griffith, & Kirschbaum, 2000) than those with lower job demands. The association between job demands and greater CAR, however, was less evident in higher social classes.

Time pressure, another source of work stress, has been linked to cortisol. Eller, Netterstrom, & Hansen (2006) found working women who felt high level of time pressure, as compared to working women who did not, exhibited increased awakening cortisol and elevated cortisol throughout the day. In another study, over-commitment at work positively was associated with CAR but only in men (Steptoe, Siegrist, Kirschbaum, & Marmot, 2004).

Past research on unemployment and cortisol functioning has found unemployed individuals were more likely to show a trend toward elevated morning cortisol levels and significantly lower evening levels when compared to their working counterparts (Ockenfels et al., 1995). Yet, Ockenfels and colleagues (1995) found that overall cortisol levels did not differ by employment or unemployment status. In contrast, Arnetz and colleagues (1991) reported that unemployed individuals exhibited higher overall serum cortisol levels when compared to working individuals. Focusing only on unemployed individuals, Grossi et al. (2001) found unemployed women with high financial strain exhibited significantly higher overall cortisol levels, as assessed by the sum of all four cortisol values, than women with low financial strain.

Subsequent analyses revealed that the overall difference in cortisol level was attributed to higher evening cortisol level but only for unemployed women in the high financial strain group. The researchers did not find any significant differences in overall cortisol for men. In another study examining the effects of short- and long-term unemployment, Maier et al. (2006) found an increase in serum cortisol during unemployment. Older individuals exhibited higher cortisol level at the beginning of unemployment but cortisol level stabilized after 6 months. However, younger unemployed individuals displayed a continuous increase in cortisol. The researchers also reported that men's cortisol levels increased continuously over the study period; whereas, women's cortisol level tended to decrease after an initial rise during the first 6 months.

As important as are these studies, they only offer insights to the health of working individuals and those who experienced short- or long-term unemployment. Less is known about the effects of retirement on salivary cortisol. Unlike retirement, which has been linked to both positive and negative mental and health outcomes (e.g., Buxton, Singleton, & Melzer, 2005; Drentea, 2002; Midanik, Soghikian, Ransom, & Tekawa, 1995), the effects of short- and long-term unemployment are predominately negative. Short- and long-term unemployment has been associated with adverse mental and physical health outcomes, including depression, greater psychosomatic symptoms, and higher psychophysiological stress reactions (e.g., Arnetz et al., 1991; Brown et al., 2003; Maier et al., 2006; van-Heeringen & Vanderplasschen, 1999). In contrast to employment and short- and long-term unemployment, retirement may offer individuals opportunities to be relieved of the stressors associated with paid work; thereby, leading to healthy HPA regulation. At the same time, changes in role status may lead to a recalibration of one's daily lives and result in some degree of stress (George, 1993). The present

study contributes to this literature by exploring how employment status, specifically the comparison of workers and retirees, is associated with salivary cortisol.

*Life Course Daily Stress Perspective (LCDS)*

The effects of employment on health and well-being are influenced by both characteristics of the individuals and the context in which they reside. Much of the employment, specifically retirement, literature has elected a life course perspective (Elder, Johnson, & Crosnoe, 2003), which focuses on development as a lifelong process, human agency, timing of transitions, linked lives, and historical context. Yet, the life course perspective does not account for the role that day-to-day stressors play in health and emotional adjustment (Zautra, 2003). In contrast, the stress literature does not pay adequate attention to the importance of social structures, timing, and context in the study of transitions (George, 1993). This study utilizes the Life Course Daily Stress perspective (LCDS; Almeida & Wong, 2009), which integrates the life course framework with the daily stress literature.

Highlighted in the LCDS perspective (see Figure 4.2) is the importance of life transitions on the daily stress processes. Life transitions, such as retirement, typically occur over longer periods than daily stress processes. However, life transitions affect daily well-being by increasing exposure and reactivity to daily stressors. Exposure is the likelihood that an individual will experience a daily stressor, whereas, reactivity is how an individual experience daily stressors. According to this perspective, the likelihood that an individual will experience stressors often is based on life course influences (Pearlin, 1999; Wheaton, 1999). Reactivity to stressors, however, is likely to differ across people and situations due in part to the resources of the individual (Almeida et al., 2003). In the study of employment and cortisol, there are important socio-demographic factors that may increase cortisol reactivity.



## *Life Course Influences and Cortisol*

### *Age and Cortisol*

In the examination of cortisol, there has been a fair amount of research exploring the associations between age and cortisol. However, the findings have been mixed, and the relationship between age and cortisol remains unclear. Whereas some researchers found no associations between age and CAR (e.g., Pruessner et al., 1997; Wust et al., 2000), others documented an age-related increase in CAR (e.g., Kudielka & Kirschbaum, 2003). Even when researchers moved from the examination of the diurnal cortisol rhythm (e.g., CAR) to cortisol secretion levels across the day, the findings remained mixed. Several studies, for example, have found cortisol levels to be higher in older adults than younger adults (e.g., Deuschle et al., 1997; Larsson, Gullberg, Rastam, & Lindbald, 2009; Nicolson, Storms, Ponds, & Sulon, 1997; Van Cauter et al., 1996). In contrast, other studies (e.g., Lupien et al., 1996) have shown that basal cortisol levels do not differ across age in healthy adults.

Although the mixed findings make it difficult to assert the direction of the association between age and cortisol, in this paper it is hypothesized that older workers will exhibit the greatest or most sustained CAR than their counterparts. Older workers are expected to display the greatest CAR due in part to being older (e.g., Kudielka & Kirschbaum, 2003) and to exposure to work demands and strain (e.g., Steptoe et al., 2000). Additionally, being an older worker may have negative consequences due to violation of norms and expectations associated with social roles. In accordance with the LCDS perspective, social roles that are off-time may be particularly stressful and may lead to distress in other areas of one's life (George, 1993; Pearlin et al., 2005). Therefore, cortisol decline throughout the day is expected to be the highest (less steep) for older workers than their counterparts due to older adults having higher evening cortisol (Raff et al.,

1999) and greater opportunities for work stress. As for cortisol secretion levels at each sampling occasion, similar predictions are expected. Age is predicted to moderate the associations between employment status and cortisol levels at awakening, 30 minutes after awakening, and bedtime. Specifically, older workers are expected to exhibit the greatest cortisol levels at awakening, 30 minutes after awakening, and bedtime. In this study, it is also predicted that younger retirees will exhibit a cortisol pattern similar to older workers. This expectation is based on the literature documenting the negative psychological outcomes associated with early retirement (e.g., Buxton et al., 2005; Butterworth et al., 2006).

### *Gender and Cortisol*

It is important to consider gender in the study of employment and well-being (Blau, 1998; Honig, 1998; Pienta & Hayward, 2002). Although the literature on gender and cortisol has been mixed, researchers have reported that women are more likely to exhibit greater or more sustained CAR than men (e.g., Almeida, Piazza, & Stawski, 2009; Kunz-Ebrecht et al., 2004; Pruessner et al., 1997; Pruessner, Hellhammer, & Kirschbaum, 1999). The greater CAR response observed in women could be attributed to differences in social roles as well as in how men and women view the challenges of the upcoming day (see Almeida, Piazza, & Stawski, 2009). Researchers (Otte et al., 2005) also found that there was a greater age-related increase in cortisol response following laboratory psychosocial challenges in women than men. In contrast, some studies suggest that cortisol release to be greater for men than women (Kirschbaum, Wust, & Hellhammer, 1992; Lundberg, 1983). Other studies, however, have reported no association between gender and cortisol (e.g., Edwards, Evans, Hucklebridge, & Clow, 2001; Krieger, Allen, Rizzo, & Krieger, 1971; Kudielka & Kirschbaum, 2003; Schoeneshoefer & Wagner, 1977). The

inconsistent findings in the study of gender and cortisol could be attributed to differences in measurement of cortisol, sample size, and selection issues.

In this study, gender is expected to moderate the association between employment status and cortisol. In accordance with past research demonstrating women to be more likely to exhibit greater or more sustained CAR (e.g., Kunz-Ebrecht et al., 2004; Pruessner et al., 1997; Pruessner et al., 1999), it is expected that women, especially those who are employed are predicted to exhibit the greatest or most sustained CAR than working or retired men. In predicting that working women will exhibit the greatest or most sustained CAR, it is also expected that working women, perhaps due to occupying more number of qualitatively different social roles than men (Almeida & Kessler, 1998) and exposure to work stressors (e.g., work demands), will display the most elevated cortisol across the day. It is also predicted that retired women will exhibit higher CAR than men. No gender and cortisol decline across the day is expected (e.g., Steptoe et al., 2000). As for cortisol secretion levels at the four sampling occasions, it is predicted that there will be an interactive effect of gender and employment for cortisol level at awakening and 30 minutes after awakening. In line with the predictions for employment status and gender on diurnal cortisol rhythm (e.g., CAR), working women will display the greatest cortisol secretion level at awakening and 30 minutes after awakening. No difference is expected for gender and cortisol level at lunchtime or bedtime.

The literature on retirement and well-being typically has documented the transition into retirement to be psychologically and financially more challenging for women than for men (e.g., Quick & Moen, 1998; Slevin & Wingrove, 1995). Because of the disadvantageous (e.g., less continuous employment history) that women face in retirement, it is probable that being a women and retired will place these individuals at a greater vulnerability for negative health

functioning. In this study, it is expected that retired women will exhibit a cortisol pattern similar to those of working women.

### *Stressors and Cortisol*

The HPA axis is a highly stress-sensitive system. In both animal and human studies, findings have shown that both acute and chronic stress alter the HPA axis (McEwen, 1998). Stressors represent challenges and demands that trigger a response from the HPA axis to fight or flight. Cortisol, one of the main products of the HPA axis, has been linked to psychosocial stressors (e.g., Kirschbaum et al., 1992; Smyth et al., 1998). Until recent years, much of the literature examining stressor exposure and cortisol response has relied on laboratory stressors (see Dickerson & Kemeny, 2004). In general, cortisol increases in response to laboratory stressors (Kirschbaum & Hellhammer, 1994; Kirschbaum et al., 1995) and daily hassles (Smyth et al., 1998). In the examination of stressors and CAR, researchers have demonstrated an association between perceived stress and elevated CAR (Schulz, Kirschbaum, Prussner, & Hellhammer, 1998; Steptoe et al., 2000). Similarly, cortisol remained elevated throughout the day in the presence of work-related time pressure (Eller, Netterstrom, & Hansen, 2006).

The current study extends this area of literature by examining the effect of work and retirement on salivary cortisol and whether this effect is greater on days individuals experience a stressor. It is expected that the predictions specified above for employment status and age as well as employment status and gender will be greater on stressor days.

### *Study Goals*

Much of the cortisol literature has focused on workers or unemployed individuals, and less attention has been directed towards cortisol differences between workers and retirees. The first aim of this study examines how employment status (worker vs. retiree) is associated with

the diurnal cortisol rhythm parameters (CAR and afternoon decline) and cortisol secretion level at each of the four collection occasions (awakening, 30 minutes after awakening, before lunch, and before bed). The second aim explores how life course influences (e.g., age, gender) moderate the association between employment status and diurnal cortisol rhythm and cortisol secretion levels. Finally, this study assesses whether the effect of work and retirement on salivary cortisol is greater on days individuals experienced a stressor.

## Method

### *Sample and Procedure*

Data from the second wave of the National Study of Daily Experiences (NSDE), which is the daily diary portion of the National Survey of Midlife in the United States (MIDUS), was utilized. The MIDUS is a national probability sample of English speaking, non-institutionalized adults. The second wave of NSDE (data collection spanned from April 2004 to 2009) is comprised of 2,022 participants (1141 random digit dialed respondents, 516 twins, 185 siblings, and 180 Milwaukee) between 33 to 84 years of age. The National Study of Daily Experiences (NSDE) dataset has two types of biological dependency in the data – those existing among main sample respondents and their siblings, and those existing among twins. Because of these biological dependencies in the dataset, assumptions of independence of observations or scores are violated in analyses using all respondents. Using information from “Guidelines for Dealing with Dependencies in MIDUS Data (5/7/09).doc” and the proposed guides from NSDE, a non-dependent dataset was constructed. Details on the procedures for dealing with dependencies in the NSDE Wave 2 data are found in the “NSDE Wave 2: Non-Dependent Data Construction.pdf”. From the 2022 respondents, there were 1509 unrelated respondents in NSDE Wave 2. Of the 1509 unrelated men and women, the sample is comprised of 1113 random digit

dialed respondents (RDD), 358 twins, and 38 siblings between ages 33 to 84. Respondents in the NSDE randomly were selected from the MIDUS sample and received \$45 for their participation.

Over eight consecutive days, respondents in the NSDE completed daily telephone interviews about time use, psychological distress, physical symptoms, productivity, and stressors. In the second wave of the NSDE, respondents provided four saliva samples across four consecutive days. Data was collected during separate “flights” of interview with each “flight” representing the 8-day sequence. The specific day of the week in which the session began varied across days of the week to account for potential confound between day of study and day of week.

