Title

Perceived Job Insecurity and Quality of Life: Testing the Effect of Stress Proliferation from Work to Family Life

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Publication Date

2016

Peer reviewed|Thesis/dissertation

UNIVERSITY OF CALIFORNIA

Los Angeles

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Testing the Effect of Stress Proliferation from Work to Family Life

A dissertation submitted in partial satisfaction of the

requirements for the degree of Doctor of Philosophy

in Public Health

by

Anne Elizabeth Fehrenbacher

2016

ABSTRACT OF THE DISSERTATION

Perceived Job Insecurity and Quality of Life:

Testing the Effect of Stress Proliferation from Work to Family Life

by

Anne Elizabeth Fehrenbacher

Doctor of Philosophy in Public Health

University of California, Los Angeles, 2016

Professor Carol S. Aneshensel, Chair

The organization of work in the United States has changed dramatically over the last four decades as a result of globalization, industrial shifts, and technological innovation (Burgard et al., 2009; Seigrist & Marmot, 2005; Sverke & Hellgren, 2002). Long-term, stable employment relationships have increasingly been replaced with work arrangements characterized by shorter job tenure and fewer worker protections, leading to an increase in perceived job insecurity (Standing, 2011). Perceived job insecurity is defined as an anticipatory stressor related to the threat of losing a job, or important features of a job, and a sense of powerlessness to overcome this threat (Greenhalgh & Rosenblatt, 2010; De Witte, 2005).

The Employment Conditions Knowledge Network of the World Health Organization (WHO) Commission on Social Determinants of Health (Benach et al., 2007) suggests that the effects of perceived job insecurity on health may be even more harmful than job loss itself.

Although evidence for a causal relationship between perceived job insecurity and health is growing, little is known about mechanisms and group differences in this relationship.

This dissertation investigates the relationship between perceived job insecurity and quality of life. Quality of life is defined in this study as a general state of health, well-being, and satisfaction across multiple dimensions of life (Drotar, 2014; Kobau et al., 2010; Bowling, 1991). Although the WHO defines health very broadly as a "complete state of physical, mental, and social well-being," health is usually assessed in studies of perceived job insecurity in very narrow terms based on the presence or absence of disease (CDC, 2011). In contrast to this deficit perspective on health, quality of life is an overall state of wellness.

This dissertation makes an important contribution to the literature on perceived job insecurity and quality of life by achieving three aims: 1) identifying determinants of perceived job insecurity among adults in the United States; 2) testing causal pathways linking perceived job insecurity and perceived inequality at work to quality of life; and 3) estimating group differences in the effect of perceived job insecurity and perceived inequality at work on quality of life based on social status, social resources, and demographic characteristics.

Data for this research were drawn from a U.S. sample of non-institutionalized, English-speaking adults in the 1995-1996 and 2004-2006 waves of the National Survey of Midlife Development in the United States (MIDUS). Multivariate generalized ordinal structural equation modeling was used to test hypotheses for the first aim (N=5,424). Multivariate linear structural equation modeling with full information maximum likelihood estimation was used to test hypotheses for the second and third aims (N=5,113). This study was informed by Pearlin and colleagues' (1981) stress process model, which posits that unequal exposure to stressors and access to resources for coping with stressors contributes to health disparities.

Key findings from this study add to existing knowledge on job stressors and health. First, for determinants, perceived job insecurity is influenced by objective job insecurity over and above the effects of psychosocial job stressors and demographic characteristics. Effort-reward imbalance also significantly increases perceived job insecurity, but job strain does not. High effort may improve security, but not in the absence of control. People of color report significantly higher perceived job insecurity than non-Hispanic white people, but there is no association between gender and perceived job insecurity, all other factors held constant. Perceived inequality at work is a strong determinant of perceived job insecurity.

Second, for consequences, perceived job insecurity is associated with quality of life net of controls for demographic and health characteristics, but not when controlling for other job stressors. Perceived inequality at work confounds the relationship between perceived job insecurity and quality of life. Negative work to family spillover of stress and social support outside of work from family, friends, and spouse/partner significantly mediate the relationship between perceived inequality at work and quality of life. Third, for conditioning factors, the effect of perceived inequality at work on quality of life is conditional on household income, social support at work, age, and wave of interview. No significant group differences were found by education, gender, or race.

The findings demonstrate that perceived job insecurity is associated with other psychosocial stressors from established job stress models but that inequality may be even more threatening to health and well-being than insecurity. Stress proliferation from work to family life partially explains the relationship between perceived inequality at work and quality of life. Programs to enhance social support at work and home may help to contain the negative health effects of inequality and insecurity on quality of life.

The dissertation of Anne Elizabeth Fehrenbacher is approved by:

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2016

DEDICATION

I dedicate this dissertation to my parents, who have always supported and loved me unconditionally.

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ACKNOWLEDGEMENTS

I am grateful for the support of many people who made this dissertation possible. First, I thank the members of my committee Carol Aneshensel, Anne Pebley, Dawn Upchurch, Ondine von Ehrenstein, and Katherine Stone, who have provided exceptional advice on theoretical and analytical considerations for my dissertation and guided me through this long and ominous process. I am especially indebted to my chair Carol Aneshensel, who kept me motivated through countless challenges. Carol, your investment in seeing me thrive has been unparalleled. You encouraged me to ask tough questions and provided me with the tools to answer them. When stressors felt overwhelming, you were my most valuable resource. I must also give a very special thank you to Anne Pebley, my long-time adviser and most unwavering supporter over the last seven years. Anne, thank you for helping me grow at every step of this process. Carol and Anne, thank you for showing me what it means to be a true mentor. My life has been infinitely enriched by knowing and working with you.

Thank you to the many other professors and mentors who have been vital resources for me throughout grad school. Thank you to Susie Baldwin, Dallas Swendeman, Lara Stemple, Gail Kligman, Jennie Brand, Kimberlé Crenshaw, and Marjorie Kagawa Singer for believing in my potential as a researcher and providing opportunities for me to realize it. Thank you to Susie and Dallas for teaching me how to navigate the publication process and own my voice, especially when writing on controversial issues. Thank you to Gilbert Gee and Abigail Saguy for reinforcing my love of teaching. Thank you to Linda Delp, Kevin Riley, and Chloe Osmer for instilling a love of labor in me and showing me how research can advance worker rights and social justice.

Thank you to all of my classmates and colleagues, who reminded me that we were in this together. Thank you to my CHS colleagues past and present, who helped me see that we would make it to the end and that life exists on the other side, especially Mienah Sharif, Goleen Samari, Alanna Hirz, Tabashir Nobari, Julia Caldwell, Patience Afulani, Pia Chaparro, Minal Patel, Jackie Torres, Darrah Kuratani, Heather Guentzel Frank, Héctor Alcalá, June Lim, and Uchechi Mitchell. Thank you to my coworkers, who helped me learn to balance work and life, especially Pari Sabado, Annalyn Valdez Dadia, Minelle David, MJ Sung, DeAnnah Bryd, Claudia Huang, Jessica Martinez, and Rana Sharif. Thank you to my MPH friends, who encouraged me to be fierce and fearless, especially Brock Dumville, Karin Hilton, and Mena Gorre. Thank you to my amazing collaborators outside of UCLA Samira Ali and Sambuddha Chauduri. Thank you to my incredible MPH mentees Banke Balogun and Shirley Au. Thank you to everyone who made time for writing dates with me and told me that I could do this, especially Ariana Bell, Sa Whitley, Becca DiBennardo, Liz Kofman, Devin Bunten, Olufemi Taiwo, Gwen Barker, and Elena Shih.

This research was supported by an institutional training grant at the California Center for Population Research through Award Number 5T32HD007545 from the National Institute of Child Health and Human Development. Thank you to the many other centers, research groups, and community organizations that made my work possible, especially LOSH, OHIP, CLEAN, CSW, The Bixby Center, and Durbar. Thank you to the statistical consultants at IDRE, who helped me overcome the many data and analytic challenges I encountered in the dissertation process, especially Joni Ricks and Andy Lin. Thank you to the MIDUS study team and participants for providing the data used in this dissertation. A special thank you to my dissertation writer's group and our fabulous facilitator Aleks Kalinich.

Finally, I thank my closest friends and family who have been constants in my life before, during, and after the dissertation process. Thank you to the friends who have provided hours of emotional support, love, and social distraction to keep me going, especially Shruti Purkayastha, Al Johnson, Sara Train, Kristin Winn and many others already mentioned above. Thank you to my brother Scott, sister-in-law Myrna, niece Luna, and nephew Jakob for being an endless source of joy in my life. Thank you to my parents Tina and Jeff for instilling an insatiable thirst for knowledge in me and providing me the support and encouragement to pursue it. Thank you for always believing that I could accomplish my goals even when I didn't believe myself. And finally, thank you to my partner and love Amit, who has been with me through it all. Thank you for taking care of me and keeping me laughing even on the hardest days. I have no words to express how grateful I am to have you in my life.

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Fehrenbacher, A. E., Chowdury, D., Ghose, T., Swendeman, D. T. (2016). Consistent condom use by female sex workers in Kolkata, India: Testing theories of economic insecurity, behavior change, life course vulnerability, and empowerment. *AIDS & Behavior*, online ahead of print.

Swendeman, D. T., **Fehrenbacher, A. E.,** Ali, S., George, S. M., Mindry, D., Collins, M., Ghose, T., Dey, B. (2015). "Whatever I have, I have made by coming into this profession": The intersection of resources, agency, and achievements in pathways to sex work in Kolkata, India. *Archives of Sexual Behavior*. 44(4):1011-1023.

Fehrenbacher, A. E. (2015). Testing a causal model of job insecurity, work to family spillover, and health. Sociologists for Women in Society Winter Meeting: Washington, DC.

Fehrenbacher, A. E. (2015). Testing a causal model of job stress proliferation. Society for Social Work and Research: New Orleans, LA.

Baldwin, S. B., **Fehrenbacher, A. E.,** Eisenman, D. P. (2014). Psychological coercion in human trafficking: An application of Biderman's framework. *Qualitative Health Research*, 25(9):1171-1181.

Fehrenbacher, A. E. (2014). Job insecurity and quality of life: Testing a causal model of job stress proliferation. First Runner-up, Occupational Safety and Health Section Poster Competition, American Public Health Association Annual Meeting: New Orleans, LA.

CHAPTER 1: INTRODUCTION

The organization of work in the United States has changed dramatically over the last four decades as a result of globalization, industrial shifts, and technological innovation (Burgard et al., 2009; Seigrist & Marmot, 2004; Sverke & Hellgren, 2002). Long-term stable employment relationships have increasingly been replaced with insecure work arrangements characterized by shorter job tenure and fewer social protections (Standing, 2011). Although most workers in the U.S. have not lost their jobs due to these changes, perceived job insecurity is growing across all classes of workers (Kalleberg, 2009; Sverke et al., 2006). Perceived job insecurity is defined as an anticipatory stressor related to the threat of losing a job or valued features of a job and a sense of powerlessness to overcome this threat (Greenhalgh & Rosenblatt, 2010; De Witte, 2005).

Perceived job insecurity is associated with several adverse health outcomes, such as poor self-rated health, depression, anxiety, and cardiovascular risk factors (Burgard et al., 2012). A report by the Employment Conditions Knowledge Network of the World Health Organization (WHO) Commission on Social Determinants of Health suggests that the long-term effects of perceived job insecurity may be even more harmful to health than job loss (Benach et al., 2007). According to the report, the chronic anticipation of loss felt by workers with perceived job insecurity causes more stress than the acute experience of job loss itself. Workers with chronic perceived job insecurity have heightened levels of psychological distress (Ferrie et al., 2002) and physiological over-activation (McEwen & Tucker, 2011) compared to workers who lose their jobs.

The goals of this dissertation were to identify the determinants of perceived job insecurity among adults in the United States, explain the relationship between perceived job insecurity and quality of life, and estimate group differences in the relationship between perceived job

insecurity and quality of life based on social status and resources. In this study, quality of life is defined as a general state of health, well-being, and satisfaction across multiple domains of life (Drotar, 2014; Kobau et al., 2010; Bowling, 1991). Health outcomes in studies on perceived job insecurity almost exclusively assess disease states based on deficit models of health rather than wellness models (CDC, 2011; Burgard et al, 2009). This approach is inconsistent with the notion of health as a "complete state of physical, mental, and social well-being, not merely the absence of disease or infirmity," as defined by the World Health Organization (WHO, 1948). Given that perceived job insecurity is often experienced as a chronic stressor over prolonged periods of time, its effects are likely to extend beyond influencing self-rated health status or the development of diseases to include impairing overall quality of life (Ferrie et al., 2002).

Although the relationship between perceived job insecurity and quality of life is established, disagreement remains regarding the magnitude and direction of the relationship (Sverke et al., 2002). Few studies have examined causal mechanisms (mediators) that may explain the relationship between perceived job insecurity and quality of life or group differences (moderators) in that relationship (Caroli & Godard, 2014). Elaborating the stress pathways through which perceived job insecurity impairs quality of life and identifying factors that modify the relationship between perceived job insecurity and quality of life may improve our understanding of how work-related stressors contribute to health disparities.

This dissertation expands upon previous research on percieved job insecurity and quality of life by analyzing the relationship between objective and subjective job insecurity, validating a novel, multidimensional measure of quality of life, testing the mediating effects of negative work-to-family spillover of stress and social support in the relationship between perceived job insecurity and quality of life, and testing the moderating effects of education, household income,

social support at work, and social support outside of work on the relationship between perceived job insecurity and quality of life.

This study uses data from a two-wave panel survey, the National Survey of Midlife Development in the United States (1995-1996 and 2004-2006), to investigate the relationship between perceived job insecurity and quality of life among a sample of U.S. adults ranging in age from 25 to 74 years old at baseline (Brim et al., 2010). This sample includes people at a variety of life stages interviewed twice over 10 years. The sample includes young people entering the labor force, people in the prime years of career development and family formation, and those nearing retirement and exiting the labor force. As a result, I examine the moderating effects of age and wave (Pearlin & Skaff, 2010).

Another benefit of this data set is that it includes interviews during two time periods with contrasting economic and labor market climates. The first wave (1995-1996) was during a period of economic expansion and prosperity, and the second (2004-2006) during a period of contraction and rapidly declining security for workers (Burgard et al., 2009). Note: For future references to the year of interviews for this study, I use "1995" to refer to the 1995-1996 wave and "2005" to refer to the 2004-2006 wave. Throughout the 1990s, the U.S. civilian labor force participation rate was growing steadily until it peaked in 2000 at 67.1% and began declining again (BLS, 2006). Since the labor force participation rate was marginally higher in 1995 (66.6%) than in 2005 (66.0%), and the 1995 interview took place during a period of growth, one might expect the relationship between perceived job insecurity and quality of life to be buffered by the macroeconomic climate (period effect). However, perceived job insecurity declines with age and years in the labor force, and quality of life increases with age, so one could also expect the relationship between perceived job isnecuriy and quality of life to be offset by aging and thus

weaker in 2005 when the sample was 10 years older (age or cohort effects). For these reasons, these data on midlife adults has many beneficial features for investigating the research questions of interest for this study. Additional strengths and limitations of the data and sample are discussed in Chapter 2: Methods and Chapter 7: Discussion.

In this chapter, I provide an overview of the specific aims, research questions, and hypotheses of the study, followed by a discussion of conceptualizations of perceived job insecurity and quality of life. Next, I describe how the changing nature of work contributes to perceived job insecurity for workers and critique the existing literature on perceived job insecurity, stress, and quality of life. Finally, I present the theoretical framework that provides the foundation for testing associations among the study variables.

1.1 Specific Aims, Research Questions, and Hypotheses

In this section of the chapter, I provide a brief description of the key variables in the study followed by an overview of the specific aims with research questions and hypotheses for each aim regarding the relationships among these variables. A rationale for each hypothesis is also provided. The three aims of this dissertation were to: 1) identify the determinants of perceived job insecurity among adults in the United States; 2) test causal pathways linking perceived job insecurity with quality of life (mediation); and 3) estimate group differences in the effect of perceived job insecurity on quality of life based on social status and resources (moderation).

Independent variables: Job insecurity is conceptualized in this study as a primary stressor and is operationalized by one subjective measure for perceived job insecurity and four objective measures for 1) employment status in the previous year before the interview, 2) number of

changes in employment status in the last 10 years, 3) ever being out of work for six months or more in the last 10 years, and 4) being full-time employed all of the last 10 years. *Dependent variable:* Quality of life is conceptualized as a general state of health, well-being, and satisfaction with life and operationalized as a latent variable with three psychosocial indicators for intrapersonal well-being, interpersonal well-being, and life satisfaction. *Mediators:* Negative work to family spillover of stress is conceptualized as a secondary stressor and is operationalized by a multi-item scale describing how stressful aspects of work negatively impact family life. Social support outside of work from family, friends, and a spouse/partner is conceptualized as a social resource and operationalized by a multi-item scale assessing support adjusted for strain from each of the three interpersonal sources. *Status moderators:* Educational attainment and household income are conceptualized as socioeconomic status characteristics and are operationalized as continuous variables based on years of schooling completed and total income in U.S. dollars from all members of the household combined, respectively. For the moderation analysis, education is dichotomized at bachelor's degree, and household income is dichotomized at the median. *Resource moderators:* Social support is conceptualized as a social resource and is operationalized by two multi-item scales for support at work from coworkers and supervisors and support outside of work from family, friends, and spouses/partners. Each social support scale is dichotomized at the median for the moderation analysis.

Specific Aim 1 was to identify the determinants of perceived job insecurity among adults in the United States. The four research questions and corresponding hypotheses for Aim 1 were:

1) **Does educational attainment reduce perceived job insecurity?**

Hypothesis 1) Educational attainment is negatively associated with perceived job insecurity, net of controls for objective job insecurity, demographic and health characteristics, and psychosocial job stressors, such as job strain (high demands with low control) and effort-reward imbalance (high effort with low rewards). The direct effect of education on perceived job insecurity is thought to be attenuated by these factors but to remain statistically significant. **Rationale:** Education reduces perceived job insecurity by providing credentials, skills, and social networks crucial for obtaining high-quality jobs that provide rewards, such as high compensation and job security (Siegrist, 1996). Education also reduces perceived job insecurity by promoting self-efficacy, mastery, and positive social comparisons (Mirowsky & Ross, 2015).

2) **Does objective job insecurity increase perceived job insecurity?**

Hypothesis 2a) Relative to being employed full-time in the previous year, being employed part-time, not working six months or more, or being a full-time student are associated with higher perceived job insecurity. **Rationale:** Full-time employees are more likely than part-time employees to have permanent contracts with employers that reduce ambiguity and uncertainty about the probability of job loss (Bernhard-Oettel et al., 2007; Kalleberg, 2000). Recent experiences with being out of work or being unemployed reduce a person's confidence in their employability and ability to maintain a job (Auer, 2007). Studying full-time increases the probability of long-term perceived job security by providing access to better quality jobs as described in the rationale for hypothesis 1. However, studying full-time usually requires a period of part-time work or being out of the labor force entirely in order to focus on studies, therefore temporarily increasing perceived job insecurity (Curtis & Lucas, 2001; Schmidt, 1999).

Hypothesis 2b) Number of changes in employment status in the last 10 years is positively associated with perceived job insecurity. **Rationale:** Having an unstable employment status history or switching jobs frequently reduces a person's perception of the stability of their current job and the probability of keeping it in the future (Kalleberg, 2000; Mutchler et al., 1996 Gregg et al., 1996).

Hypothesis 2c) Not working for six months or more in the last 10 years is positively associated with perceived job insecurity. **Rationale:** Previous experiences with job loss or being out of the labor force have long-term effects on perceived employability and security (Burgard et al., 2009; Auer, 2007).

Hypothesis 2d) Working full-time for all of the last 10 years is negatively associated with perceived job insecurity. **Rationale:** The positive effects of full-time employment, as outlined in hypothesis 2a, and long-term stability in employment status, as outlined in hypothesis 2b, may have cumulative effects to increase perceived job security.

3) **Does job strain increase perceived job insecurity?**

Hypothesis 3a) Job demands are positively associated with perceived job insecurity. **Rationale:** High demands lead to exhaustion and burnout and increase the likelihood of making mistakes on the job, which could increase the probability of losing a job (Demerouti et al., 2001; Landsbergis, 1988).

Hypothesis 3b) Job control is negatively associated with perceived job insecurity. **Rationale:** Job control improves a worker's confidence in their ability to meet the demands placed on them and to feel more stability and autonomy in the workplace, generally (Karasek, 1979; Greenhalgh & Rosenblatt, 2010).

Hypothesis 3c) Job strain (high demands conditional on low control) is positively associated with perceived job insecurity. **Rationale:** The effect of demands on perceived job insecurity is negative for those with low control, but could be reversed into a positive effect for those with high control, as suggested by Karasek's (1979) job strain model. Jobs with high demands and high control – referred to as "active jobs" – provide more opportunities for growth and skill development that make a worker more of an asset for the employer, thus more secure (Karasek & Theorell, 1990).