Several criteria were used to select the sample for this study. From the sample of 1509, respondents were selected if they had valid responses for employment status ( $N=1285$ ; 85.1%). Because age has been associated with the probability to work (i.e., younger individuals more likely to work; older individuals more likely to retire), this study limited the respondents to those between 55 to 74 years of age ( $N=571$ ; 44.4% of 1285). Lastly, respondents must have participated in the saliva collection in order to be selected for this study. Among the 571 respondents, 71 were excluded because of non-participation in saliva collection (12.4% of 571). The final sample for this study was 500, with 256 workers and 244 retirees.

Presented in Table 4.1 are the sociodemographic characteristics of the respondents by employment status. In this study, retirees were more likely to be older ( $M=66.5$ ,  $SD=4.7$ ) than workers ( $M=60.7$ ,  $SD=4.9$ ). Retirees also reported more chronic health conditions ( $M=3.2$ ,  $SD=2.6$ ) than workers ( $M=2.1$ ,  $SD=1.9$ ). Workers were more likely to obtain some college or higher education (73.3%) and report greater household income ( $M=10.6$ ,  $SD=2.3$ ) than workers (63.4%,  $M=10.1$ ,  $SD=2.2$ , respectively). This sample of workers and retirees did not differ by gender or marital status.

## *Measures*

### *Predictor Variables*

*Employment status.* Employment status was based on the self-definition of employment at wave 2. Using the following question, “*What is your current employment situation?*”, respondents reported yes, no, or do not know to each of the following response options: working now, self-employed, unemployed, temporarily laid off, retired, homemaker, full-time student, and part-time student. Respondents were instructed to select all response options that applied. Do not know responses and conflicting employment status responses (e.g., working and retired, self-employed and retired) were excluded from analyses. This approach aimed for a mutually exclusive conceptualization of employment status by reducing potential murkiness in employment status.

*Age and gender at wave 2.* Age and gender were included as moderators of the association between employment and cortisol. Age was centered at the sample mean ( $M=63.5$ ,  $SD=5.6$ ). Of the 500 respondents, 233 (46.6%) were men and 267 (53.4%) were women.

*Daily Stressors.* Daily stressors were assessed through a semi-structured Daily Inventory of Stressful Events (DISE; Almeida, Wethington, & Kessler, 2002). The DISE is consisted of a series of seven stem questions for identifying whether certain types of daily stressor had occurred in past 24 hours. Respondents reported yes or no to the following questions: 1) Did you have an argument or disagreement?, 2) Did anything happen that you could argued about but you decided to let pass in order to avoid a disagreement?, 3) Did anything happen at work or school (other than what you already have mentioned) that most people would consider stressful?, 4) Did anything happen at home (other than what you already have mentioned) that most people would consider stressful?, 5) Many people experience discrimination on the basis of such things as race,

sex, or age. Did anything like this happen to you?, 6) Did anything happen to a close friend or relative (other than what you already have mentioned) that turned out to be stressful for you?, and 7) Did anything else happen to you that people would consider stressful?. Respondents reported at least one stressor on 35.0 % of the study days and no stressor on 64.9% of the study days.

#### *Outcome Variable*

*Salivary cortisol.* Approximately a week prior to the initial telephone interview, respondents received a home saliva collection kit. Each saliva collection kit included 16 numbered and color-coded salivettes (Sarstedt, Nümbrecht, Germany), which contained a small absorbent wad about  $\frac{3}{4}$  of an inch long, a detailed instruction sheet, and a paper-pencil sample collection time log. Respondents provided saliva samples across four consecutive days (day 2 to day 5) of the eight-day study. For each day, participants provided saliva sample at awakening, 30 minutes after awakening, before lunch, and before bed. Cortisol concentrations were quantified with a commercially available luminescence immunoassay (IBL, Hamburg, Germany), with intra-assay and inter-assay coefficient of variations below five (Dressendörfer, Kirschbaum, Rohde, Stahl, & Strasburger, 1992; Polk, Cohen, Doyle, Skoner, & Kirschbaum, 2005). Respondents were instructed to record the exact time they provided each saliva sample on the paper-pencil log that was included in the home saliva collection kit. During the nightly telephone interviews, interviewers also asked respondents for each sample collection time for that day and any problems that might have occurred.

*Measurement of salivary cortisol.* In this study, the parameters for the diurnal cortisol rhythm were CAR and afternoon decline. Assessed by the difference between cortisol at awakening and at 30 minutes after awakening, the CAR indicated how high an individual's



cortisol peaked. The afternoon decline was represented by the slope from the highest point in the day through the collection before bed. In addition to the parameters of diurnal rhythm of cortisol, this study also explored cortisol level at each of the four sampling occasion (awakening, 30 minutes after awakening, before lunch, and before bed).

*Control variables.*

*Wakeup time.* Studies have shown that wakeup time is associated with CAR (Kudielka & Kirschbaum, 2003). In the second wave of NSDE, respondents were asked what time (hour, minutes, and am/pm) did they wake up today. Wakeup time was constructed into military time. In the analyses, awakening time was partitioned into both between- and within-person effects. The between-person effect of wakeup time represents each respondent's average wakeup time across the study days. Using a person-center approach, the within-person wakeup time represents each respondent's deviation from his or her mean.

*Chronic health conditions.* Because physical illness has been shown to influence cortisol secretion (Kudielka & Kirschbaum, 2003), the number of chronic health conditions (Cleary, Zaborski, & Ayanian, 2004) experienced in the past year was included as a control. Respondents indicated whether they experienced or were treated for any of the following in the past twelve months: a) asthma, bronchitis, or emphysema, b) tuberculosis, c) other lung problems, d) arthritis, rheumatism, or other bone or joint diseases, e) sciatica, lumbago, or recurring backache, f) persistent skin trouble (e.g. eczema), g) thyroid disease, h) hay fever, i) recurring stomach trouble, indigestion, or diarrhea, j) urinary or bladder problems, k) being constipated all or most of the time, l) gall bladder trouble, m) persistent foot trouble (e.g., bunions, ingrown toenails), n) trouble with varicose veins requiring medical treatment, o) AIDS or HIV infection, p) lupus or other autoimmune disorders, q) persistent trouble with your gums or mouth, r) persistent trouble

with your teeth, s) high blood pressure or hypertension, t) anxiety, depression, or other emotional disorder, u) alcohol or drug problems, v) migraine headaches, w) chronic sleeping problems, x) diabetes or high blood sugar, y) multiple sclerosis, epilepsy, or other neurological disorders, z) stroke, aa) ulcer, bb) hernia or rupture, cc) piles or hemorrhoids, and dd) swallowing problems.

*Smoking status.* Nicotine exposure has been implicated in cortisol diurnal rhythm and levels (Kirschbaum, Wüst, & Strasburger, 1992; Steptoe & Ussher, 2006). In this study, whether respondents smoked on each study day (0=no, 1=yes) was included as a control.

*Medication use.* Studies have shown that certain types of medication may influence cortisol rhythm and levels (Aihara et al., 2007; Granger, Hibell, Fortunato, & Kapelewski, 2009; Kirschbaum, Pirke, & Hellhammer, 1995; Pruessner et al., 1999). To control for potential confound, this study included a variable that accounted for whether respondents reported taking at least one medication from the following list: over the counter or prescription allergy, steroid inhaler, other steroid medications, medications or creams containing cortisone, birth control pills, other hormonal medications, or anti-depressant or anti-anxiety medications.

## Results

### *Cortisol Samples and Sampling Times*

Table 4.2 presents the descriptive statistics of cortisol values and sampling times by employment status. In general, cortisol values at awakening, before lunch, and before bed were significantly higher for retirees than workers. In contrast, cortisol at 30 minutes after awakening significantly was higher for workers than retirees. With respect to sampling time, workers were more likely to collect their morning samples (awakening and 30 minutes after awakening) earlier than retirees. The opposite pattern was observed for the afternoon and evening samples with retirees collecting their lunch and bed samples earlier than workers.

## Analyses

### Modeling Diurnal Cortisol Rhythm (CAR and Afternoon Decline)

A three-level piece-wise (spline) multilevel model was used to estimate the parameters of the diurnal cortisol rhythm (CAR and afternoon decline). The model, as presented in Figure 4.1, allowed for estimation of variations in the CAR and afternoon decline.

Level 1: (4a)

$$\text{Cortisol}_{odi} = \beta_{0di} + \beta_{1di}\text{MR}_{1odi} + \beta_{2di}\text{AD}_{1odi} + e_{odi}$$

Level 2: (4b)

$$\beta_{0di} = \delta_{00i} + \delta_{01i}(\text{WakeupTime}_{di} - \text{MeanWakeupTime}_i) + \mu_{0di}$$

$$\beta_{1di} = \delta_{10i} + \delta_{11i}(\text{WakeupTime}_{di} - \text{MeanWakeupTime}_i) + \mu_{1di}$$

$$\beta_{2di} = \delta_{20i} + \delta_{21i}(\text{WakeupTime}_{di} - \text{MeanWakeupTime}_i) + \mu_{2di}$$

Level 3: (4c)

$$\delta_{00i} = \gamma_{000} + \gamma_{001}(\text{MeanWakeup Time}_i) + \gamma_{002}(\text{Employment}_i) + \gamma_{003}(\text{Age}_i) + \gamma_{004}(\text{Gender}_i) + \gamma_{005}(\text{Employment} \times \text{Age}_i) + \gamma_{006}(\text{Employment} \times \text{Gender}_i) + v_{00i}$$

$$\delta_{10i} = \gamma_{100} + \gamma_{101}(\text{MeanWakeup Time}_i) + \gamma_{102}(\text{Employment}_i) + \gamma_{103}(\text{Age}_i) + \gamma_{104}(\text{Gender}_i) + \gamma_{105}(\text{Employment} \times \text{Age}_i) + \gamma_{106}(\text{Employment} \times \text{Gender}_i) + v_{10i}$$

$$\delta_{20i} = \gamma_{200} + \gamma_{201}(\text{MeanWakeup Time}_i) + \gamma_{202}(\text{Employment}_i) + \gamma_{203}(\text{Age}_i) + \gamma_{204}(\text{Gender}_i) + \gamma_{205}(\text{Employment} \times \text{Age}_i) + \gamma_{206}(\text{Employment} \times \text{Gender}_i) + v_{20i}$$

In this model, occasions (Level 1) were nested within days (Level 2), which were nested within persons (Level 3) (Snijders & Bosker, 1999). At Level 1 (see Equation 4a), cortisol level at occasion  $o$ , on day  $d$ , for person  $i$ , is a function of an intercept ( $\beta_{0di}$ ), slope for CAR ( $\beta_{1di}$ ), slope for Afternoon Decline ( $\beta_{2di}$ ), and a residual variance term ( $e_{odi}$ ). The Level 1 intercept and slope parameters become the outcomes for Level 2 (see Equation 4b). At Level 2, the person's

intercept, CAR, and afternoon decline parameters are a function of each person's average intercept ( $\delta_{00i}$ ), slope ( $\delta_{10i}$ ,  $\delta_{20i}$ ), and within-person variance components ( $\mu_{0di}$ ,  $\mu_{1di}$ ,  $\mu_{2di}$ ) across the four days. Finally, Level 2 intercept and slope parameters become the outcomes for level 3 (see Equation 4c) with each person's average intercept, CAR slope, and afternoon decline slope across the day as a function of the sample average intercept ( $\gamma_{000}$ ), slopes ( $\gamma_{100}$ ,  $\gamma_{200}$ ), and between-person error terms ( $v_{00i}$ ,  $v_{10i}$ ,  $v_{20i}$ ). Between-persons predictors are included at this level. For simplicity, control variables (e.g., smoking status, medication use) are not presented in the equations.

#### *Modeling Cortisol at Each Sampling Occasion*

To examine cortisol level at each of the four sampling occasion (awakening, 30 after awakening, before lunch, and before bed), a two-level multilevel model, where days were nested within persons was utilized (Snijders & Bosker, 1999). The Level 1 and Level 2 models are presented below. For the ease of the reader, control variables are not presented in the equations below.

Level 1: (4d)

$$\text{Awakening Cortisol}_{di} = \beta_{0i} + \beta_{1i} (\text{WakeupTime}_{di} - \text{MeanWakeupTime}_i) + e_{di}$$

Level 2: (4e)

$$\beta_{0i} = \gamma_{00} + \gamma_{01} (\text{MeanWakeupTime}_i) + \gamma_{02} (\text{Employment}_i) + \gamma_{03} (\text{Age}_i) + \gamma_{04} (\text{Gender}_i) + \gamma_{05} (\text{Employment} \times \text{Age}_i) + \gamma_{06} (\text{Employment} \times \text{Gender}_i) + \mu_{0i}$$

$$\beta_{1i} = \gamma_{10}$$

Combined Equation: (4f)

$$\begin{aligned} \text{Awakening Cortisol}_{di} = & \gamma_{00} + \gamma_{01} (\text{MeanWakeupTime}_i) + \gamma_{02} (\text{Employment}_i) + \gamma_{03} \\ & (\text{Age}_i) + \gamma_{04} (\text{Gender}_i) + \gamma_{05} (\text{Employment} \times \text{Age}_i) + \gamma_{06} (\text{Employment} \times \text{Gender}_i) + \\ & \gamma_{10} (\text{WakeupTime}_{di} - \text{MeanWakeupTime}_i) + \mu_{0i} + e_{di} \end{aligned}$$

At Level 1 (see Equation 4d), the outcome (e.g., awakening cortisol<sub>di</sub>), is the amount of awakening cortisol on day *d* for person *i*. Awakening cortisol is a function of an intercept ( $\beta_{0i}$ ), which denotes the person's awakening cortisol level for that day; a person mean-centered effect of wake-up time ( $\beta_{1i}$ ), which reflects the change in awakening cortisol for each hour a person woke up earlier or later than usual; and a within-person error or residual variance term ( $e_{di}$ ). The intercept and slope of the Level 1 within-person model become the outcomes for the Level 2 between-person equations (see Equation 4e). At Level 2,  $\beta_{0i}$ , is a function of the between-person intercept ( $\gamma_{00}$ ), the effect of the between-persons variables of wake-up time ( $\gamma_{01}$ ), employment status ( $\gamma_{02}$ ), age ( $\gamma_{03}$ ), gender ( $\gamma_{04}$ ), the interactive effect of employment and age ( $\gamma_{05}$ ) as well as employment and gender ( $\gamma_{06}$ ), and the between-persons error term ( $\mu_{0i}$ ). The within-persons slope,  $\beta_{1i}$ , is a function of the mean slope between persons or the sample average within-person effect of wake-up time ( $\gamma_{10}$ ). The within- and between-person equations can be combined into a single equation (see Equation 4f). Using SAS Proc Mixed, all models were estimated with unstructured variance-covariance matrices.

#### *Employment Status and Diurnal Cortisol Rhythm (CAR and Afternoon Decline)*

The first set of analyses focused on the effect of work and retirement on the diurnal cortisol rhythm. Although employment status significantly was associated with variations in the CAR when the control variables of medication usage, smoking, and chronic conditions were included, the significant effect of employment status on CAR diminished to non significance after wakeup times were included into the model. No significant effect of employment status on

afternoon decline was found. Subsequent analyses also explored whether age and gender moderated the association between employment status and diurnal cortisol rhythm, however, findings were not significant. Further analyses revealed that employment status and the diurnal cortisol rhythm parameters did not differ on days when respondents reported a stressor.

#### *Employment Status and Cortisol Levels at Sampling Occasions*

Using two-level multilevel models, the second set of analyses examined the effect of employment status on cortisol level at each of the four occasions (awakening, 30 minutes after awakening, before lunch, and before bed). Two sets of analyses were carried out. First, the associations between employment status and cortisol level at each of the four occasions were explored on all days of the study (both non-stressor and stressor days). Second, the associations between employment status and cortisol level at each of the four occasions were assessed on stressor days only. Results are presented below.

#### *Employment Status and Cortisol Levels at Sampling Occasions on All Study Days*

When the associations between employment status and cortisol levels at sampling occasions on all study day were examined, the only significant finding was for cortisol level at 30 minutes after awakening. After accounting for between-person wake up time, within-person wake up time, chronic health conditions, smoking status, and medication use, results (see Table 4.3) showed an interactive effect of employment status and age on cortisol level at 30 minutes after awakening. As presented in Figure 4.3, older retirees exhibited the highest cortisol level at 30 minutes post awakening in comparison to their counterparts. Older workers, as well as younger retirees, displayed the lowest cortisol level at 30 minutes after awakening.

#### *Employment Status and Cortisol Levels at Sampling Occasions on Stressor Days*

Next, this study explored the associations between employment status and cortisol levels at sampling occasions on stressor days. Results from the multilevel model (see Table 4.4) showed an interactive effect of employment status and gender on cortisol level at awakening on stressor days. As presented in Figure 4.4, retired men exhibited the greatest cortisol level at awakening on days when they reported at least one daily stressor when compared to their counterparts. Among the retirees, there was a greater awakening response for men than for women on stressor days. In contrast, working men and women did not differ significantly in their awakening cortisol levels on stressor days.

In this study, there also was a significant effect of employment status on cortisol level before bed on stressor days (see Table 4.4). As graphically depicted in Figure 4.5, cortisol level at bedtime was significantly higher for older workers and younger retirees on stressor days than their counterparts (younger workers and older retirees).

## Discussion

Much of the research examining employment and cortisol has focused on differences between working and unemployed individuals. Less attention has been directed toward examining how workers and retirees differ in their salivary cortisol. The current study extends this literature by exploring how work and retirement are associated with diurnal cortisol rhythm and cortisol levels throughout the day (awakening, 30 minutes after awakening, before lunch, and before bed).

In the examination of employment status and cortisol level at each sampling occasion on all study days, the only significant finding was for cortisol level at 30 minutes after awakening. Consistent with the LCDS perspective of the importance of timing in understanding how changes in role status may affect individuals differently depending on when they occur in the life course

(Wheaton, 1990), findings revealed the importance of timing in the association between employment status and cortisol level at 30 minutes after awakening. In this study, it was predicted that older workers would exhibit the most elevated cortisol level at 30 minutes after awakening due in part to the combination of being older/off-time (e.g., Kudielka & Kirschbaum, 2003) and greater exposure to work demands (e.g., Steptoe et al., 2000; Wust, Federenko, Hellhammer, & Kirschbaum, 2000). Contrary to expectation, findings showed younger workers and older retirees exhibited the greatest level of cortisol secretion at 30 minutes after awakening. Instead, older workers and younger retirees displayed the lowest cortisol level at 30 minutes after awakening. The findings point to several considerations. First, cortisol level at 30 minutes after awakening is a marker of the HPA axis and an indicator of the body's ability to mobilize energy to handle the tasks of the day (Clow et al., 2004; Hellhammer et al., 2007). This set of findings indicates that older workers and younger retirees may be less able to prepare its body to handle the day-to-day demands in their lives. Rather than an exacerbated HPA reactivity at 30 minutes after awakening, older workers and younger retirees displayed a blunted cortisol response, which often is found in individuals experiencing chronic burnout or health problems (Caplan et al., 1979; Heim et al., 2000; Huber, Issa, Schik, & Wolf, 2006; Pruessner et al., 1999). This set of findings reinforces the LCDS perspective that suggests off-time changes in role status may lead to disruptions as well as distress in other areas of one's life (George, 1993). Especially for older workers and younger retirees, being off-time with respect to social role may place them in a more vulnerable position where they are more susceptible for greater HPA dysregulation.

Important to the examination of employment status and cortisol level at awakening on stressor days is the influence of gender. Gender is an important life course influence that has been linked to employment and well-being (e.g., Gall, Evans, & Howard, 1997; Kiecolt-Glaser



& Newton, 2001). Gender also may increase one's vulnerability to daily stressors (Almeida & Horn, 2004), which may have short- and long-term negative outcomes. In this study, retired men exhibited greater awakening cortisol secretion level on stressor days than their working counterparts. In particular, retired men displayed the most elevated awakening cortisol level on stressor days. This set of finding is contrary to the expectation that working women as well as retired women would display the most elevated cortisol awakening level. There are several interpretations to this finding. First, retired men's elevated cortisol awakening level could be an indicator of their greater reactivity to the daily stressors experienced, which have been documented by researchers examining men's cortisol release following psychosocial challenge tasks (e.g., Kirschbaum, Wust, & Hellhammer, 1992; Lundberg, 1983). On the other hand, it could be that working men and women are exhibiting blunted awakening response. Blunted awakening cortisol response could signify greater health problems since this response pattern has been observed in individuals experiencing chronic burnout, overloads, and health problems (e.g., Caplan et al., 1979; Heim et al., 2000). It is also important when interpreting this finding to remember that stress on the previous day was not accounted. Thus, it could be the residual or aggregated effect of the stressors experienced on the previous day that continues to influence cortisol awakening level on the next day. Future studies should examine the lagged effect of stressors on the associations between employment status and cortisol.

In contrast to cortisol level at 30 minutes after awakening, cortisol level at bedtime is an indicator of the body's ability to preserve and restore its system for the challenges of the next day (Ice et al., 2004). As discussed earlier, healthy adults typically display a rise in morning cortisol after awakening and then a gradual decline throughout the day (Ice et al., 2004). If cortisol level remains elevated at the end of the day (bedtime), the body will exhaust itself and

the tasks of the next day could be compromised. In this study, there was an association between employment status and bedtime cortisol level on stressor days. Again, the life course influence of timing appears to be important in shaping this association. As predicted, older workers, as well as younger retirees, exhibited the most elevated cortisol level at bedtime when compared to their younger working and older retired counterparts. It is important to note that the interactive effect of employment status and age on bedtime cortisol level was observed on days where respondents experienced at least one daily stressor. Separate analyses conducted on non-stressor days did not reveal any significant differences between employment status and age on bedtime cortisol level. Because bedtime cortisol levels are presumed to be more susceptible to immediate environmental influences (Gunnar & Vasquez, 2001; Yehuda, Teicher, Trestman, Levengood, & Siever, 1996), the presence of daily stressors seems to have a greater impact on the HPA axis for older workers and younger retirees. Although not explored in the current study, future studies should examine how types of daily stressors (e.g., network stressors) may differentially influence employment status and cortisol levels.

Contrary to expectations, the diurnal cortisol rhythm parameters did not differ by employment status. It is important to note that employment status significantly was associated with CAR when the control variables of medication usage, smoking, and chronic conditions were included. However, the effect of employment status on CAR disappeared after awakening times were included into the model. The absence of finding further highlights the role of sleep-related factors in diurnal cortisol rhythm parameters, especially for CAR (Fries et al., 2009). Another plausible explanation for the absence of finding for employment and CAR could be due to the measurement of cortisol. It could be that four days of samples may not be enough to capture the trait characteristics of the CAR. Rather, the CAR is biased to state characteristics (Hellhammer et

al., 2007). Future studies should examine whether more assessments are needed to reliability parse out the state and trait characteristics of the CAR.

It also was hypothesized that workers and retirees would differ in the afternoon decline parameter of the diurnal cortisol rhythm. Specifically, it was expected that workers would have a less steep afternoon decline than retirees due to exposure to stressors at work. However, findings showed no employment status differences in the afternoon decline. The absence of employment status differences on the afternoon decline parameter suggests that the parameters of the diurnal cortisol rhythm (CAR and afternoon decline) may not be the most appropriate measurements in capturing the association between employment status and cortisol. Consistent with past research demonstrating a significant association between employment status and cortisol level at bedtime (e.g., Grossi et al., 2001), findings from this study suggest that the examination of cortisol levels at each collection occasion may be the better approach in capturing the associations between employment status and cortisol.

#### *Limitations and Conclusion*

Although these findings are intriguing, caution must be taken when generalizing the findings. Participants in the MDUS and NSDE are more likely to be White, college-educated, healthier, and have higher than average levels of socioeconomic status. These participants also may be more agreeable in their willingness to help than the typical participants in that they were interviewed for eight consecutive days for approximately 15 to 20 minutes each day. These participants also agreed to provide saliva samples at four occasions for four consecutive days; all of which highlight the potential issue of selection bias.

Yet, the advantages of this study must be highlighted. The design of saliva collection for this study is methodologically strong. Collected across four consecutive days, this study consists

of a maximum of 16 saliva samples for each participant. Of the five hundred respondents selected for this study, this amounts to a possible 8,000 saliva samples. The amount of saliva samples collected in this study is an advantage to other studies, which have elected a minimal to medium intensity protocols, ranging from three samples per person on a single day, six samples on a single day, and three samples per day across three days (see Adam & Kumari, 2009). Thus, the large sample size of this study provides the power to detect associations that might have been overlooked with a smaller sample.

Finally, one of the most valuable aspects of this study is that saliva collection occurred in the field and out of the laboratory. Rather than bringing participants into a controlled laboratory setting where they are asked to provide saliva samples in response to challenge tasks (e.g., Dickerson & Kemeny, 2004; Kirschbaum & Hellhammer, 1994; Kirschbaum et al., 1995), participants in this study were asked to provide saliva sample at four occasions across four consecutive days in their everyday settings. By utilizing an out of the lab and into the field approach, researchers can gain insights to workers and retirees' stress-responsive system as they live day-to-day in their own environment and to better understand the associations between naturally occurring stressors and cortisol.

Consistent with the first and second paper of this dissertation, the study of retirement is complex. However, findings from this study reinforce the need to understand work and retirement in the context of life course influences. In particular, researchers should pay closer attention to the health pathways and trajectories of individuals who continue to work in old age and those who retired at an earlier age. Overall, findings from this study highlight the importance of incorporating self-reported assessments of well-being and health with biomarkers of health,

specifically salivary cortisol, in better understanding the associations between retirement and health.