4) **Does effort-reward imbalance increase perceived job insecurity?**

Hypothesis 4a) Perceived thought or effort put into work is postively associated with perceived job insecurity. **Rationale:** As with high demands, high effort or cognitive inputs into work may lead to burnout and exhaustion that increases turnover, intention to quit, and probability of job loss if adequate rewards are not received as compensation for this effort (Bakker et al., 2000).

Hypothesis 4b) Perceived inequality in the workplace is positively associated with perceived job insecurity. **Rationale:** Perceived inequality creates a hostile work environment that undermines trust in the employer and increases insecurity about the continuity of a job. Furthermore, perceived inequality reduces a worker's sense of satisfaction with rewards (Siegrist & Marmot, 2004).

Hypothesis 4c) The relationship between perceived thought/effort put into work and perceived job insecurity is conditional on perceived inequality in the workplace. **Rationale:** A reciprocity deficit (e.g., when inequality prevents a worker's efforts from resulting in expected rewards) is associated with high perceived job insecurity, as suggested by Siegrist's (1996) effort-reward imbalance model. Reciprocity deficits

undermine the psychological contract between employers and employees about expected rewards for work, such as monetary compensation and security (Piccoli & Witte, 2015).

Hypothesis 4d) The relationship between perceived thought/effort put into work and perceived job insecurity is conditional on job control. **Rationale:** Control buffers the effect of both extrinsic demands on stress-related outcomes as well as intrinsic effort or level of thought put into work (Greenhalgh & Rosenblatt, 2010). Control can reduce the negative effects of over-commitment or increased effort in the face of inadequate rewards (Siegrist et al., 2004).

Specific Aim 2 was to examine the relationship between perceived job insecurity and quality of life and test whether negative work to family spillover of stress and social support outside of work from family, friends, and spouse/partner act as mechanisms explaining the relationship. The research questions and hypotheses for Aim 2 were

1) Do the indicators of intrapersonal well-being, interpersonal well-being, and life satisfaction load together on one common latent factor?

Hypothesis 1a) Intrapersonal well-being, interpersonal well-being, life satisfaction load together as indicators of a single latent factor of quality of life. **Rationale:** Life satisfaction is correlated with well-being because both assess aspects of subjective fulfillment and contentment with self and relationships to others (Andrews & Withey, 2012; Ryff & Keyes, 1995; Diener et al., 1985).

2) Does perceived job insecurity impair quality of life?

Hypothesis 2a) Perceived job insecurity is negatively associated with quality of life, net of controls for demographic, work, and health characteristics. **Rationale:**

Perceived job insecurity impairs multiple aspects of personal and social life because jobs confer status, economic resources, and social networks, all of which could be lost in the event of job loss (Greenhalgh & Rosenblatt, 2010; Burgard et al., 2009).

3) Does negative work-to-family spillover of stress mediate the relationship between perceived job insecurity and quality of life?

Hypothesis 3a) Perceived job insecurity is positively associated with negative work to family spillover of stress. **Rationale:** Perceived job insecurity negatively impacts family life because it is an ever-present stressor with a threat of dire consequences for individuals and their families due the potential economic hardships that could result from job loss. Additionally, perceived job insecurity is not a stressor that is specific to job tasks or aspects of the work environment that stay largely within the physical workplace (Geurts & Demerouti, 2003; Larson et al., 1994). It is likely to cross boundaries into family life at home.

Hypothesis 3b) Negative work to family spillover of stress is negatively associated with quality of life. **Rationale:** Stress proliferation from work to family life leads to relationship conflict, which drains social coping resources, particularly social support from family, impairing a person's ability to cope with present and future stressors (Thoits, 2010; Gryzwacz & Marks, 2000). Spillover transfers the negative stressors from one domain of life to another, decreasing quality of life in both domains.

Hypothesis 3c) Negative work to family spillover of stress mediates the relationship between perceived job insecurity and quality of life, transmitting the effect of perceived job insecurity onto quality of life. **Rationale:** Perceived job insecurity acts as a primary stressor, which leads to a cascade of other stressors, in particular

negative work to family spillover, which in turn impairs quality of life. This process of stress proliferation occurs when stressors cross boundaries between different domains of life or between people, and this cascade of stressors has a larger cumulative effect on health outcomes than any stressor alone (Pearlin et al., 1997).

4) Does social support outside of work from family, friends, and spouse/partner mediate the relationship between perceived job insecurity and quality of life?

Hypothesis 3a) Perceived job insecurity is positively associated with social support outside of work. **Rationale:** Perceived job insecurity mobilizes social support from family, friends, and spouse/partner because the stress of perceived job insecurity is likely to cross boundaries into life outside of work (Scheiman & Glavin, 2011). However, perceived job insecurity may both increase social support in the short-term as it is mobilized as a coping resource and erode social support in the long-term if supporters are continually called upon to provide help.

Hypothesis 3b) Social support outside of work may be either positively or negatively associated with quality of life. **Rationale:** Stress proliferation from work to family life leads to the mobilization of social support but may also increase relationship conflict, which drains social coping resources, impairing a person's ability to cope with future stressors (Thoits, 2010; Gryzwacz & Marks, 2000).

Hypothesis 3c) Social support outside of work mediates the relationship between perceived job insecurity and quality of life, transmitting the effect of perceived job insecurity onto quality of life. **Rationale:** Perceived job insecurity acts as a primary stressor, which leads to a cascade of other stressors and the mobilization of coping resources (Pearlin et al., 1997). Note: perceived job insecurity may also function as a

secondary stressor in other situations, such as when other stressors at work lead individuals to feel more insecure.

Specific Aim 3 is to investigate group differences in the relationship between perceived job insecurity and quality of life via negative work to family spillover of stress. The research questions and hypotheses for Aim 3 were:

1) **Is the measurement model for the latent variable of quality of life invariant across social groups?**

   Hypothesis 1a) The measurement model for the latent variable of quality of life is invariant across groups based on social status, social resources, and demographic characteristics. **Rationale:** The latent variable for quality of life is operationalized as the same underlying construct across groups because the measure covers multiple dimensions across a variety of aspects of life that are not unique to any particular group based on social status, social or material resources, or other demographic characteristics such as age, gender, and race.

2) **Are the relationships among perceived job insecurity, negative work to family spillover of stress, and quality of life conditional on socioeconomic status?**

   Hypothesis 2a) Educational attainment moderates the relationship between perceived job insecurity and quality of life such that the relationship is stronger for those with less than a bachelor's degree than those with a bachelor's degree. The moderating effect of education is observed on all pathways in the model. **Rationale:** The effect of perceived job insecurity on spillover and quality of life is less stressful among those with a bachelor's degree because they have easier access to jobs of comparable

quality if they lose a job (Clark & Postel-Vinay, 2009). Status characteristics affect all pathways in the model because they act on multiple levels to structure both exposure to stressors and access to resources (Pearlin et al., 1989).

Hypothesis 2b) Household income buffers the effect of perceived job insecurity on quality of life, such that the effect of perceived job insecurity on quality of life is stronger for those with low household income. Moderation by household income is observed on all pathways. **Rationale:** Material resources provide a safety net in the event of involuntary job loss, so the potential economic loss is perceived as less threatening to those in high income households (Greenhalgh & Rosenblatt, 1984). Status characteristics affect all pathways in the model because they act on multiple levels to structure exposure to stressors and access to resources (Pearlin et al., 1989).

3) **Are the relationships among perceived job insecurity, negative work to family spillover, and quality of life conditional on access to social resources?**

Hypothesis 3a) The negative effect of perceived job insecurity on quality of life is buffered by social support at work from coworkers and supervisors. The moderating effect of social support at work is observed on the pathway of the model from perceived job insecurity to spillover. **Rationale:** Support in the workplace helps to prevent the proliferation of stressors from spilling over from work to family life (Thoits, 2011). However, the process of mobilizing social support at work may also deplete an individual's social resources to cope with future stressors. Note: the resource-depletion hypothesis of social support is not tested in this analysis.

Hypothesis 3b) The negative effect of perceived job insecurity on quality of life is buffered by social support outside of work from family, friends, and spouses/partners.

The moderating effect of social support outside of work is observed on the pathway of the model between spillover and quality of life. **Rationale:** Social support from friends and relatives helps workers to cope with the stress of insecurity by containing and counteracting the effects of stress proliferation spilling over into family life (Thoits, 2011). However, the process of mobilizing social support outside of work may also deplete an individual's social resources to cope with future stressors.

4) **Are the relationships among perceived job insecurity, negative work to family spillover, and quality of life conditional on the demographic characteristics of gender, race, and age, and on the indicator for wave of interview?**

Hypothesis 4a) The relationship between perceived job insecurity, spillover, and quality of life is stronger for men than women. **Rationale:** Occupational success and stability is generally rated more central to identity and quality of life for men than for women (Thoits, 1991). Additionally, women are more accustomed to dealing with job insecurity and career disruptions due to entering and leaving the workforce more frequently for family obligations, such as raising children or caring for elderly family members (Gaunt & Benjamin, 2007). Women also tend to have stronger networks of social support, which buffer the negative effects of perceived job insecurity. For these reasons, perceived job insecurity is more stressful for men than for women because losing a job is perceived as a bigger "shock" for men (Brand, 2003; Wetzel, 1995).

Hypothesis 4b) The relationship between perceived job insecurity, spillover, and quality of life is stronger for younger workers than older workers. **Rationale:** Older workers have more assets, skills, and status than younger workers, as a result of working more years and climbing occupational hierarchies (Riza et al., 2015).

Additionally, older workers are closer to retirement, a period of transition in which work roles become less central to identity and people anticipate detachment from the labor force (Hershey & Henkens, 2013). Furthermore, older workers are less likely to have children still living in the household, so negative spillover is less stressful than for people with children at home (Qu & de Vaus, 2015).

Hypothesis 4c) The relationship between perceived job insecurity, spillover, and quality of life is stronger at wave one than wave two (1995 vs. 2005). **Rationale:** Although labor force participation rates were higher in 1995 than 2005 (BLS, 2006), effect modification by wave may be a proxy for aging, with spillover having a stronger effect for younger workers than older workers as stated in hypothesis 3c, because the participants in the sample are 10 years older at wave two.

Hypothesis 4d) The relationship between perceived job insecurity, spillover, and quality of life is stronger for people of color than for non-Hispanic white people. **Rationale:** People of color tend to have lower access to both economic and social status than non-Hispanic white people due to a history of racism that limits both social status and institutional resources (e.g., housing, education, and jobs) due to stereotypes that people of color are less competent than white people as workers (Acker, 2006). Occupational segregation and discrimination in hiring make it more difficult for people of color to obtain a new job in the event of involuntary job loss (Wilson et al., 2006). As a result, the prospect of finding another job in the event of a job loss is perceived as more threatening for people of color than white people.