## References

- Adam, E. K. & Gunnar, M. R. (2001). Relationship functioning and home and work demands predict individual differences in diurnal cortisol patterns in women. *Psychoneuroendocrinology*, *26*, 189-208.
- Adam, E. K., & Kumari, M. (2009). Assessing salivary cortisol in large-scale, epidemiological research. *Psychoneuroendocrinology*, *34*, 1423-1436.
- Aihara, M., Ida, I., Yuuik, N., Oshima, A., Kumano, H., Takahashi, K.,...Mikuni, M. (2007). HPA axis dysfunction in unmedicated major depressive disorder and its normalization by pharmacotherapy correlates with alteration of neural activity in prefrontal cortex and limbic/paralimbic regions. *Psychiatry Research*, *155*, 245-256.
- Almeida, D. M., & Horn, M. C. (2004). Is daily life more stressful during middle adulthood? In O.G. Brim, C. D. Ryff & R. C. Kessler (Eds.), *How healthy are we? A national study of well-being at midlife* (pp. 425-451). Chicago: The University of Chicago Press.
- Almeida, D. M., Piazza, J. R., & Stawski, R. S. (2009). Inter-individual differences and intra-individual variability in the cortisol awakening response: An examination of age and gender. *Psychology and Aging*, *24*, 819-827.
- Almeida, D. M., Wethington, E., & Kessler, R. C. (2002). The daily inventory of stressful experiences (DISE): An interview-based approach for measuring daily stressors. *Assessment*, *9*, 41-55.
- Almeida, D. M., & Wong, J. D. (2009). Life transitions and daily stress processes. In G. H., Elder, Jr., & J. Z. Giele (Eds.), *The craft of life course research* (pp. 141-162). New York: Guilford Press.
- Arnetz, B. B., Wasserman, J., Petrini, B., Brenner, S. O., Levi, L., Eneroth, P.,...Pettersson, L.

- (1987). Immune function in unemployed women. *Psychosomatic Medicine*, 49, 3-12.
- Bhattacharyya, M. R., Molloy, G. J., & Steptoe, A. (2008). Depression is associated with flatter cortisol rhythms in patients with coronary artery disease. *Journal of Psychosomatic Research*, 65, 107-113.
- Blau, D. M. (1998). Labor force dynamics of older married couples. *Journal of Labor Economics*, 16, 595-629.
- Brown, D. W., Balluz, L. S., Ford, E. S., Giles, W. H., Strine, T. W., Moriarty, D. G.,...Mokdad, A. H. (2003). Associations between short- and long-term unemployment and frequent mental distress among a national sample of men and women. *Journal of Occupational Environment Medicine*, 45, 1159-1166.
- Butterworth, P., Gill, S. C., Rodgers, B., Anstey, K. J., Villamil, E., & Melzer, D. (2006). Retirement and mental health: Analysis of the Australian national survey of mental health and well-being. *Social Science and Medicine*, 62, 1179-1191.
- Buxton, J. W., Singleton, N., & Melzer, D. (2005). The mental health of early retirees: National interview survey in Britain. *Social Psychiatry and Psychiatric Epidemiology*, 40, 99-105.
- Caplan, R.D., Cobb, S., & French, J.R.P., Jr. (1979). White collar work load and cortisol: disruption of a circadian rhythm by job stress? *Journal of Psychosomatic Research*, 23, 181-192.
- Clow, A., Thorn, L., Evans P., & Hucklebridge, F. (2004). The awakening cortisol response: methodological issues and significance. *Stress*, 7, 29-37.
- Dallman, M. F., Bhatnagar, S., & Viau, V. (2000). Hypothalamo-pituitary-adrenal axis. In: Fink, G. (Ed.), *Encyclopedia of Stress*. Academic Press, San Diego.

- Deuschle, M., Gotthardt, U., Schweiger, U., Weber, B., Körner, A., Schmider, J., et al. (1997). With aging in humans the activity of the hypothalamus–pituitary–adrenal system increases and its diurnal amplitude flattens. *Life Sciences*, *61*, 2239–2246.
- Deuschle, M., Weber, B., Colla, M., Depner, M., & Heuser, I. (1998). Effects of major depression, aging and gender upon calculated diurnal free plasma cortisol concentrations: A re-evaluation study. *Stress*, *2*, 281-287.
- Dickerson, S. S., & Kemeny, M. E. (2004). Acute stressors and cortisol responses: A theoretical integration and synthesis of laboratory research. *Psychological Bulletin*, *130*, 355-391.
- Drentea, P. (2002). Retirement and mental health. *Journal of Aging and Health*, *14*, 167–94.
- Dressendörfer, R. A., Kirschbaum, C., Rohde, W., Stahl, F. & Strasburger, C. J. (1992). Synthesis of a cortisol-biotin conjugate and evaluation as tracer in an immunoassay for salivary cortisol measurement. *Journal of Steroid Biochemistry and Molecular Biology*, *43*, 683-692.
- Edwards, S., Evans, P., Hucklebridge, F., & Clow, A. (2001). Association between time of awakening and diurnal cortisol secretory activity. *Psychoneuroendocrinology*, *26*, 613-622.
- Elder, G. H., Johnson, M. K., & Crosnoe, R. (2003). The emergence and development of life course theory. In J. Mortimer & M. J. Shanahan (Eds.), *Handbook of the life course* (pp. 3-22). New York: Kluwer Academic.
- Eller, N. H., Netterstrøm, B., & Hansen, Å. M. (2006). Psychosocial factors at home and at work and levels of salivary cortisol. *Biological Psychology*, *73*, 280-287.
- Fries, E., Dettenborn, L., & Kirschbaum, C. (2009). The cortisol awakening response (CAR): Facts and future directions. *International Journal of Psychophysiology*, *72*, 67-73.



- Gall, T. L., Evans, D. R., & Howard, J. (1997). The retirement adjustment process: Changes in the well-being of male retiree across time. *The Journals of Gerontology*, *52*, 110-117.
- George, L. K. (1993). Sociological perspectives on life transitions. *Annual Review of Sociology*, *19*, 353-373.
- Granger, D. A., Hibel, L. C., Fortunato, C. K., & Kapelewski, C. H. (2009). Medication effects on salivary cortisol: Tactics and strategy to minimize impact in behavioral and developmental science. *Psychoneuroendocrinology*, *34*, 1437-48.
- Grossi, G., Ahs, A., & Lundberg, U. (1998). Psychological correlates of salivary cortisol secretion among unemployed men and women. *Integrative Psychological and Behavioral Science*, *33*, 249-263.
- Grossi, G., Perski, A., Lundberg, U., & Soares, J. (2001). Associations between financial strain and the diurnal salivary cortisol secretion of long-term unemployed individuals. *Integrative Psychological and Behavioral Science*, *36*, 205-219.
- Gunnar, M.R., & Vazquez, D.M. (2001). Low cortisol and a flattening of expected daytime rhythm: Potential indices of risk in human development. *Development & Psychopathology*, *13*, 515-538.
- Hall, E. M., & Johnson, J. V. (1988). Depression in unemployed Swedish women. *Social Science Medicine*, *27*, 1349-1355.
- Heim, C., Ehlert, U., & Hellhammer, D. H. (2000). The potential role of hypocortisolism in the pathophysiology of stress-related bodily disorders, *Psychoneuroendocrinology*, *25*, 1-35.
- Hellhammer, J., Fries, E., Schweisthal, O. W., Schlotz, W., Stone, A. A., & Hagemann, D. (2007). Several daily measurements are necessary to reliably assess the cortisol rise after awakening: State- and trait components. *Psychoneuroendocrinology*, *32*, 80-86.

- Honig, M. (1998). Married women's retirement expectations: Do pensions and social security matter? *American Economic Review*, 88, 202-206
- Huber, T. J., Issa, K., Schik, G., & Wolf, O. T. (2006). The cortisol awakening response is blunted in psychotherapy inpatients suffering from depression. *Psychoneuroendocrinology*, 31, 900-904.
- Ice, G. H., Katz-Stein, A., Himes, J., & Kane, R. L. (2004). Diurnal cycles of salivary cortisol in older adults. *Psychoneuroendocrinology*, 29, 355-370.
- Kiecolt-Glaser, J. K., & Newton, T. L. (2001). Marriage and health: His and hers. *Psychological Bulletin*, 127, 472-503.
- Kirschbaum, C., & Hellhammer, D. H. (1994). Salivary cortisol in psychoneuroendocrine research: Recent developments and applications. *Psychoneuroendocrinology*, 19, 313-333.
- Kirschbaum, C., Hellhammer, D. H., & Wüst, S. (1992). Consistent sex differences in cortisol responses to psychological stress. *Psychosomatic Medicine*, 54, 648-657.
- Kirschbaum, C., Pirke, K. M., & Hellhammer, D. H. (1995). Preliminary evidence for reduced cortisol responsivity to psychological stress in women using oral contraceptive medication. *Psychoneuroendocrinology*, 5, 509-514.
- Kirschbaum, C., Wüst, S. & Strasburger, C. J. (1992). Normal cigarette smoking increases free cortisol in habitual smokers. *Life Sciences*, 50, 435-442.
- Kivimaki, M., Leino-Arjas, P., Luukkonen, R., Riihimaki, H., Vahtera, J., & Kirjonen, J. (2002). Work stress and risk of cardiovascular mortality: Prospective cohort study of industrial employees. *British Medicine Journal*, 325, 857-861.

- Krieger, D.T., Allen, W., Rizzo, F., & Krieger, H. P. (1971). Characterization of the normal temporal pattern of plasma corticosteroid levels. *Journal of Clinical Endocrinology & Metabolism*, 32, 266-284.
- Kudielka, B. M., & Kirschbaum, C. (2003). Awakening cortisol responses are influenced by health status and awakening time but not by menstrual cycle phase. *Psychoneuroendocrinology*, 28, 35-47.
- Kunz-Ebrecht, S. R., Kirschbaum, C., Marmot, M., & Steptoe A. (2004). Differences in cortisol awakening response on work days and weekends in women and men from the Whitehall II cohort. *Psychoneuroendocrinology*, 29, 516-528.
- Kunz-Ebrecht, S. R., Kirschbaum, C., & Steptoe A. (2004). Work stress, socioeconomic status and neuroendocrine activation over the working day. *Social Science & Medicine*, 58, 1523-1530.
- Larsson, C. A., Gullberg, B., Rastam, L., & Lindbald, U. (2009). Salivary cortisol differs with age and sex and shows inverse associations with WHR in Swedish women: A cross-sectional study. *BMC Endocrine Disorders*, 9, 1-11. doi: 10.1186/1472-6823-9-16.
- Lundberg, U. (1983). Sex differences in behaviour pattern and catecholamine and cortisol excretion in 3-6 year-old day-care children. *Biological Psychiatry*, 16, 109-117.
- Lupien, S., Lecours, A. R., Schwartz, G., Sharma, S., Hauger, R. L., Meaney, M. J., & Nair, N. P. (1996). Longitudinal study of basal cortisol levels in healthy elderly subjects: evidence for subgroups. *Neurobiology of aging*, 17, 95-105.
- Maier, R., Egger, A., Barth, A., Winker, R., Osterode, W., Kundi, M.,...Ruediger, H. (2006). Effects of short- and long-term unemployment on physical work capacity and on serum cortisol. *International Archives of Occupational and Environmental Health*, 79, 193-198.