1.2 Background and Significance

In this section of the chapter, I provide a review of the literature on the relationship between perceived job insecurity and quality of life. First, I discuss how the changing nature of work has led to an increase in perceived job insecurity. Next, I explain how perceived job insecurity and quality of life are conceptualized in the literature. Finally, I critique the existing evidence on the relationship between perceived job insecurity and quality of life and describe how this study builds on previous research.

1.2.1 The Changing Nature of Work

The organization of work in the United States has changed dramatically over the last four decades as a result of globalization, industrial transitions and restructuring, and technological innovation (Burgard et al., 2009). Industries, such as manufacturing, which once provided a wealth of stable blue-collar jobs, have increasingly been outsourced and replaced by more flexible jobs in industries such as retail and sales, food service, and hospitality (Standing, 2011). These jobs tend to be characterized by less secure arrangements between employer and employee with fewer worker protections than jobs in other industries. These changes in work organization have far outpaced our understanding of the implications of such changes for worker health and well-being (Siegrist, 1996; Marshall et al., 1997; Naswall et al., 2008).

Development economist Guy Standing (2011) introduced the concept of "The Precariat" to describe an emerging class of people living and working in increasingly precarious environments with short-term work contracts and declining social and labor protections. Precarious employment is characterized by high perceived job security and low control over work processes in conjunction with inconsistent or insufficient work hours, low wages, and

limited fringe benefits and few protections from termination (Bohle et al., 2004; Quinlan et al., 2001). According to Standing (2011), the growth of perceived job insecurity is the result of several macroeconomic factors, including legislative changes that allow employers to dismiss workers without having to establish just cause for termination, decline in union representation, and a rise in "right-to-work" and "at-will" employment laws that weaken protections for workers. These influences have led to a widespread sense that no one is immune to perceived job insecurity and its consequences (McNamara et al., 2011).

The rise of temporary and contract employment has also contributed to an increasingly insecure workforce that is less tied to long-term employment relationships that would provide job security, health benefits, and stable social communities (Burgard et al., 2012; Bohle et al., 2004). Temporary and contract positions are generally characterized by higher uncertainty about sustained employment and mobility, low control over tasks and responsibilities, and little social support due to being removed from social environments in workplaces after short periods of time (Burchell, 2011; De Cuyper & De Witte, 2007, 2008; Kirves et al., 2011). Data released by the Bureau of Labor Statistics (2013) shows that approximately one in five of new jobs created in the last decade have been in the temporary help services sector (Bertram, 2013).

Shift work and unpredictable schedules are often seen in cases of temporary or insecure employment, and ambiguity regarding one's role in an organization can also arise when a worker is only loosely tied to an employer (Gregson & Wendell, 2011; Tarrant & Sabo, 2010). Retail occupations that employ both temporary and permanent workers are increasingly adopting new forms of scheduling such as "just-in-time" or "on-call" scheduling, which allow employers to alternate worker schedules based on daily customer flows, sometimes within hours of the start of a shift (Zeytinoglu et al., 2004). This form of scheduling is particularly destabilizing for workers,

who rely on a second job to provide for dependents and must arrange child care on very short notice (Kim et al., 2012; Kim et al., 2008). This type of scheduling increases the probability that a worker will be late to work or miss a shift, which increases perceptions of insecurity and anxiety about the threat of job loss.

Little is known about the health effects of temporary and contract employment, though researchers have observed correlations with symptoms of mental illness and psychological distress (Kim et al., 2008). More studies and theoretical adaptations of existing models are needed to understand the effects of changing workforce characteristics and practices as well as larger socioeconomic trends on the relationship between perceived job insecurity and quality of life (Kirves et al., 2011; Silla et al., 2005; P. Virtanen et al., 2011).

This study addresses these needs by assessing multiple aspects of objective and subjective job insecurity in addition to information on irregular work schedules. Unfortunately, the data set for this analysis does not include information on contract type, so I am not able to compare the effects of perceived job insecurity between temporary and permanent employees. However, the sample includes workers across a wide variety of occupations, many of which have large proportions of temporary workers. Additionally, retrospective employment status histories reported for a 10-year period capture much of the instability that would be expected among temporary workers.

1.2.2 Conceptualization of Perceived Job Insecurity

In this study, perceived job insecurity is defined as an anticipatory stressor related to the threat of losing a job or valued features of a job and a sense of powerlessness to overcome this threat (Greenhalgh & Rosenblatt, 2010). Previous conceptualizations of perceived job insecurity

in the literature fall broadly under two primary types: probabilistic or subjective definitions. The probabilistic definitions focus on the likelihood of losing a job whereas the subjective definitions focus on the psychological worries and fears regarding the anticipation of what could be lost in along with the job itself (Mauno et al., 2001). An individual worried about losing a job may experience anticipatory stress about problems that could result from job loss such as psychological distress, financial strain, familial conflict, or loss of social status (Burgard et al. 2012). In this study, perceived job insecurity is defined as a subjectively experienced stressor regarding a threat to desired continuity in one's job (Sverke et al. 2000).

Objective conceptualizations of job insecurity fall largely under the umbrella of probabilistic definitions. Examples of current objective job characteristics that are associated with a higher probability of job loss are non-permanent contract type, less than full-time employment status, and short tenure with current employer (Standing, 2011). Examples of previous objective characteristics of an individual's job history that may increase job loss are having many changes in employment status over a short period of time and recent experiences with job loss or unemployment spells (Kofman, 2015). Indicators of objective job insecurity in a person's own employment experiences and job history are used in this analysis as proxies for the probability of job loss.

The conceptualization of job insecurity in this study integrates both subjective and probabilistic definitions of job insecurity. The study assesses multiple aspects of objective job insecurity, a single aspect of perceived job insecurity, and the relationship between objective and perceived job insecurity.

1.2.3 Conceptualization of Quality of Life

Quality of life is defined in this study as a general state of health, well-being and satisfaction across multiple domains of life (Drotar, 2014; Kobau et al., 2010; Bowling, 1991). Most conceptualizations of quality of life combine an aspect of subjective well-being with an assessment of life evaluation, such as life satisfaction (Bowling, 1991; Guillemin et al., 1993). Well-being refers to a general condition of an individual related to a sense of fulfillment or purpose in life (Geishecker, 2009). Life satisfaction is a person's evaluation of their current status in different domains of life, such as work, family, and health (Demerouti et al., 2000; Kossek & Ozeki, 1998; Green, 2011).

Well-being and life satisfaction are often compared to affective constructs such as happiness (Kinnunen et al., 2003; Salanova et al., 2006). However, well-being and life satisfaction are constructs closely tied to values and meaning in life as a whole that cannot be distilled to a transitory emotion or feeling. Well-being and life satisfaction are neither static nor easily manipulated because they are based on a person's cumulative assessment of their current life across multiple intrapersonal and interpersonal domains (Burchell, 2011).

Previous studies on the relationship between perceived job insecurity and health have almost exclusively used dependent variables that capture disease or other negative aspects of health, with the one notable exception being self-rated health (Burgard et al., 2009). Nonetheless, even self-rated health is frequently dichotomized to compare the odds of fair/poor health to good/very good/excellent health, collapsing the spectrum of health into a threshold model of good versus bad health. The conceptualization of quality of life in this study provides an alternative that captures multiple aspects of well-being and life satisfaction, and thus provides a more holistic picture of an individual's overall wellness.

1.2.4 Critique of Literature on Perceived Job Insecurity, Stress, and Quality of Life

Evidence for a causal relationship between perceived job insecurity and quality of life is growing in the literature, but the mechanisms by which perceived job insecurity impairs quality of life are not well understood. Researchers have suggested multiple pathways of influence. In the short-term, workers may experience a range of psychological, physiological, and behavioral responses to perceived job insecurity (Siegrist & Rödel, 2006). Psychological responses include depression, anxiety, and job dissatisfaction. Physiological responses include elevated heart rate and excessive activation of endocrine and autonomic nervous systems. Behavioral responses include alcohol or drug use, work absenteeism, and decreased productivity. These responses can lead to long-term consequences, damaging physical and mental health, impairing the enactment of social roles expected of workers and family members, and eroding overall quality of life (McEwen, 1998).

One limitation of previous research on causal mechanisms in the relationship between perceived job insecurity and quality of life is an overemphasis on stress processes within the body or on individual behaviors rather than on social stress processes. This study addresses this limitation by integrating existing job stress models with the stress process model (Pearlin et al. 1981; Pearlin & Bierman 2013), the leading theoretical framework for the sociological study of stress (Aneshensel 2015). The integrated theoretical framework for this study is discussed in the next section of this chapter.

There are also methodological limitations in many previous studies on perceived job insecurity and quality of life. Most studies have used cross-sectional data assessing job characteristics and health status at only one point in time (Burgard et al., 2009). If the temporal ordering of variables is not known, it is difficult to determine whether perceived job insecurity

leads to poorer health or whether unhealthy workers are more likely to report their jobs as insecure (Naswall et al. 2011). Although I am not able to completely rule out health selection with the data set used in this analysis, which has only two time points and is pooled across waves to create a hybrid analytic sample, adjusting for several possible confounders including demographic and work characteristics and mental and physical health status strengthens my inferences. Nonetheless, the endogeneity concerns present in previous cross-sectional studies, such as selection bias and omitted variable bias, may still affect my analysis.

Although the data used in this analysis is cross-sectional, other strengths of the data set and analytic procedures allow me to improve on previous studies. Most studies have not parsed out the influences of subjective versus objective job insecurity on quality of life, so changes in employment status have not been tested as alternative explanations for the relationship between perceived job insecurity and quality of life (Burgard et al., 2009). I address this limitation by using multiple measures of objective and perceived job insecurity and evaluating the relationships among these variables.

The most robust analysis on the relationship between perceived job insecurity and health was conducted by Burgard et al. (2009) and assessed the effects of both perceived and objective job insecurity on multiple health outcomes among two nationally-representative, longitudinal samples of adults. The authors found that perceived job insecurity significantly predicted fair/poor self-rated health, negative affect, and depressive symptoms; previous job losses and unemployment spells did not explain the relationship between perceived job insecurity and health outcomes. By including employment history prior to the first measurement of perceived job insecurity and during the follow-up periods between interviews, Burgard et al. (2009) were able to show that objective employment characteristics influenced perceived job insecurity, but

perceived job insecurity had greater effects on multiple health outcomes than actual experiences of job loss or duration of unemployment. They also found that controls for baseline health status and negative reporting styles did not explain this relationship. These findings suggest that perceived job insecurity has significant effects on health that are not accounted for by objective job insecurity alone.

This dissertation builds on the strengths of previous studies and addresses several important limitations in the literature on perceived job insecurity and quality of life. First, the analysis tests an integrative model of job stress proliferation that elaborates causal pathways linking perceived job insecurity with quality of life and tests effect modifiers that buffer or augment the relationship (Pearlin & Bierman, 2013). Second, the analysis tests a novel, multidimensional measure of quality of life modeled as a latent variable in order to assess a comprehensive unobservable construct of health and well-being while also accounting for measurement error and factor invariance (De Jonge et al., 2008; Lubke et al., 2003). Finally, this study disentangles the effects of objective and subjective job insecurity on quality of life (Burkholder & Harlow, 2003). The next section of the chapter describes the theoretical framework that outlines the relationships between constructs in the study.

1.3 Theoretical Framework

The study of perceived job insecurity and quality of life requires the integration of theoretical approaches from a wide range of disciplines including psychology, sociology, medicine and public health. Researchers in these fields have proposed theories and conceptual models for understanding the association between perceived job insecurity and quality of life, the

pathways linking these constructs, and the social and institutional structures within which these relationships are embedded.

The integrative theoretical framework of job stress proliferation for this study is rooted in the stress process model, the key framework in the sociological study of stress (Aneshensel, 2015; Pearlin et al., 1981; Pearlin, Aneshensel & LeBlanc 1997). The stress process model is used to elaborate two prominent models of job stress: the job strain model, also referred to as the demands-control (DC) model, and the effort-reward imbalance (ERI) model (Karasek, 1979; Siegrist, 1996). Both the DC model and the ERI model are centered on the concept of equilibrium – or conversely imbalance – between some aspect of the individual and the work environment. The DC model is based on a theory of work design and defines stress as a function of how demanding a person's job is and how much control the person has over work responsibilities (Karasek, 1979; Karasek & Theorell, 1990). The ERI model builds on a theory of reciprocity of exchange between efforts expended at work and the value of rewards received, including compensation, prestige, or security (Seigrist, 1996).

To integrate these models, a brief overview of the strengths and weaknesses of the stress process model, the job strain model, and the effort-reward imbalance model is discussed. Next, an integrative theoretical framework that combines elements from each of these models is proposed addressing shortcomings discussed in the critique of existing job stress theories. Finally, a conceptual model for each aim of this analysis is presented and explained.

1.3.1 Stress Process Model

The stress process model was proposed by Leonard Pearlin and colleagues in 1981 to elaborate the mechanisms through which an unequal distribution of stressors leads to mental

health disparities in society (Pearlin et al. 1981). The stress process model articulated links of a relationship extending from the organization of society to the health of its members (Pearlin & Bierman, 2013). Pearlin et al. (1981) demonstrated that social and economic statuses influence each component of the stress process model from exposure to stressors, to access to resources, to health outcomes. They drew attention to two important gaps in the stress literature: the need to move beyond the study of acute life change events to include chronic stressors that persist over a long period of time, and the need to account for the role of personal and social resources that may offset the effects of stressors. The stress process model has informed research investigating why individuals in occupations at the bottom end of the social hierarchy experience a high concentration of psychological distress and depression (Turner & Roszell, 1994).

Pearlin, Aneshensel, and LeBlanc (1997) provided a key elaboration to the stress process model with the concept of stress proliferation, which refers to a series of secondary stressors that emerge from initial exposure to a primary stressor. To demonstrate the concept of stress proliferation, Pearlin and Bierman (2013) described the impacts of involuntary job loss, that can subsequently contribute to multiple stressors such as financial hardship, marital conflict, and loss of career networks limiting opportunities for re-entry into the workforce. Additionally, stress proliferation may be observed as the spread or "spillover" of stressors from one domain of life into another, such as from the workplace to family life (Grzywacz & Bass, 2003). The concept of spillover has been a crucial development in the study of the work-family interface and the ways in which job stress can impact family well-being or vice versa. Stress proliferation may also limit the resources available to an individual for coping with stress in another domain of life (Hammen et al., 2005).

Extensions of the stress process model by Aneshensel and Mitchell (2014), Thoits (2010), Wheaton (1994), and others, have emphasized the importance of clarifying dimensions of key constructs, including the intensity and duration of stressors, as well as the role of resources in mediating and moderating the relationships between social positions, stressors, and health outcomes. These researchers have also called for an evaluation of the meso-level contexts in which individual-level stress processes unfold. Meso-level contexts include neighborhoods, workplaces, and schools. Because population-level health interventions are often difficult to implement due to entrenched political, cultural, and economic norms, intervention at the meso-level of the workplace may be a suitable strategy for reaching large segments of the population through the re-design of work (Aneshensel, 2009; Thoits, 2010).

A major strength of the stress process model is that it provides a simple open system of relationships, which can be expanded to incorporate mediators and moderators including personal resources, coping, and social support (Aneshensel & Mitchell, 2013). The model also highlights how stress can be analyzed within a larger social context as the inevitable result of stratification rather an unexpected process that afflicts individuals at random. The concept of stress proliferation that emerged from the stress process model may help to explain why some workers experience more frequent or more severe effects of perceived job insecurity on quality of life than other workers. Finally, the role of resources in the stress process model is crucial for evaluating why high exposure to stressors at work is not necessarily correlated with a higher incidence of poor health outcomes (Schieman & Reid, 2009).

The key constructs in the stress process model adapted for this study are stressors (primary and secondary), status characteristics, resources, and quality of life (Aneshensel & Mitchell, 2013; Pearlin et al., 1981). The central relationship in the model is between stressors

and quality of life, with quality of life being a novel aspect of health and wellness in this study. The relationship between stressors and quality of life may be direct or it may be mediated by other stressors and resources. Status characteristics and resources serve as moderators that can alter the strength and direction of the relationship between stressors and quality of life. The mediation analysis in this study focuses on the effects of the stress proliferation process from primary to secondary stressors across work and family domains. Stress proliferation damages health and social relationships, which in turn impairs overall quality of life.

1.3.2 Job Strain Model

The most widely-used model of job stress is the job strain model – or demand-control (DC) model – which was introduced by Robert Karasek in 1979 and elaborated by Karasek and Tores Theorell (1990) in their book *Healthy Work*. Karasek drew on the occupational stress tradition of Caplan (1987) and the job characteristics model of Hackman and Oldham (1976). The occupational stress tradition focused primarily on workload demands and role ambiguity, whereas the job characteristics model focused on how to design workplaces to increase the control of workers to improve their motivation and productivity. Karasek's DC model provided a schema for classifying occupations based on the interplay between job demands (D) and worker control (C) to meet these demands, which he referred to as decision latitude. In the DC model, job demands were conceptualized as the psychosocial workload and the mental capacity required to carry out required tasks. Job control was seen as a combination of a worker's authority to make decisions and discretion regarding the breadth of skills required to meet job demands (Karasek, 1979).

Karasek (1979) depicted the DC model as a grid with four quadrants, one axis measuring psychosocial demands and the other measuring decision latitude. Karasek (1979) proposed two key hypotheses based on the quadrant model: the strain hypothesis and the learning hypothesis. He argued that jobs with high demands and low control (quadrant 1) contribute to high levels of strain and adverse health effects for workers, whereas jobs with high demands and high control (quadrant 2) provide opportunities for learning and growth that compensate for the demanding aspects of work (Karasek, 1979). He described these two quadrants as high strain jobs (quadrant 1) and active jobs (quadrant 2), respectively. In contrast, jobs with low demands and high control (quadrant 3) were classified as low strain and those with both low demands and low control as passive jobs (quadrant 4). Karasek (1979) argued that impaired health was likely to result in high strain jobs and passive jobs, the former as a result of heightened arousal that cannot be converted into effective coping responses because of low decision latitude, and the latter due to a gradual decline in skills and competencies leading to apathy and lack of motivation at work.

A critique of the DC model relates to its simplicity. Research using the DC model has focused on demands almost entirely in terms of workload. Similarly, the construct of control has been defined in such a way that it is always considered desirable for workers to have more control. In this way, control is viewed narrowly as a positive moderator of negative demands, although some workers may consider high control a stressor. The work of Scheiman, Milkie, and Glavin (2009) on the stress of high status occupations has provided support for a more complex conceptualization of control to include both positive and negative effects on worker health in combination with other work and individual characteristics.

In response to these criticisms about the limited scope of the DC model, Karasek and Theorell (2000) adapted the model to incorporate the moderating role of social support (S) in the

workplace. Further refinements of the model by other researchers included the addition of the construct of job resources (Demerouti et al., 2001) and later personal resources (Bakker & Demerouti, 2007), which includes personal characteristics that may contribute to resiliency such as self-efficacy and optimism. However, resources in the context of the DC model have not been conceived of as broadly as resources in the stress process model, which also includes social capital and privileges that correspond with social positions.

Although the addition of the social support domain, and more recently the constructs of job resources and personal resources, have strengthened the conceptual and predictive validity of the DC model, the narrow constructs of demands and control have not been altered. Moreover, the DC model and its adaptations do not provide guidance on how to assess the impact of social processes and structures outside of the work environment on health. For this reason, the DC model may be more advantageous in combination with other models that more fully capture the complexities and multiple layers of the job stress process within a larger social context.

1.3.3 Effort-Reward Imbalance Model

The limitations of the DC model and the growth of social stress research in the 1990s led to the development of many new job stress models. One of the major developments during this period was the expansion of approaches conceptualizing job stress as a process involving both transactions between the individual and the environment as well as internal processes of subjective appraisal. Johannes Siegrist (1996) introduced the Effort-Reward Imbalance (ERI) model to describe a stress process that occurs when there is a lack of reciprocity between the effort of the worker and the rewards that the worker receives in exchange for effort (Siegrist, 1996). Siegrist's construct of effort differed from Karasek's construct of demands in that it

included both external demands and obligations of the job as well as intrinsic effort and need for control. Rewards were defined as compensation distributed by the employer and society at large, including money, esteem or prestige, and job security. By conceptualizing rewards in terms of both tangible and intangible aspects of work that relate to social status, such as job security, the model links stressful experiences at work with more distal social conditions.