- Matthews, K., Schwartz, J., Cohen, S., & Seeman, T. (2006). Diurnal cortisol decline is related to coronary calcification: CARDIA study. *Psychosomatic Medicine*, 68, 657-661.
- McEwen, B. S. (1998). Protective and damaging effects of stress mediators. *New England Journal of Medicine*, 338, 171-179.
- McEwen, B. S., Biron, C. A., Brunson, K. W., Bulloch, K., Chambers, W. H.,...Weiss, J. M. (1997). The role of adrenocorticoids as modulators of immune function in health and disease: Neural, endocrine and immune interactions. *Brain Research Reviews*., 23, 79-133.
- Midanik, L. T., Soghikian, K., Ransom, L. J. & Tekawa, I. S. (1995). The effect of retirement on mental health and health behaviors: The Kaiser Permanente Retirement Study. *Journal of Gerontology Social Sciences*, 50, 59-61.
- Nicolson, N., Storms, C., Ponds, R., & Sulon, J. (1997). Salivary cortisol levels and stress reactivity in human aging. *Journal of Gerontology: Medical Sciences*, 52, 68-75.
- Ockenfels, M.C., Porter, L., Smyth, J., Kirschbaum, C., Hellhammer, D. H., & Stone, A. A. (1995). Effect of chronic stress associated with unemployment on salivary cortisol: Overall cortisol levels, diurnal rhythm, and acute stress reactivity. *Psychosomatic Medicines*, 57, 460-467.
- Otte, C., Hart, S., Neylan, T. C., Marmar, C. R., Yaffe, K., & Mohr, D. C. (2005). A meta-analysis of cortisol response to challenge in human aging: Importance of gender. *Psychoneuroendocrinology*, 30, 80-91
- Pienta, A. M., & Hayward, M. D. (2002). Who expects to continue working after age 62? The retirement plans of couples. *The Journal of Gerontology*, 57, 199-208.
- Polk, D.E., Cohen, S., Doyle, W.J., Skoner, D.P. & Kirschbaum, C. (2005). State and trait affect

- as predictors of salivary cortisol in healthy adults. *Psychoneuroendocrinology*, *30*, 261-272.
- Price, D. A., Close, G. C., & Fielding, B. A. (1983). Age of appearance of circadian rhythm in salivary cortisol values in infancy. *Archives of Disease in Childhood*, *58*, 454-456.
- Pruessner, J. C., Hellhammer, D. H., & Kirschbaum, C. (1999). Burnout, perceived stress, and cortisol response to awakening. *Psychosomatic Medicine*, *61*, 197-204.
- Pruessner, J. C., Wolf, O. T., Hellhammer, D. H., Buske-Kirschbaum, A., von Auer, K., Jobst, S., Kirschbaum, C. (1997). Free cortisol levels after awakening: a reliable biological marker for the assessment of adrenocortical activity. *Life Sciences*, *61*, 2539-49.
- Raff, H., Raff, J. L., Duthie, E. H., Wilson, C. R., Sasse, E. A., Rudman, I., & Mattson, D. (1999). Elevated salivary cortisol in the evening in healthy elderly men and women: correlation with bone mineral density. *Journals of Gerontology: Biological Sciences and Medical Sciences*, *54*, 479-483.
- Rosmond, R., & Bjorntorp, P. (2000). The hypothalamic-pituitary-adrenal axis activity as a predictor of cardiovascular disease, type 2 diabetes and stroke. *Journal of Internal Medicine*, *247*, 188-197.
- Sapolsky, R. (1990). The adrenocortical axis. In E. Schneider & J. Rowe (Eds.), *Handbook of the biology of aging* (pp. 330-348). Academic Press: San Diego, CA.
- Schmidt-Reinwald, A., Pruessner, J. C., Hellhammer, D. H., Fedrenko, I., Rohleder, N., Schurmeyer, T. H., et al. (1999). The cortisol response to awakening in relation to different challenge tests and a 12-hour cortisol rhythm. *Life Sciences*, *64*, 1653-60.
- Schoeneshoefer, M., & Wagner, G. G. (1977). Sex difference in corticosteroids in man. *Journal of Clinical Endocrinology & Metabolism*, *45*, 814-817.

- Schulz, P., Kirschbaum, C., Prussner, J., & Hellhammer, D. (1998). Increased free cortisol secretion after awakening in chronically stressed individuals due to work overload. *Stress Medicine, 14*, 91–97.
- Smyth, J., Ockenfels, M., Porter, L., Kirschbaum, C., Hellhammer, D., & Stone, A. (1998). Stressors and mood measured on a momentary basis are associated with salivary cortisol secretion. *Psychoneuroendocrinology, 22*, 353-370.
- Stansfeld, S., & Candy, B. (2006). Psychosocial work environment and mental health-a meta-analytical review. *Scandinavian Journal of Work, Environment, and Health, 32*, 443-462.
- Stephens, A., Cropley, M., Griffith, J., & Kirschbaum, C. (2000). Job strain and anger expression predict early morning elevations in salivary cortisol. *Psychosomatic Medicine, 62*, 286-292.
- Stephens, J., Siegrist, Kirschbaum, C., & Marmot, M. (2004). Effort-reward imbalance, overcommitment, and measures of cortisol and blood pressure over the working day. *Psychosomatic Medicine, 66*, 323-329.
- Stephens, A., & Ussher, M. (2006). Smoking, cortisol and nicotine. *International journal of psychophysiology, 59*, 228-235.
- Stone, A. A., Schwartz, J. E., Smyth, J., Kirschbaum, C., Cohen, S., Hellhammer, D., & Grossman S. (2001). Individual differences in the diurnal cycle of salivary free cortisol: A replication of flattened cycles from some individuals. *Psychoneuroendocrinology, 26*, 265-306.
- Van Cauter, E., Leproult, R., & Kupfer, D. J. (1996). Effects of gender and age on the levels and circadian rhythmicity of plasma cortisol. *Journal of Clinical Endocrinology & Metabolism, 81*, 2468-2473.

- van-Heeringen, K., & Vanderplasschen, W. (1999). Unemployment and cardiovascular disease: A causal relationship? *International Archives of Occupational and Environmental Health*, 72, 43-45.
- Wust, S., Federenko, I., Hellhammer, D. H., & Kirschbaum, C. (2000). Genetic factors, perceived chronic stress, and the free cortisol response to awakening. *Psychoneuroendocrinology*, 25, 707-720.
- Wust, S., Wolf, J., Hellhammer, D. H., Federenko, L. Schommer, N., & Kirschbaum, C. (2000). The cortisol awakening response-normal values and confounds. *Noise & Health*, 2, 79-88.
- Yehuda, R., Teicher, M. H., Trestman, R. L., Levengood, R. A., & Siever, L. J. (1996). Cortisol regulation in posttraumatic stress disorder and major depression: A chronobiological analysis. *Biological Psychiatry*, 40, 79-88.
- Zautra, A. J. (2003). *Emotions, stress, and health*. New York, NY: Oxford University Press.

Table 4.1 Socio-demographic Characteristics by Employment Status

		Workers (n = 256)	Retirees (n =244)
Age***	<i>M</i>	60.7	66.5
	<i>SD</i>	4.9	4.7
Gender			
Men	%	45.7	47.5
Women	%	54.3	52.5
Marital Status			
Unmarried	%	28.1	25.0
Married	%	71.9	75.0
Chronic Conditions***	<i>M</i>	2.1	3.2
	<i>SD</i>	1.9	2.6
Education*			
High School or Less	%	26.7	36.6
Some College or More	%	73.3	63.4
Total Household Income (logged)*	<i>M</i>	10.6	10.1
	<i>SD</i>	2.3	2.2

Difference significant at \*p<.05; \*\*<.01; \*\*\*p<.001.



Table 4.2 Descriptive Statistics of Cortisol Samples and Sampling Times by Employment Status

Sample	Cortisol (nmol/l)			
	Workers		Retirees	
	M	SD	M	SD
Awakening*	15.35	8.92	15.76	9.25
30 Minutes After Awakening**	22.12	11.55	21.43	12.00
Before Lunch***	7.28	5.08	8.33	6.52
Before Bed***	3.54	5.40	4.04	6.05

Sample	Sampling Time			
	Workers		Retirees	
	M	SD	M	SD
Awakening***	6:29 AM	90 min	6:42 AM	82 min
30 Minutes After Awakening***	7:07 AM	92 min	7:25 AM	85 min
Before Lunch***	12:40 PM	89 min	12:32 PM	79 min
Before Bed***	10:31 PM	91 min	10:18 PM	77 min

Difference significant at \* $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$

Table 4.3 Multilevel Models Predicting Cortisol Levels at 30 Minutes after Awakening on All Study Days

	30 Minutes After Awakening		
	Estimate	<i>SE</i>	<i>p</i>
Intercept	27.22	3.35	<0.001
Employment Status	-0.75	1.59	0.96
Age	-0.08	0.16	0.23
Gender	-0.29	1.46	0.62
Wake Up Time BP	-0.01	0.00	0.13
Wake Up Time WP	0.00	0.00	0.86
Chronic Conditions	-0.13	0.24	0.59
Smoker Status	-2.15	1.63	0.22
Medication Usage	0.28	1.10	0.80
Employment Status x Age	0.42	0.22	0.05
Employment Status x Gender	1.63	2.09	0.43

*Note* : Employment Status (0=Retirees, 1=Workers); Gender (1=Women); Smoking Status (1=Smoker); Medication User (1=Used Medications).

Table 4.4 Multilevel Models Predicting Cortisol Levels at Awakening and Before Bedtime on Stressor Days

	Awakening			Before Bedtime		
	Estimate	SE	<i>p</i>	Estimate	SE	<i>p</i>
Intercept	18.94	3.38	<0.001	10.95	2.62	<0.001
Employment Status	-0.89	1.55	0.33	1.18	1.20	0.94
Age	-0.11	0.14	0.87	0.20	0.11	0.74
Gender	1.06	1.39	<0.01	1.30	1.07	0.90
Wake Up Time BP	0.00	0.00	0.76	-0.01	0.00	0.06
Wake Up Time WP	0.00	0.01	0.50	0.00	0.00	0.99
Chronic Conditions	-0.20	0.21	0.36	-0.06	0.16	0.73
Smoker Status	-4.47	1.67	0.12	-2.79	1.25	0.11
Medication Usage	1.55	1.06	0.14	-0.40	0.82	0.63
Employment Status x Age	0.25	0.21	0.25	-0.34	0.16	0.04
Employment Status x Gender	4.07	2.07	0.05	-2.40	1.59	0.13

Note : Employment Status (0=Retirees, 1=Workers); Gender (1=Women); Smoking Status (1=Smoker); Medication User (1=Used Medications).

Figure 4.1 Modeling Diurnal Cortisol Rhythm.

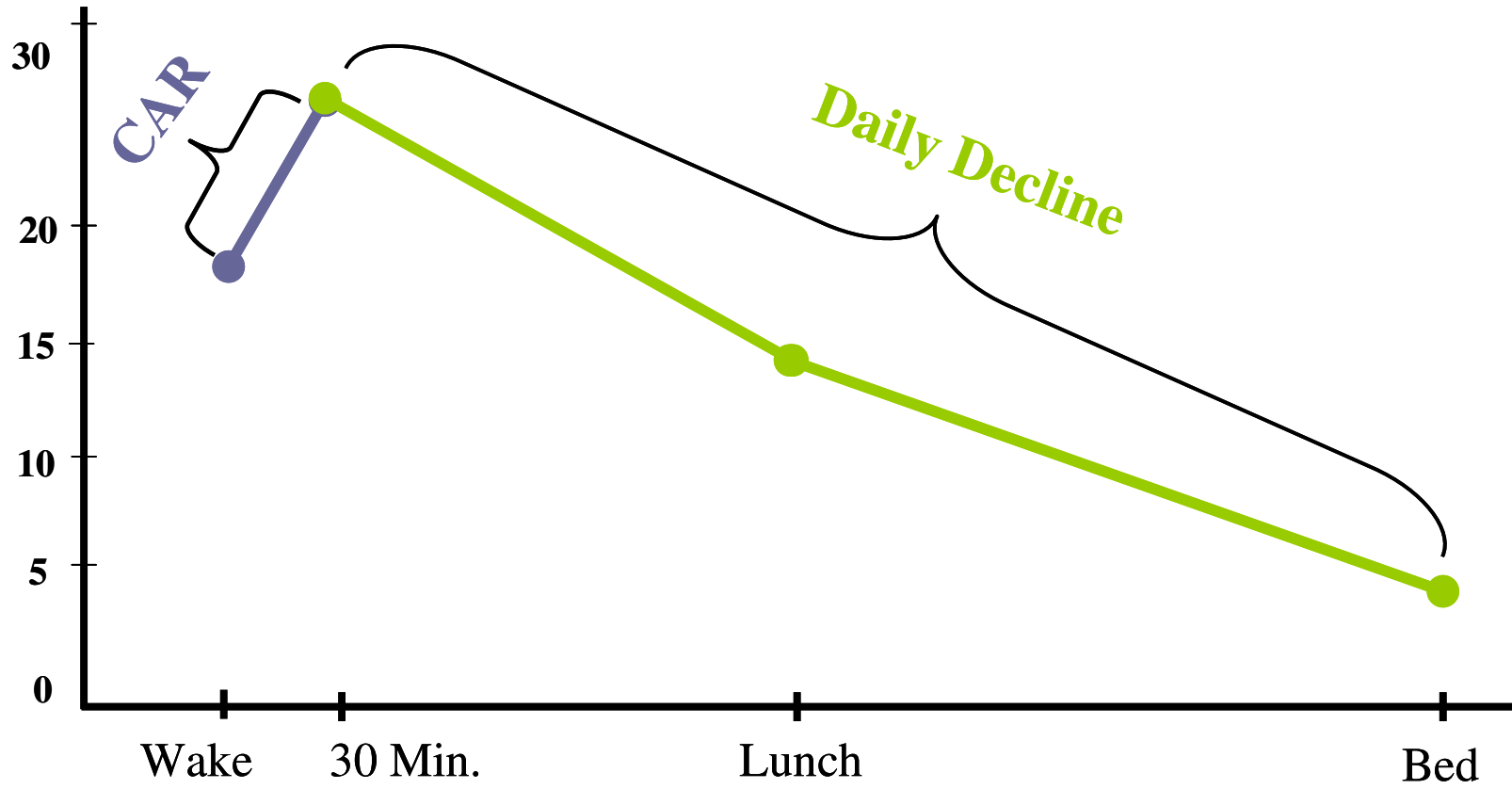


Figure 4.2 Life Course Daily Stress Model.

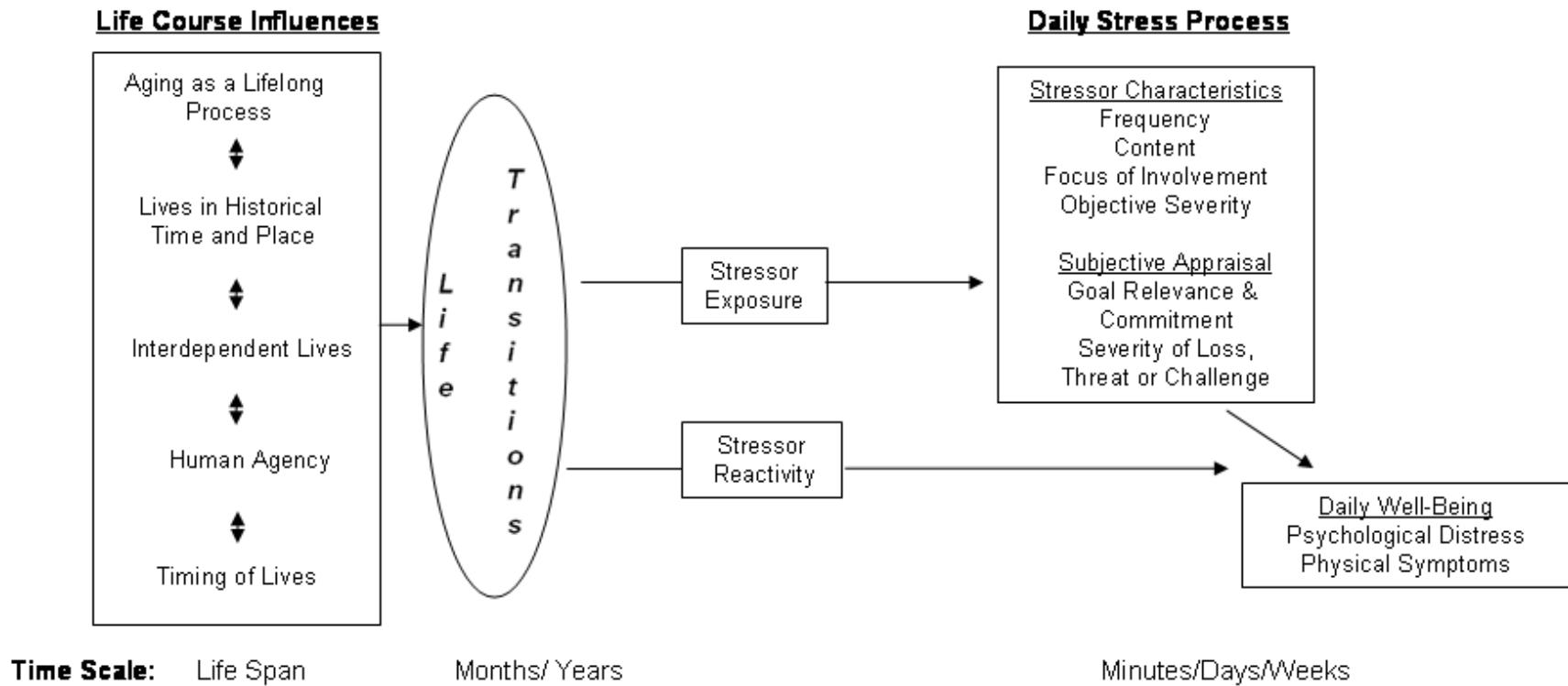


Figure 4.3 Employment Status and Age on 30 Minutes After Awakening Cortisol on All Study Days

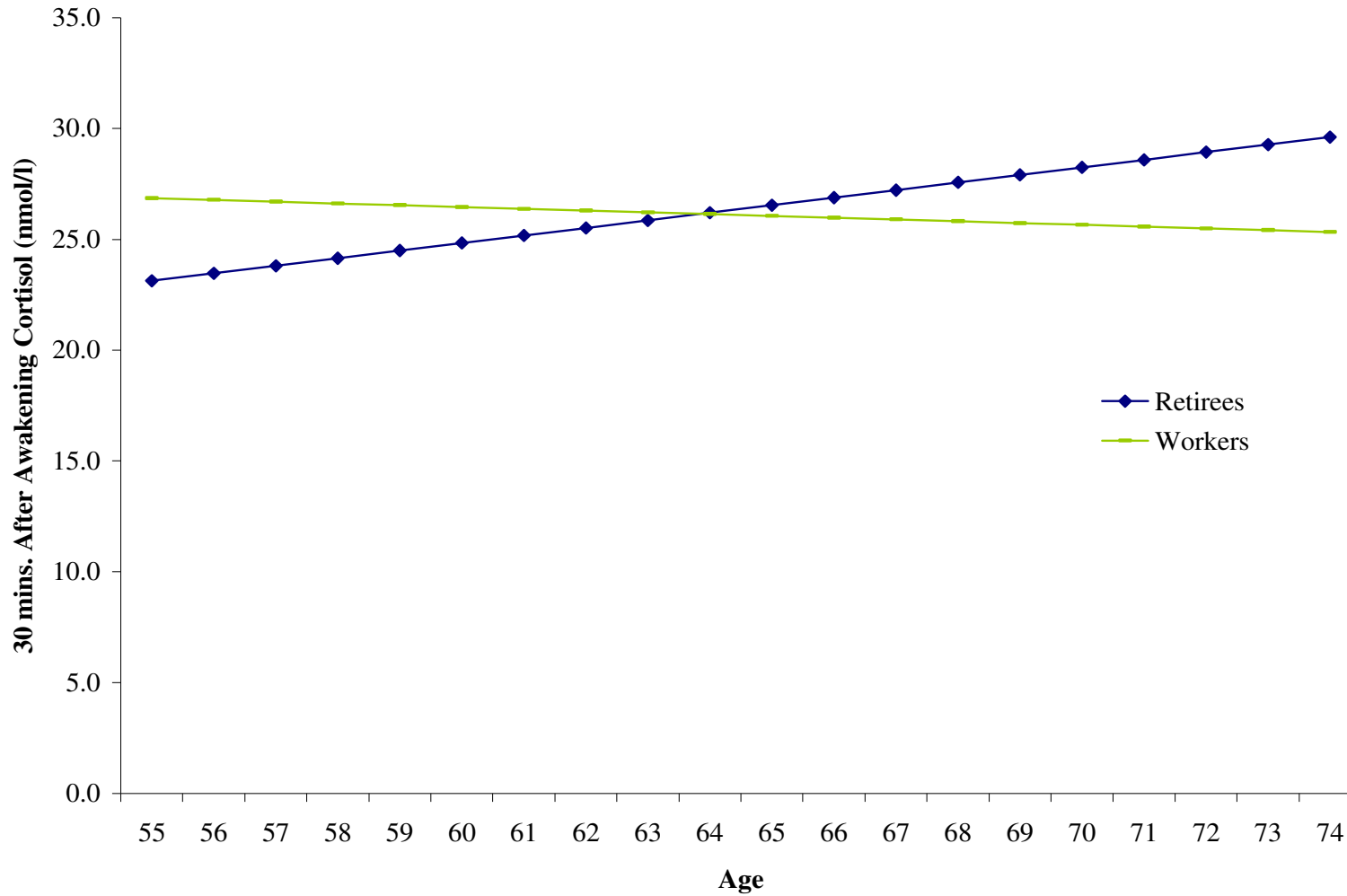


Figure 4.4 Employment Status and Gender on Awakening Cortisol on Stressor Days.

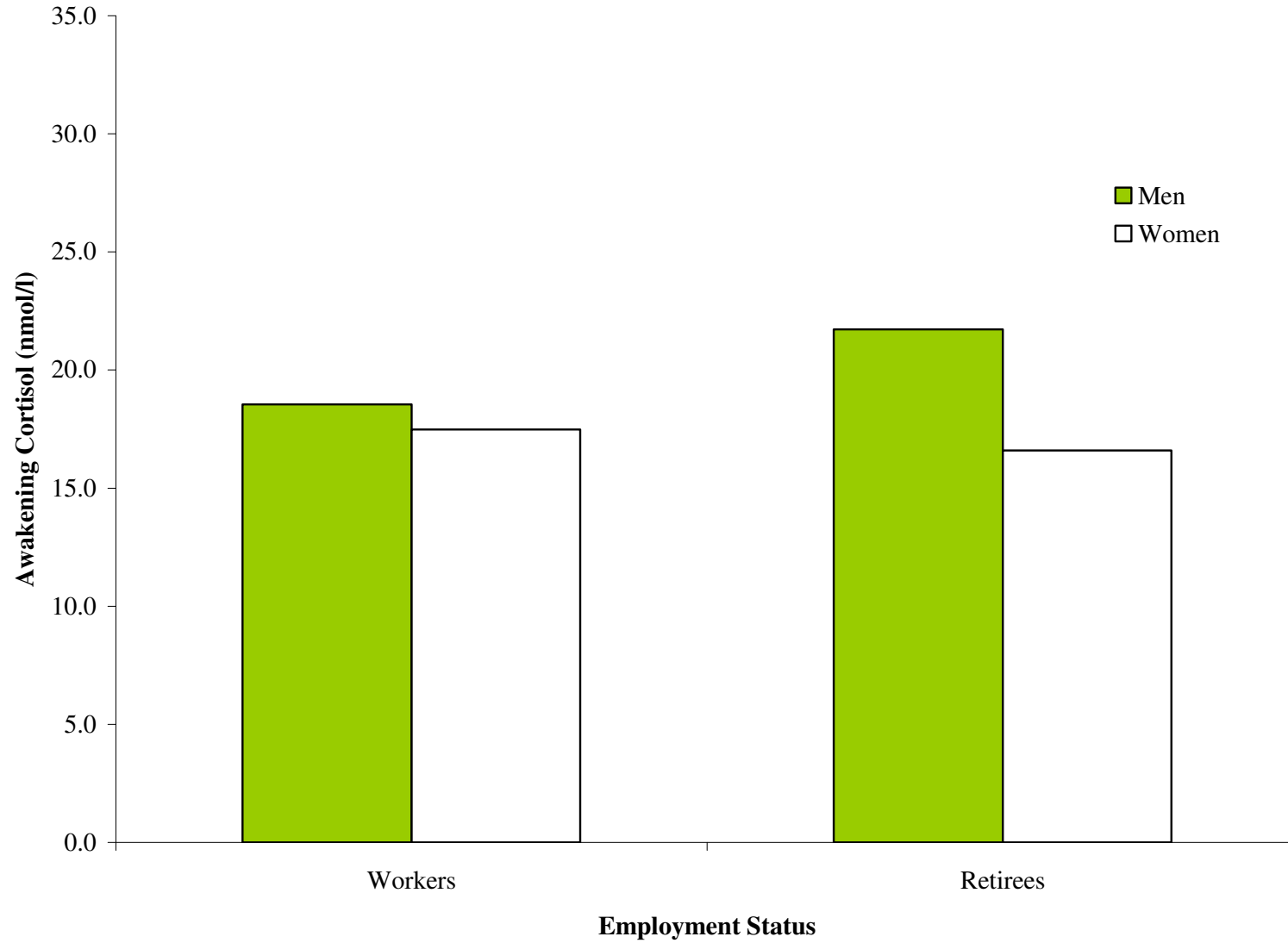
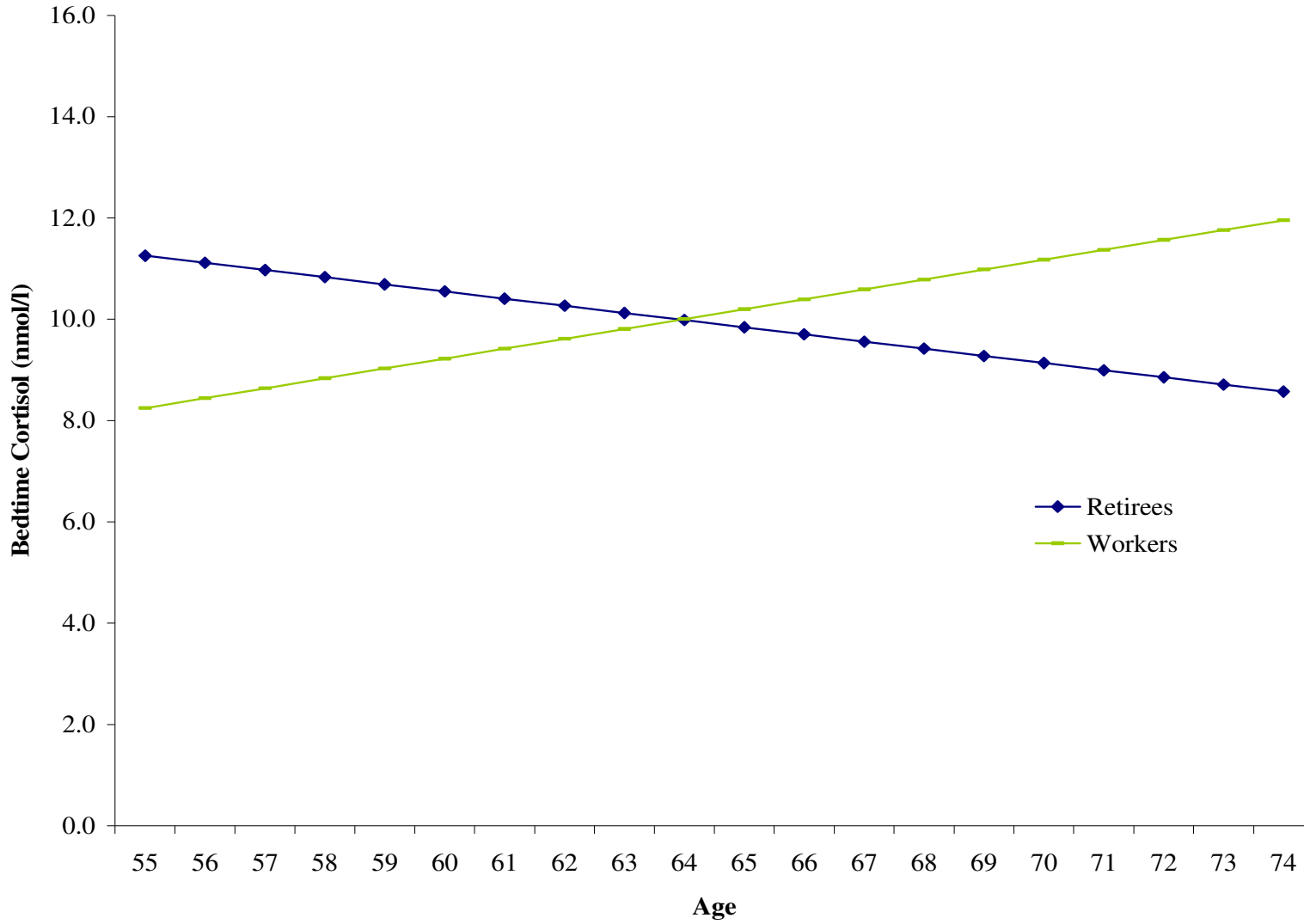


Figure 4.5 Employment Status and Age on Bedtime Cortisol on Stressor Days.