The ERI model provided a framework – generally depicted as a see-saw – for describing job stress resulting from a "reciprocity deficit" between high costs and low gains (Siegrist, 1996). Although the ERI model has not been as extensively tested as the DC model, some studies that have tested multiple pathways connecting job stress with health and well-being found support for three distinct pathways linking ERI with adverse health outcomes: physiological, psychological, and behavioral pathways (Siegrist et al., 1997). Siegrist argued that an imbalance between high effort and low reward leads to a state of "active distress" by evoking negative emotions, which in turn activate psychological and physiological stress responses within the body and maladaptive coping behaviors that impair health and strain relationships. Sustained psychological distress and activation of the autonomic nervous system may lead to both mental health problems, such as depression and anxiety, and physical health problems, such as hypertension and myocardial infarction (Smith et al., 2005).

When developing the ERI model, Siegrist (1996) proposed three hypotheses to explain why workers may stay in jobs with high effort-reward imbalance, remaining in environments where they are exposed to a chronic stressor. Siegrist describes three circumstances: 1) an unfavorable labor market that limits opportunities for advancement or horizontal mobility between employers; 2) an organizational climate that encourages workers to strategically invest in the current job due to the expectation of future gains; and/or 3) motivational patterns of

excessive over-commitment due to high ambition combined with a need for approval, esteem, and control (Siegrist & Rödel, 2006). Over-commitment refers to a pattern of increased effort expenditure when faced with inadequate rewards. The construct of over-commitment is generally depicted as the fulcrum of the see-saw in the ERI model, exacerbating the relationship between effort-reward imbalance and adverse health outcomes.

Siegrist's over-commitment hypothesis has been tested in terms of both additive and multiplicative effects with significant results for both configurations (Lehr et al., 2010). The current study tests an adaptation of the over-commitment hypothesis from the ERI model to determine if inequality augments the effect of effort on perceived job insecurity and whether control buffers the effect of effort on perceived job insecurity. Since an excessive need for control and approval is a key component of Siegrist's over-commitment construct, it is hypothesized that control will buffer perceptions of insecurity.

1.3.4 Integrative Theoretical Framework

The integration of the DC model and the ERI model with the stress process model provides a framework that addresses in part the shortcomings of each model outlined above. The motivation for this integrative theoretical framework is to situate job stress models within a social context to explain how the origins of stressors experienced in the workplace extend beyond the confines of the work environment (Aneshensel & Mitchell, 2013). The stress process model provides this context as well as a system of relationships in which relevant constructs from the DC and ERI models may be incorporated. In this section I explain the general integration of the three theories, and in the next section I provide a conceptual model for each aim with variables relevant to the current study.

The integrative theoretical framework displayed in Figure 1.1 elaborates the role of social and economic statuses (left box), stress proliferation (top middle box), job and social resources (bottom middle box), and health and wellness (right box) in the job stress process. Solid arrows in the model indicate causal effects and dotted arrows with round ends indicate moderation. On the left side of the model, social and economic statuses, such as educational attainment and income, as well as other demographic status characteristics related to the person's placement in the structure of the social hierarchy – such as gender, race, and age – influence both the distribution of stressors in society and access to resources for coping with stressors. These relationships are shown by the two solid arrows from the statuses to stressors and to resources. The status characteristics covary with one another, as denoted by the double-headed arrow between the boxes for social and economic statuses and demographic characteristics. Additionally, status characteristics can also moderate the relationships between stressors and health, as shown by the dotted arrow.

At the top of the model, stress proliferation is depicted by the box for primary stressors leading to secondary stressors. The designation of a stressor as primary or secondary is not absolute but relative to its role with regard to other stressors. Thus, perceived job insecurity is a secondary stressor with regard to primary stressors in the workplace, such as the psychosocial job characteristics outlined in the DC model and the ERI model – high workload demands and high effort expenditure – but is a secondary stressor with regard to spillover. Additional primary stressors related to objective job characteristics, such as employment status and occupational title, could also be included in this box, but are not shown for simplicity. These stressors are hypothesized to influence secondary stressors such as spillover. Note that the primary stressors displayed in the model originate in the work environment and then extend to secondary stressors

beyond the workplace to family life. However, stressors also flow from family life to work life. For the purpose of the current study, the direction of the relationship analyzed is from work life to family life. Together, these primary and secondary stressors cumulatively impair quality of life as demonstrated by the solid arrow from stressors to health and wellness.

At the bottom of the model, resources serve as both potential mediators from stressors to health and well-being and statuses to health and well-being, and as moderators of the relationship between stressors and health and well-being. In the current study, the resources of job control, rewards and reciprocity (or lack thereof), and social support are tested as moderators to investigate group differences. Social support from family and friends is also tested as a mediator of the relationship between perceived job insecurity and quality of life. The current study tests the mediating effects of both secondary stressors (spillover) and resources (social support).

For simplicity, the model does not display other demographic, work, and health characteristics that may impact the relationships in the model. In the next section, the analytic models include control variables to account for these characteristics.

1.4 Analytic Models

Next, I describe analytic models for each aim of this analysis. Referring back to the constructs and relationships in the integrative framework above (Figure 1.1), Aim 1 focuses on the relationship between statuses, primary stressors and secondary stressors (the left box and the top box). Aim 2 focuses on the relationship between stressors and health directly and indirectly through secondary stressors and resources (the top box, the bottom box, and the right box). Aim 3 focuses on the relationship between stressors and health moderated by resources and statuses (all boxes).

The pathways relevant to each aim are as follows: 1) the research questions for Aim 1 assess the relationship between objective and subjective job characteristics on perceived job insecurity; 2) the research questions for Aim 2 assess the relationship between perceived job insecurity and quality of life directly and indirectly via negative work to family spillover of stress and social support; and 3) the research questions for Aim 3 assess the effect modifiers of education and household income and social support at work and outside of work on the mediated relationship between perceived job insecurity, spillover, and quality of life.

Figure 1.2a displays the analytic model for the Aim 1 analysis. The primary relationship for this aim is between four objective job characteristics (top middle box) and perceived job insecurity (right box). Alternative explanations are tested based on statuses (top left box) and subjective job characteristics from the DC and ERI models (bottom middle box), all net of controls for demographic and health characteristics and wave/year of interview (left middle box). Note: status characteristics may also influence objective and subjective job characteristics, but mediation was not assessed in this aim, so no arrow is included between status and job characteristics.

Figure 1.2b displays the analytic model for the Aim 2 analysis. The core relationship in this aim is between perceived job insecurity and quality of life, mediated by negative work to family spillover and social support from family, friends, and spouse/partner. It is hypothesized that perceived job insecurity will have both direct and indirect effects on quality of life via spillover and social support. Controls for status, demographic, work, and health characteristics, and wave of interview are included to control for spuriousness and other causal influences. The oval for quality of life denotes that it is a latent variable that is measured by its three observed indicators of intrapersonal well-being, interpersonal well-being, and life satisfaction. All other

variables in the analysis are in rectangles, which denotes that they are manifest measured variables in this analysis.

Figure 1.2c displays the analytic model for the Aim 3 analysis. The foundation of the model for Aim 3 is the same as the model for Aim 2, but moderators for socioeconomic status, social resources, other demographic characteristics (gender, age, and race), and wave of interview are added to test for group differences in the relationship between perceived job insecurity and quality of life. Dotted arrows between each of the moderators and the box surrounding the mediated relationship imply that these variables are expected to modify all pathways in the model, not only one specific pathway, because social position and resources influence all relationships in the model.

These analytic models for different aspects of the job stress process provide elaborations on the key relationships tested in previous models of job stress within the framework of the stress process model. These expansions on previous job stress models provide a social context for evaluating the origins of job stressors, mediating pathways connecting job stressors with quality of life, and sources of moderation by social status and resources.

CHAPTER 2: METHODS

2.1 Introduction

This chapter describes the data and analysis plan used to test the hypotheses outlined in the specific aims and research questions of this dissertation. The data for the dissertation come from the 1995-1996 and 2004-2006 waves of the National Survey of Midlife Development in the United States (MIDUS). A brief overview of MIDUS is given, including a description of the sampling and data collection procedures, survey design, and sampling weights. Next, the derivation of the analytic sample and procedures to account for missing data and attrition are described. Finally, the operationalization and measurement of constructs assessed in this study are described and the statistical procedures used to answer the research questions are explained.

2.2 Data – National Survey of Midlife Development in the United States (MIDUS)

This study seeks to explain the relationship between perceived job insecurity and quality of life using a national sample of U.S. adults from two waves of the National Survey of Midlife Development in the United States (MIDUS) in 1995-1996 and 2004-2006. MIDUS is a national panel study of aging conducted by a multidisciplinary research team from the MacArthur Foundation Research Network on Successful Midlife Development (Ryff, 2010). The purpose of the MIDUS study is to investigate the role of behavioral, psychological, physiological, and social factors in accounting for age-related variations in health and well-being (Brim et al., 2004). The multi-method data collection techniques include a core psychosocial survey administered by phone and self-administered questionnaires sent by mail to all participants at both waves. Self-reported diaries of daily stressors, cognitive assessments, neurological screening, and collection of biomarker data from subsets of participants were also collected but are not analyzed in this

study. The current analysis utilizes data from the first and second waves of the core psychosocial survey.

2.2.1 Data Collection Procedures

The baseline survey of the MIDUS study was administered in 1995-1996 with 7,108 participants (Brim et al., 2010). All participants were invited to complete the core psychosocial survey, which included a 30-minute telephone interview and two 45-page, self-administered questionnaires (SAQs) distributed by mail. The interviewer was required to obtain verbal consent for both the telephone interview and SAQs at the start of the telephone interview. If a selected respondent refused or was unavailable to complete the interview, she or he was not replaced by another member of the household. Of the 7,108 baseline participants, 4,963 were successfully re-contacted in 2004-2006 to participate in Wave 2 (longitudinal retention rate = 70%). Approximately 5% of the sample died between waves. The Wave 1 baseline response rate was 89% and the Wave 2 response rate adjusted for mortality was 75%.

2.2.2 Sampling Procedures

MIDUS participants in Wave 1 were selected using a complex, multi-stage sampling design to obtain four distinct sub-samples: 1) a nationally-representative probability sample of non-institutionalized, English-speaking adults aged 25-74 years old (N=3,487) selected through random digit dialing (RDD), 2) randomly-selected siblings of the main RDD respondents (N=950), 3) a nationally-representative sample of twins (N=1,914), and 4) oversamples in select metropolitan areas (N=757). The sampling procedures for the main RDD sample are described in

more detail below. Sampling procedures for the siblings, twins, and city oversamples are described elsewhere in the MIDUS survey documentation (Brim et al., 2010).

Participants for the baseline main RDD sample were selected using working phone banks from a list of U.S. households with adults between 25 and 74 years old (Brim et al., 1996; Ryff et a., 2010). An equal probability sample of telephone numbers was selected by Survey Sampling, Inc. (SSI) and purchased by DataStat. Before phone interviews began, the exact size of the sample needed to achieve the desired number of completed interviews was not known due to variation in eligibility, response rates, and the proportion of working household numbers.