## CHAPTER V

## CONCLUSION

## Conclusion

As indicated at beginning of this dissertation, retirement often has been viewed as the golden years with individuals sailing off into retirement to pursue unlimited opportunities and be free of the stressors of the workplace. The daily experiences of retirement, as documented by this dissertation, are complex and cannot easily be classified as entirely positive or negative. Rather, the water, if one continues with the retirement sailing analogy for a moment longer, may be rough. However, the resources of the sailor and his/her environment can help to shape the quality of the sail.

The Life Course Daily Stress perspective (LCDS; Almeida & Wong, 2009) highlights the importance of studying transitions and daily well-being in the context of life course influences (e.g., timing, social embeddedness). Findings from this dissertation indicate that the associations between retirement and aspects of daily experiences are best explored through the interactive effect of retirement and life course influences rather than a simple main effect of retirement. In this study, individuals who experienced an off-time role or transition reported greater negative daily experiences. The negatives effects of an off-time role or transition are the most apparent for men (i.e., older working men and younger retired men). This dissertation also found that retirement may help to buffer the negative effects of being unmarried in certain aspects of daily experiences (e.g., stressor appraisal).

### *Characteristics of the Person (Timing and Gender)*

#### *Timing*

The LCDS perspective emphasizes importance of considering characteristics of the person (e.g., timing, gender) for the study of retirement and aspects of daily experiences. Timing is important to the study of retirement and daily experiences because the meaning of a transition,

such as retirement, varies and affects individuals differently depending on when it occurs in the life course (Wheaton, 1990). According to Neugarten (1979), most people have a set of expectations of *whether* and *when* certain life events and transitions will occur. Transitions that are off-time may present challenges. In contrast to transitions that occur on-time, individuals who experience an off-time transition may not have the anticipatory skills and social resources to prepare them for the changes that they face (Hagestad & Neugarten, 1985).

Findings from this dissertation indicate that off-time transitions are associated with negative outcomes. With respect to timing, older workers and younger retirees exhibited the lowest cortisol level at 30 minutes after awakening. Morning cortisol after awakening is an important indicator of the body's ability to mobilize energy to handle the tasks of the day (Clow, Thorn, Evans, & Hucklebridge, 2004; Hellhammer et al., 2007). The blunted cortisol response observed for older workers and younger retirees often is found in individuals who experienced chronic burnout or health problems (e.g., Caplan, Cobb, & French, 1979; Heim, Ehlert, & Hellhammer, 2000). Furthermore, older workers and younger retirees exhibited the most elevated cortisol levels at bedtime when compared to younger workers and older retirees. In contrast to cortisol level at 30 minutes after awakening, cortisol level at bedtime is a marker of the body's ability to preserve and restore its system for the challenges of the next day (Ice, Katz-Stein, Himes, & Kane, 2004). If cortisol level remains elevated at the end of the day (bedtime), the body will exhaust itself and the tasks of the next day could be compromised. From this set of findings, it appears that being off-time in work roles (i.e., being an older worker and a younger retiree) places these individuals in a more vulnerable position where they are more susceptible for greater HPA dysregulation.

As noted earlier, the study of retirement and aspects of daily experiences is complex. Findings from this dissertation suggest that transitions that are deemed as off-time also may have positive outcomes. In the area of time spent on daily leisure activities, for example, individuals who transitioned into retirement earlier reported the greatest increase in time spent on daily leisure activities from wave 1 to wave 2. In contrast, social roles and transitions that are deemed as on-time may not necessarily be linked to positive outcomes. In this study, younger individuals who remained working reported a decrease in time spent on daily leisure activities from wave 1 to wave 2. Furthermore, younger individuals who remained working reported greater stressor exposure when compared to older individuals who remained working.

### *Gender*

Gender represents an important key factor in shaping employment patterns and subsequent well-being. In contrast to men, women have a greater probability of working part-time, earning lower wages, and having discontinuous employment histories (Ekerdt & Hackney, 2002; Gabriel & Schmitz, 2007; O'Rand, Henretta, & Krecker, 1992). The combination of these factors may place women at a greater disadvantage than men at retirement in the areas of psychological, physical, and financial well-being (Slevin & Wingrove, 1995). As documented earlier in this dissertation, the literature on retirement, gender, and well-being is mixed with some studies reporting retirement to be better for men (e.g., Gall, Evans, & Howard, 1997; Quick & Moen, 1998), and others reporting positive outcomes for women (e.g., Price, 2003; Talaga & Beehr, 1995). Findings from this dissertation suggest that men, especially older workers and younger retirees, may face the greatest disadvantages in aspects of daily experiences.

It is also unlikely that when individuals are contemplating about retirement that they are imagining themselves spending more time doing daily household chores. Findings from this

dissertation suggest that this might be the case for men in retirement. In contrast to working men and women, men in retirement reported spending a similar amount of time on daily household chores as women in retirement. In retirement, it appears that men are picking up more of the day-to-day household responsibilities that might have been ignored during the working years.

Interesting to this set of findings is that retirement does not offer women a reprieve in the hours spent performing daily household chores since both working and retired women reported a similar amount of time on daily household chores. This particular finding is consistent with past research documenting women perform more domestic labor in the household than do their partners (e.g., Brines 1994; Bianchi, Milkie, Sayer, & Robinson 2000).

Reactivity to daily stressors also was moderated by gender. Men who transitioned into retirement reported the most time spent on daily physical activities on both non-stressor and stressor days when compared to their counterparts. In contrast, work appears to limit the amount of time that men allocated to physical activities day-to-day on both non-stressor and stressor days. This set of finding further highlights the complexity of retirement, and the challenges in generalizing the retirement experiences.

### *Timing and Gender*

Findings from this dissertation also highlight the importance of examining retirement within the context of both timing and gender. For men, the experience of an off-time transition has the greatest negative day-to-day consequences. Not only did older working men and younger retired men reported the greatest daily psychological distress, they also appraised daily stressors having the greatest risk on their daily routine, financial situation, health and safety, and risk for the future. These findings further suggest the importance of work in men's lives. Although attitudes toward work in the United States has changed over the years due in part to more women

in the labor force, women still are more likely than men to place greater emphasis on the importance of familial relationships over work (Kiecolt-Glaser & Newton, 2001). In contrast to men, women also are more likely to experience career interruptions due to childrearing and caregiving demands (Hatch & Thompson, 1992; O'Rand et al., 1992). Whereas the norms and expectations surrounding women and work are more flexible, they are less so for men. For men whose work situations do not adhere to the age norms or expectations of their environment, there could be negative consequences. Thus, the experience of an off-time transition may not have prepared these older working men and younger retired men for the changes that they faced (Hagestad & Neugarten, 1985).

#### *Characteristics of the Environment (Social Embeddedness and Education)*

##### *Social Embeddedness*

Studies have demonstrated the importance of social embeddedness (marriage) in understanding how employment affects global well-being (e.g. Johnson, 2004; Kim & Moen, 2002). Marriage has been associated with a host of positive outcomes, including increased opportunities to establish social ties and financial security, and less negative health behaviors (Pienta, Hayward, & Jenkins, 2000; Umberson, 1987). Findings from this study suggest that retirement may help to buffer the negative effects of being unmarried, especially in the areas of daily time use and stressor appraisal.

Past research has shown that paid employment affects time spent doing housework (Goldscheider & Waite, 1991). In this study, unmarried workers reported spending the least amount of time on daily household chores as well as providing unpaid assistance outside of the household. Perhaps due to more pressing demands (e.g., work deadlines), unmarried workers may find it less of a priority to carry out daily household chores, such as doing laundry or taking

out the trash. Similarly, unmarried workers may find it challenging to provide unpaid assistance to individuals outside of the household when their time already is restricted by work as well as other responsibilities. However, unmarried individuals in retirement reported spending the most amount of time on daily household chores and providing unpaid assistance outside the household. The buffering effect of retirement for unmarried individuals also is evident in the areas of stressor severity and the risk that stressors posed on financial situations. In both areas, unmarried individuals who transitioned into retirement reported the greatest decrease from wave 1 to wave 2. In contrast, unmarried individuals who stayed working reported the greatest increase in stressor severity and risk of stressors on financial situation from wave 1 to wave 2.

### *Education*

Finally, the importance of education on the associations between retirement and daily stressor characteristics was documented in this dissertation. The findings, however, are mixed. In this dissertation, individuals who transitioned into retirement with some college or more education reported greater stressor severity than individuals who transitioned into retirement with high school or less education. In contrast, retirees with high school or less education, when compared to retirees with some college or more education, appraised stressors having the greatest risk in feeling about oneself and how others feel about them. The mixed findings could be attributed to the differential effects that retirement and education have on different areas of stressor appraisal. The measurement of stressor severity and areas in which daily stressors posed a risk are somewhat different from one another. Although both areas capture the negative impacts of daily stressors, stressor severity measures an overview of the severity of the stressors experienced. The risk items specifically target the domains in which stressors affected one's daily life (e.g., how others feel about you). These findings suggest that vulnerability in one area

of daily experiences does not necessarily equate vulnerability in another area. Rather, vulnerability must be examined in context.

### *Limitations*

As with any study, limitations to this dissertation must be acknowledged. In the study of retirement, it is important to consider issues of selection. Based on a number of factors, including employment situation, family circumstances, health, and finances, the decision to retire or stay working is a self-sorting process (e.g., Burr, Massagli, Mutchler, & Pienta, 1996; Johnson, 2004). Although this dissertation does not separate out the reasons for retirement (due to the lack of data), attempts were made to capture potential differences (e.g., chronic health conditions, household income) between the comparison groups.

Another potential concern to the issue of selection rests on who decides to participate in the study. In general, participants in the MDUS and NSDE are likely to be White, college-educated, healthier, and have higher than average levels of socioeconomic status. One plausible explanation for the limited diversity in the dataset could be attributed to the time commitment required by the study. All participants in NSDE, which is project 2 of MIDUS, first must have completed the 45 minute phone survey and the 100 page mail survey administered by project 1. Although there was a time lapse between project 1 and NSDE, respondents in the NSDE are asked to commit approximately 15 to 20 minutes each day for eight consecutive days. Furthermore, of those who agreed to provide salivary samples, they are asked to provide four occasions for four consecutive days. For some individuals, it is a commitment that cannot be made.

It is also important to keep in mind that the respondents in this dissertation are predominately White and findings cannot be generalized to individuals of other race and



ethnicity. Race and ethnicity are important in “patterning American’s life fortunes” (Hayward, Crimmins, Miles, & Yang, 2000, p. 913). In contrast to Whites, African Americans are more likely to occupy less prestigious occupations, earn lower wages, and have a lower probability of participating in offered pension plans or supplemental plans (Shuey, 2004; Springstead & Wilson; Yakoboski & Silverman, 1993). Future studies may benefit from examining how race and ethnicity shape employment and aspects of daily well-being. The good news is that MIDUS has another dataset, with daily data, on a sample of African American men and women from Milwaukee, Wisconsin. This data could provide important insights to how race/ethnicity shapes the associations between employment, specifically retirement, and aspects of daily well-being.

The time lapse in the collection of respondents’ employment situations and daily experiences must be acknowledged. Due to the design of MIDUS, the daily diary portion (NSDE) is collected after the completion of the phone and self-administered questionnaires. In wave one of MIDUS, the dairy diary portion (NSDE) was collected approximately a year after the completion of project 1. Thus, one cannot out rule of the possibility that a respondent may have retired by the time he or she reached the daily dairy portion of the study.

Finally, the study of retirement and well-being is further complicated by cohort and period effects. Similar to other life course milestones, retirement is embedded in social and historical context. The path to retirement in the 21<sup>st</sup> century is more unstructured and circuitous than decades ago. For example, there was a trend toward early retirement, especially for White men, in the period after World War II (Quinn, 2002). The combination of elimination of mandatory retirement in most industries in 1986, increased labor force participation of women, and the economic instabilities of the early 1990s and early 2000s has reversed the trend toward early retirement and even resulted in workers retiring at a later age (Burtless & Quinn, 2001;

Cahill, Giandrea, & Quinn, 2006; Munnell, Muldon, & Sass, 2009; Quinn, 2002). Thus, it is important to keep in mind that the decision to retire earlier or later also may be shaped by birth cohort as well as period effects.

### *Future Directions*

In spite of the limitations, findings from this dissertation suggest that the exploration of retirement and aspects of daily experiences is just beginning. Future studies can further the examination of retirement and daily time use by exploring with whom individuals are spending their time day-to-day. Results from study one showed that among workers, unmarried men and married women reported spending the most amount of time giving emotional support than their working counterparts. In contrast, unmarried women and married men reported spending the most time giving emotional support among the retirees. Unexplored in this dissertation is to whom did these individuals give emotional support. In a study by Almeida and McDonald (2005), women with more education are the most likely to give emotional support to their relatives than any other individuals (e.g., friends, coworkers). The researchers also found that single men and women are the most likely to provide emotional support to members of the community. Information on whom individuals are giving support is important because another level of understanding on how working and retired individuals are spending their time can be obtained.

In this dissertation, the importance of retirement and daily stress processes was documented. Yet, more can be explored in the study of retirement and daily stress processes. The richness of information on stressors, as gathered by the DISE stressor assessment, also allows for the examination of: a) content classification of the stressor (e.g., work overload, argument over housework), (b) who was the focus of the event, and (c) dimensions of threat (loss, danger,

disappointment, opportunity). In their examination of the content of daily stressors, Almeida and Horn (2004) found that younger and midlife adults reported more overloads and demands than older adults. Older adults, however, experienced more network stressors than their younger counterparts. Almeida and Horn (2004) also documented gender differences, with women reporting more overloads, network, and child-related stressors than men. This work highlights the importance of moving beyond whether a stressor was experienced. Although this dissertation assessed stressor characteristics, such as stressor severity and risk of stressors on areas of lives, more information can be studied about the reported stressors. Additional information on the stressors experienced can provide another insight to the challenges and opportunities that working and retired individuals face day-to-day.

In conclusion, this dissertation suggests that the study of retirement can benefit from taking a more microscopic approach of well-being. This dissertation also reinforces the importance of life course influences (e.g., timing, gender, social embeddedness) in the study of retirement and daily experiences. Finally, the LCDS perspective offers a useful framework to better understand the importance of transitions on aspects of daily experiences.

## References

- Almeida, D. M., & Horn, M. C. (2004). Is daily life more stressful during middle adulthood? In O.G. Brim, C. D. Ryff, & R. C. Kessler (Eds.), *How healthy are we? A national study of well-being at midlife* (pp. 425-451). Chicago: The University of Chicago Press.
- Almeida, D. M. & McDonald, D. (2005). The time Americans spend working for pay, caring for families, and contributing to communities. In J. Heymann (Ed.), *Unfinished work: Balancing equality and democracy in an era of working families* (pp. 180-203). New York: The New Press.
- Almeida, D. M., & Wong, J. D. (2009). Life transitions and daily stress processes. In G. H., Elder, Jr., & J. Z. Giele (Eds.), *The craft of life course research* (pp. 141-162). New York: Guilford Press.
- Bianchi, S. M., Milkie, M. A., Sayer, L. C., & Robinson, J. P. (2000). Is anyone doing the housework? Trends in the gender division of household labor. *Social Forces*, 79, 191-228.
- Brines, J. (1994). Economic dependency, gender and the division of labor at home. *American Journal of Sociology*, 100, 652-688.
- Burr, J. A., Massagli, M. P., Mutchler, J. E., & Pienta, A. M. (1996). Labor force transitions among older African American and White Men. *Social Forces*, 74, 963-982.
- Burtless, G., & Quinn, J. F. (2001). Retirement trends and policies to encourage work among older Americans. In P. P. Budetti, R. V. Burkhauser, J. M. Gregory, & H. A. Hunt (Eds.), *Ensuring Health and Income Security for an Aging Workforce* (pp. 375-415). Kalamazoo: W.E. Upjohn Institute for Employment Research.
- Cahill, K. E., Giandrea, M. D., & Quinn, J. F. (2006). Retirement patterns from career employment. *The Gerontologist*, 46, 514-523.

- Clow, A., Thorn, L., Evans P., & Hucklebridge, F. (2004). The awakening cortisol response: methodological issues and significance. *Stress*, 7, 29–37.
- Ekerdt, D. J., & Hackney, J. K. (2002). Workers' ignorance of retirement benefits. *The Gerontologist*, 42, 543-551.
- Gabriel, P. E., & Schmitz, S. (2007). Gender differences in occupational distribution among workers. *Monthly Labor Review*, 130, 19-24.
- Gall, T. L., Evans, D. R., & Howard, J. (1997). The retirement adjustment process: Changes in the well-being of male retiree across time. *The Journals of Gerontology*, 52, 110-117.
- Goldscheider, F. K., & Waite, L. J. (1991). *New Families, No Families? The Transformation of the American Home*. Berkeley, CA: University of California.
- Grzywacz, J. G., Almeida, D. M., Neupert, S. D., & Ettner, S. L. (2004). Stress and socioeconomic differentials in physical and mental health: A daily diary approach. *Journal of Health and Social Behavior*, 45, 1–16.
- Hagestad, G. O., & Neugarten, B. L. (1985). Age and the life course. In R. H. Binstock, & E. Shanas (Eds.), *Handbook of aging and the social sciences 2nd edition* (pp. 46-61). New York: Van Nostrand Reinhold.
- Hatch, L., & Thompson, A. (1992). Family responsibilities and women's retirement. In M. Szinovacz, D. Ekerdt, & B. Vinick (Eds.) *Families and retirement* (pp. 99-113). Newbury Park, CA: Sage Publications.
- Hayward, M. D., Crimmins, E. M., Miles, T. P., & Yang, Y. (2000). The significance of socioeconomic status in explaining the racial gap in chronic health conditions. *American Sociological Review*, 65, 910-930.

- Heim, C., Ehlert, U., & Hellhammer, D. H. (2000). The potential role of hypocortisolism in the pathophysiology of stress-related bodily disorders, *Psychoneuroendocrinology*, *25*, 1-35.
- Hellhammer, J., Fries, E., Schweisthal, O. W., Schlotz, W., Stone, A. A., & Hagemann, D. (2007). Several daily measurements are necessary to reliably assess the cortisol rise after awakening: State- and trait components. *Psychoneuroendocrinology*, *32*, 80-86.
- Ice, G. H., Katz-Stein, A., Himes, J., & Kane, R. L. (2004). Diurnal cycles of salivary cortisol in older adults. *Psychoneuroendocrinology*, *29*, 355-370.
- Johnson, R. W. (2004). "Do spouses coordinate their retirement decisions?" *Issue in Brief* 19 (July). Chestnut Hill, MA: Center for Retirement Research at Boston College.
- Kiecolt-Glaser, J. K., & Newton, T. L. (2001). Marriage and health: His and hers. *Psychological Bulletin*, *127*, 472-503.
- Kim, J. E., & Moen, P. (2002). Retirement transitions, gender, and psychological well-being: A life course, ecological model. *Journal of Gerontology: Psychological Sciences*, *57*, 212-222.
- Moen, P. (2003). Midcourse: Navigating retirement and a new life stage. In J. Mortimer & M. J. Shanahan (Eds.), *Handbook of the life course* (pp. 269-291). New York: Kluwer Academic.
- Munnell, A., Muldon, D., & Sass, S. A. (2009 January). *Recession and older workers*. (An issue in brief Center for Retirement Research at Boston College, No. 9-2). Boston, MA: Boston College.
- Neugarten, B. L. (1979). Time, age, and the life cycle. *The American Journal of Psychiatry*, *136*, 887-894.

- O'Rand A. M., Henretta J. C., & Krecker M. (1992). Family pathways to retirement. In M. Szinovacz, D. Ekerdt, & B. Vinick (Eds.), *Families and retirement* (pp. 81-98). Newbury Park, CA: Sage Publications.
- Pienta, A. M., Hayward, M. D., & Jenkins, K. R. (2000). Health consequences of marriage for the retirement years. *Journal of Family Issues, 21*, 559-586.
- Price, C. A. (2003). Professional women's retirement adjustment: The experience of reestablishing order. *Journal of Aging Studies, 17*, 341-355.
- Quick, H. E., & Moen, P. (1998). Gender, employment, and retirement quality: A life course approach to the differential experiences of men and women. *Journal of Occupational Health Psychology, 3*, 44-64.
- Quinn, J. F. (2002). Changing retirement trends and their impact on elderly entitlement programs. In S. H. Altman & D. I. Shactman (Eds.), *Policies for an aging society* (pp. 293-315). Baltimore: The Johns Hopkins University Press.
- Shuey, K. M. (2004). Worker preferences, spousal coordination, and participation in an employer-sponsored pension plan. *Research on Aging, 26*, 287-316.
- Slevin, K. F., & Wingrove, C. R. (1995). Women in retirement: A review and critique of empirical research since 1976. *Social Inquiry, 65*, 1-21.
- Springstead, G. R., & Wilson, T. M. (2000). Participation in voluntary individual savings accounts: An analysis of IRAs, 401(k)s, and the TSP. *Social Security Bulletin, 63*, 34-39.
- Talaga, J. T., & Beehr, T. A. (1995). Are there gender differences in predicting retirement decisions. *Journal of Applied Psychology, 80*, 16-28.

- Taylor, A. H. (2000). Physical activity, anxiety, and stress. In S. J. H. Biddle, K. R., Fox, C. H. Boutcher (Eds.), *Physical activity and psychological well-being* (pp. 10-45). New York: Routledge.
- Umberson, D. (1987). Family status and health behaviors: Social control as a dimension of social integration. *Journal of Health and Social Behavior*, 28, 306-319.
- Wheaton, B. (1990). Life transitions, role histories, and mental health. *American Sociological Review*, 55, 209-223.
- Yakoboski, P., & Silverman, C. (1993). Baby boomers in retirement: What are their prospects. Pp. 13-62 in *Retirement in the 21<sup>st</sup> Century...Ready or Not*. Washington, D.C.; Employee Benefit Research Institute.



## CURRICULUM VITAE

Jen D. Wong

### EDUCATION

Ph.D. 2010 Human Development and Family Studies, Pennsylvania State University  
M.S. 2006 Human Development and Family Studies, Pennsylvania State University  
B.S. 2001 Developmental and Social Psychology, Hampshire College

### HONORS AND AWARDS

2008 American Psychological Association Student Travel Award  
2007-2008 National Institute of Mental Health Pre-Doctoral Fellowship

### PUBLICATIONS

Almeida, D. M., & Wong, J. D. (2009). Life transitions and daily stress processes. In G. H., Elder, Jr., & J. Z. Giele (Eds.), *The craft of life course research* (pp. 141-162). New York: Guilford Press.

Wong, J. D. & Hardy, M. A. (2009). Women's retirement expectations: How stable are they? *Journal of Gerontology: Psychological Sciences and Social Sciences*, 64, 77-86.

### SELECTED PRESENTATIONS

Wong, J. D., & Almeida, D. M. (2009, November). *U.S. workers, work support, and daily well-being*. Poster presented at the 62<sup>nd</sup> Annual Scientific Meeting of the Gerontological Society of America, Atlanta, GA.

Wong, J. D., Almeida, D. M., & Stawski, R. S. (2008, November). *Work support and salivary cortisol in a sample of U.S. workers*. Paper presented at the 61<sup>th</sup> Annual Scientific Meeting of the Gerontological Society of America, National Harbor, MD.

Wong, J. D., & Almeida, D. M. (2008, August). Timing of retirement transition and daily stressors. In K. Boerner (Chair), *Heartaches and Headaches in Midlife: The Impacts of Untimely Stressors*. Symposium paper presented at the 116<sup>th</sup> Annual Scientific Meeting of the American Psychological Association, Boston, MA.

Wong, J. D., Almeida, D. M., & Stawski, R. S. (2007, November). *Diurnal cortisol rhythm in a sample of middle-aged non-retirees and retirees*. Paper presented at the 60<sup>th</sup> Annual Scientific Meeting of the Gerontological Society of America, San Francisco, CA.

### WORKSHOPS AND TRAINING

2009 National Institute of Aging Technical Grant Writing Workshop  
2007 The Pennsylvania State University International Program in Aging Research