After household eligibility was determined, respondent selection within households was completed in three stages: selection by gender, selection within gender by age, and selection based on study targets. Oversampling of older adults and men was achieved by varying the probability of carrying out an interview as a joint function of the age and sex of the randomly selected respondent. Initial probabilities of selection were determined for each of 10 gender by age groups after reviewing Census estimates for each group. Table 2.1 displays the number of interviews targeted and achieved for each gender by age group for the main RDD sample. The total number of interviews completed was within 10% of the study target for all groups except 65-74 year old men.

2.2.3 Sampling Weights

This section of the chapter explains why the analysis was unweighted and what steps were taken to limit bias in the study results. Most longitudinal studies with complex sampling designs include weights to remove bias in survey estimates by accounting for unequal probabilities of selection, adjusting for non-response and attrition between waves, and modifying

sample distributions to conform to known population distributions based on external data using post-stratification weights (Chen et al., 2015). Longitudinal panel weights are usually calculated by multiplying a sample selection weight (also referred to as a base weight), a non-response adjustment factor, and a post-stratification weight (Hillyguys & Snell, 2015).

The analysis for this dissertation was unweighted because the MIDUS data set did not include all variables necessary for computing accurate longitudinal panel weights. For Wave 1, the MIDUS data set included base weights for the main RDD sample only. No weights were provided for the siblings, twins, and city oversamples at either wave, and only post-stratification weights were provided for the main RDD sample at Wave 2. As a result, longitudinal panel weights for the main RDD sample could not be calculated because no base weights or adjustment factors were provided at Wave 2. The base weight from Wave 1 also could not be used because the original baseline sample was no longer intact. The utility of applying a post-stratification weight in analyses following the same individuals over time without a base weight or adjustment factor is considered suspect by many statisticians (Yansaneh, 2005). Furthermore, since weights were only provided for the main RDD sample (n=2,257 present in both waves), statistical power would be substantially reduced if the weights were used and all siblings, twins, and city oversamples excluded (Suresh & Chandrashekara, 2012). For these reasons, I chose to conduct the analysis unweighted and retain the entire sample.

Three steps were taken to limit bias in the unweighted analysis. First, the variables that were used to construct the base weights at Wave 1 (age, education, gender, race, ethnicity, and household income) and post-stratification weights at Wave 2 (age, education, gender, and race) were included as covariates in all multivariate models. These variables help attenuate bias due to unequal selection probabilities and differential non-response patterns across the sample

(Pfeffermann, 1993). Second, the base weights at Wave 1 and the post-stratification weights at Wave 2 were used to compare unweighted and weighted descriptive statistics for the main RDD sample. The unweighted and weighted means and proportions for sample characteristics did not differ on most study variables. These sample characteristics are presented in Chapter 3: Preliminary Analyses. Third, exploratory bivariate associations by wave were performed using the Wave 1 base weights and Wave 2 post-stratification weights for the main RDD sample prior to testing the multivariate models on the full sample. No differences in associations between the weighted and unweighted bivariate regressions were observed, so the findings of this sensitivity analysis are not discussed in the results chapters. These three steps improve confidence that the results of the unweighted models are likely to be accurate.

2.2.4 Data Structure and Unit of Analysis

This section of the chapter describes the structure of the data set and unit of analysis for this dissertation. The full sample includes all observations in the MIDUS study (n=12,071). The size of the sample is larger than the total number of respondents because the unit of analysis for this study is observation rather than respondent. The data were appended to add the total observations from wave one (n=7,108) to the total observations from wave two (n=4,963).

Appending refers to adding new observations to existing observations on the same variables, whereas merging refers to adding new variables to existing observations (Klugman & Gong, 2005). Because the waves were appended rather than merged, the MIDUS data set was no longer suitable for longitudinal analysis following the same individuals across time (Klugman & Gong, 2005). Instead, the data set was treated as a pooled, cross-sectional sample. Although appending the data to conduct a cross-sectional analysis provides a weaker correction for the

repeated measures than a multilevel (longitudinal) analysis with occasions nested within individuals would have provided, the advantages of appending the data outweighed the potential benefit of attempting a longitudinal analysis with these data for several reasons.

First, appending the data allowed for an increase in sample size and statistical power. If the data had been merged on all respondents present in both waves (n=4,963) instead of appended on the observations (n=12,071), the large reduction in power would have made it difficult to detect significant effects. Adding to the problem of reduced power, the generalized structural equation modeling (GSEM) procedure required to analyze a multilevel structural equation model in Stata 13.1 can only account for missing data using listwise deletion. As a result, a complete case analysis would have been necessary for all aims resulting in an even larger reduction in power. For example, only 2,514 respondents were complete for the independent variable of perceived job insecurity in both waves, and missingness across the other study variables would have further reduced the sample size and power.

Second, the mediation model in Aim 2 was a crucial component of this analysis, and estimation of indirect effects was necessary to interpret the mediation model. Most statistical packages that estimate multilevel mediation models do not calculate indirect effects correctly, with the exception of R. However, the multilevel mediation procedure in R does not allow latent outcome variables (IDRE, 2016). In contrast, the linear SEM procedure could be used to estimate a cross-sectional mediation model with a latent outcome and accurate total, direct, and indirect effects. Because stress proliferation was such an important part of the theoretical framework guiding this analysis, I decided it was preferable to have an accurate mediation model than to analyze the data longitudinally using multilevel mixed modeling or GSEM.

Third, the linear SEM modeling procedure used for Aims 2 and 3 also made it possible to obtain comprehensive goodness of fit statistics, such as comparative fit index, root mean squared error of approximation, and other measures of fit. These fits statistics are defined and explained in more detail in Section 2.4: Statistical Analysis at the end of this chapter. The only fit statistic available for models estimated using the GSEM command is the coefficient of determination, so it is difficult to compare the fit of models produced by the GSEM command.

Finally, since the original MIDUS data set included only two interviews, it was not ideal for longitudinal analysis, which is preferable when there are many repeated measures on the same individuals across time. With only two time points, one cannot make strong claims about longitudinal trends beyond a singular change from one point to another (e.g., a line). For this reason, the benefits of conducting a longitudinal analysis were outweighted by the problems of incorrect indirect effects, lack of comprehensive fit statistics, and low statistical power.

To account for non-independence in observations (e.g., multiple observations for the same individuals or observations from related individuals within the same family), robust standard errors clustering on the family identification variable were used for all multivariate models. Robust standard errors adjust the variance estimates for clustering to avoid inflated tests of statistical significance and thereby minimize the possibility of type I error (i.e., concluding that there is a significant relationship when no relationship exists).

2.2.5 Missing Data and Attrition

This section describes how missing data were handled in the analysis. The hypotheses for Aim 1 were tested using multivariate GSEM for the ordinal dependent variable of perceived job insecurity. The hypotheses for Aims 2 and 3 were tested using a multivariate linear structural

equation model (SEM) for the continuous latent dependent variable of quality of life. (See Section 2.4: Statistical Analysis at the end of this chapter for more information on these statistical procedures). Missing data were accounted for in the SEM analyses for Aims 2 and 3 using the maximum likelihood with missing values procedure (MLMV), also known as full information maximum likelihood (FIML). A complete case analysis was used for the GSEM analysis for Aim 1 because statistical capabilities do not yet allow the MLMV estimation method or multiple imputation (MI) to be used for GSEM.

MLMV uses all information from observations, including mean and variance for the missing portions of a variable, given the observed portions of other variables (Wothke, 1998). All variables, non-linearities, and interactions in the analysis model are incorporated into the method for handling missing data (Robbins & Sangalang, 2013). MLMV is preferable to multiple imputation (MI) in SEM models because it is more efficient, consistent, and involves fewer decisions to implement which reduces uncertainty (e.g., decisions for MI may include how many data sets to produce and whether the number chosen is sufficient, how many iterations between data sets, how to incorporate interactions and non-linearities, which imputation method to use, etc.) (Robbins & Sangalang, 2013). Additionally, MLMV avoids the potential conflict that is introduced when using MI between the imputation model and the analysis model, which can introduce problems when the imputation model is more restrictive than the analysis model. In constrast, there is no potential for incompatibility between the imputation model and the analysis model when using MLMV because both are done in the same model (Robbins & Sangalang, 2013).

The MLMV procedure reduces parameter biases, but attrition from participants lost to follow-up remains a concern. A study by the MIDUS principal investigators (Radler & Ryff,

2010) indicates that males, unmarried people, less educated people, people of color, the youngest and older participants, and people with lower functional health status were significantly more likely to drop out of the study before the second wave. Interaction analyses further suggested that health status were a better predictor of retention for older participants compared younger and for women compared to men, marital status was a better predictor of retention for white people compared to people of color and economic status was a better predictor of retention among those with poorer functional health status than healthy participants (Radler & Ryff, 2010).

These characteristics could bias the sample findings toward the experiences of higher status people with more secure jobs, since higher status people were more likely to stay in the study for both waves and thus be represented in the data with two observations rather than one in the sample. In addition to concerns about representativeness already raised due to not having accurate sampling weights and lack of inclusion of certain populations (e.g., non-English speaking people) in the MIDUS sample, these issues with attrition suggest that that the findings should be regarded as generalizable to individuals with similar characteristics to the analytic sample but not representative of the entire U.S. population.

2.2.6 Analytic Sample

This section describes how the analytic sample was derived for each aim of the study. The analysis was conducted on a sample including only observations for currently working individuals within a specific age range. To be included in the analytic sample, observations had to be complete for both the telephone interview and SAQs (n=10,366), less than 75 years old (n=9,783), working within the last 10 years prior to the interview (n=9,267), and currently working at the time of the interview (n=5,849). For Aim 1, observations had to be complete on

all covariates (n=5,424) because a complete case analysis was used. For Aims 2 and 3, observations had to be complete on the indicators for quality of life (n=5,113), but could be missing on other variables because the MLMV estimation procedure uses all available data to estimate a likelihood function for each observation (Acock, 2013). It is not necessary to restrict the sample to complete cases using the MLMV procedure because a likelihood function can be estimated for all observations even when some information is missing. Figure 2.1 displays the derivation of the analytic sample for all aims.

First, observations that were only complete for the telephone interview (n=1,705) were excluded because these respondents did not answer questions on job characteristics and well-being that were asked in the SAQs. Second, observations for respondents older than 75 years old (n=583) were excluded because these respondents were likely to be retired (i.e., permanently out of the labor force). Third, observations for respondents who reported not working for all of the last 10 years were excluded (n=516) to remove those chronically unemployed who were outliers in terms of work experience even if they were currently working in the interview year. Fourth, observations for respondents that were not currently working were excluded (n=3,418) because the questions for perceived job insecurity and other psychosocial job characteristics were only asked to respondents that were currently working. Finally, for Aim 1, observations that were not complete for all covariates were dropped (n=425). For Aims 2 and 3, observations that were not complete on the indicators of quality of life (n=890) were dropped.

Sensitivity analyses for attrition and missingness were conducted – as described in Section 2.4 Statistical Analysis – to assess whether excluded observations were systematically different from the analytic sample on any key variables. See Chapter 3: Preliminary Analyses for characteristics of the analytic sample compared to the full sample.

Because sample weights were not applied in the multivariate analyses for any aim, the findings of this study are not considered representative of the English-speaking, non-institutionalized population in the contiguous United States between the ages of 25 and 74 years old. Additionally, because only individuals living within household units with working phone numbers were selected for MIDUS, the findings of this dissertation are not generalizable to persons living in institutional facilities (e.g., prisoners), persons not living in housing units (e.g., homeless people), persons without a phone, residents of Hawaii and Alaska, or non-English speaking persons. Although the findings of this analysis are not nationally-representative, they are still externally valid for people in the U.S. population with similar characteristics to the analytic sample. The characteristics of the sample mirror the general U.S. population at the time of the interviews on most study variables based on estimates from the Current Population Survey in 1995 and 2005 (U.S. Census Bureau, 2006). The next section of this chapter defines and operationalizes the key constructs for this dissertation.

2.3 Constructs and Measures

2.3.1 Independent Variables – Job Insecurity

Job insecurity is a stressor related to instability in desired continuity of employment that has both objective and subjective aspects. Job insecurity is operationalized in this study in terms of both objective and subjective job insecurity in order to test the relationship between the two forms of job insecurity. Objective job insecurity is the construct underlying the independent variables for Aim 1, and perceived job insecurity is the construct underlying the dependent variable for Aim 1 and independent variable for Aims 2 and 3.

Perceived job insecurity is defined as an anticipatory stressor regarding the threat of losing a job or valued features of a job and a sense of powerlessness to overcome this threat (Greenhalgh & Rosenblatt, 1984). Perceived job insecurity is operationalized in this study using a single ordinal variable for the question, "If you wanted to keep your job for the next two years, what are the chances that you could keep it?" Response categories are ordered from 1 "Excellent" to 5 "Poor", with higher values corresponding to lower perceived job security (i.e., higher perceived job insecurity). Perceived job insecurity is modeled as an ordinal dependent variable for Aim 1, and using a set of dummy variables as the independent variable for Aims 2 and 3. Excellent perceived security is the reference category.

Objective job insecurity refers to current and previous objective job characteristics that have been found to increase the probability of job loss (Burgard et al, 2009). Objective job insecurity is operationalized in this study by four variables constructed from 10-year retrospective employment status histories. Respondents were asked to record their employment status for each of the 10 years preceding the first wave of data collection and the 10 years between the first and second waves of data collection. Response categories included 1 "Working full-time", 2 "Working part-time", 3 "Not working for six months or more", and 4 "Studying full-time". It should be acknowledged that these four employment status categories are not exhaustive of all relevant categories but they were the only categories provided to respondents in the MIDUS study.

The four variables created based on these 10-year employment status histories were: 1) employment status in the previous year before the interview; 2) number of changes in employment status in the last 10 years, 3) ever not working for six months or more in the last 10 years, and 4) being full-time employed for all of the last 10 years.

Employment status in the previous year before the interview was assessed using dummy variables with the same four categories outlined above. Full-time employment is the reference category. Changes in employment status over the last 10 years was measured as a count from 0 to 8 changes (e.g., from part-time to full-time or from full-time to not working, etc.). Previous research indicates that one change in employment status over a 10-year period does not significantly increase perceived job insecurity or the objective probability of job loss, but more changes in employment status may increase perceived job insecurity (Ferrie et al., 1995). For this reason, the variable was dichotomized at 0 "Zero or one change" vs. 1 "Two or more changes" in employment status over the last 10 years. Ever not working for six months or more was a dichotomous variable for 0 "No" and 1 "Yes". Working full-time for all of the last 10 years was a dichotomous variable for 0 "No" and 1 "Yes".

2.3.2 Dependent Variable – Quality of Life

Quality of life is defined as a general state of health, well-being, and satisfaction across multiple domains of life (CDC, 2011; Felce, 1995). Quality of life is operationalized in this study as a latent variable composed of three multi-item indicators: life satisfaction, intrapersonal well-being, and interpersonal well-being. *Life satisfaction* is defined as an overall rating of contentment across multiple dimensions of life such as family, health, and work (Diener, 1985). *Well-being* is defined as a meaningful state of being comfortable or healthy (Ryff, 1989). *Intrapersonal well-being* refers to psychological aspects of well-being within the individual related to self-concept, such as autonomy, personal growth, and self-acceptance. *Interpersonal well-being* refers to social aspects of well-being related to relationships with others, such as social integration and social actualization (Ryff & Keyes, 1995). The operationalization of life

satisfaction, intrapersonal well-being and interpersonal well-being is described below with results from factor analyses on the items used to construct the composite scales for each indicator. After describing each of the three indicators, the construction of the latent variable for quality of life is explained.

For each indicator of quality of life, I performed a factor analysis using the principal components method as a data reduction technique to produce an optimal set of summary variables for each indicator. I did not use the pre-constructed scales provided in the MIDUS data set for each of these indicators because they had poor psychometric properties with low internal consistency below the minimum acceptable level of Cronbach's alpha of 0.6. Instead, I analyzed how the raw items for each indicator grouped together to ensure adequate reliability (Cronbach's alpha > 0.6) and validity (conceptual accuracy with what is purported to be measured) for my scales. For intrapersonal well-being, I began with 18 items from Ryff's (1989; 1995) previously-validated scales on the structure of psychological well-being. For interpersonal well-being, I began with 14 items drawn from Keyes' (1995; 1998; 2004) scales on social aspects of well-being, also adapted from Ryff et al. (2004). For life satisfaction, I began with nine items drawn from Fleeson's (2004) operationalization of life satisfaction in a study of American quality of life at the end of the 20th century.

The steps for constructing the scales for each indicator of quality of life were as follows: 1) I eliminated items that were not conceptually consistent with the other items for that construct; 2) I conducted a factor analysis using the principal components method to determine how the items grouped together. The criteria for determining whether an item loaded strongly with other items was a minimum factor loading of 0.3 and no cross-loadings at or above this level on other factors. In this step, I recorded how many factors with eigenvalues over 1 emerged and whether

one primary factor explained a large proportion of the variance; 3) Because all of the indicators had one primary factor on which most of the items loaded strongly, I eliminated items with the lowest loadings on the primary factor and highest cross-loadings on secondary factors and repeated the factor analysis until only one factor with a eigenvalue over 1.000 remained; 4) I constructed the scale by averaging the items from the final factor analysis and computed the reliability coefficient for the scale. The results of these steps for each indicator are explained in more detail below following the description of each construct and items for each indicator.

Intrapersonal well-being is defined as a subjective assessment of satisfaction with self across domains identified in Ryff's (1989) framework of psychological well-being. Ryff described six domains of psychological well-being: 1) autonomy, 2) environmental mastery, 3) personal growth, 4) positive relations with others, 5) purpose in life, and 6) self-acceptance. I moved the items for the domain of positive relations with others to the interpersonal well-being scale because it was not conceptually consistent with the other domains for intrapersonal well-being pertaining to sense of self.

Each of the domains is operationalized by a three-item subscale. All items in the subscales are coded 1 "Strongly agree" to 7 "Strongly disagree" with 4 indicating "Neither agree nor disagree." Examples of items within each subscale include: autonomy (e.g., "I have confidence in my opinions, even if they are contrary to the general consensus"), environmental mastery (e.g., "I am quite good at managing the many responsibilities of my daily life") personal growth (e.g., "I gave up trying to make improvements in my life a long time ago"), purpose in life (e.g., "Some people wonder through life aimlessly, but I am not one of those people"), and self-acceptance (e.g., "I like most aspects of my personality"). Due to low internal reliability for the domain-specific subscales (e.g., reliability coefficients of 0.29 for purpose in life and 0.45 for

autonomy), the subscales could not be used and the raw items had to be combined into a global measure for intrapersonal well-being. The process for constructing this global measure followed the steps outlined above.

First, I eliminated the three items for the domain of positive relations with others, which were more appropriately grouped with the items for the scale on interpersonal well-being. Second, I conducted a factor analysis using the principal components method on the remaining 15 items to determine whether all the items loaded together on one factor or whether several distinct factors would emerge. This factor analysis produced four factors with eigenvalues over 1 (F1 eigenvalue=4.267, F2 eigenvalue=1.430, F3 eigenvalue=1.170, F4 eigenvalue=1.059). Thirteen of the 15 items grouped together on Factor 1 with loadings greater than 0.3. I eliminated the two items that did not have a minimum loading of 0.3 on Factor 1, one for "purpose in life" and one for "autonomy".

Next, I re-ran the factor analysis on the remaining 13 items, and three factors with eigenvalues over 1 emerged (F1 eigenvalue=4.126, F2 eigenvalue=1.307, F3 eigenvalue=1.054). All items had loadings greater than 0.3 on Factor 1, but four items had high cross-loadings (>0.3) on Factors 2 or 3 (two items for "autonomy", one for "purpose in life", and one item for "personal growth"). I proceeded by eliminating each of the four cross-loading items, starting with the item with the lowest loading on Factor 1 and sequentially repeating the factor analysis eliminating one item at a time until only one factor with an eigenvalue over 1 remained (F1 eigenvalue=3.614), which explained 40% of the variance. Table 2.2a displays the factor loadings for the nine items in the final factor analysis and the reasons for eliminating each of the other items (e.g., conceptual inconsistency, low loadings on the primary factor, or high cross-loadings on other factors). The nine items that loaded on a single factor were three for "self-acceptance",

three items for “environmental mastery”, two for “personal growth”, and one for “purpose in life”.

The scale for intrapersonal well-being was constructed by averaging the nine items, so the range for the scale remained 1-7, in the metric of the response codes. The scale was reverse-coded so that higher values aligned with stronger agreement with each statement, and thus higher intrapersonal well-being. To be included in the final scale, observations had to be complete on at least five of nine items on the scale (just over half of the items); that is, responses were averaged across the valid items with a minimum of five items. The reliability coefficient for intrapersonal well-being scale was 0.81, indicating good reliability.

Interpersonal well-being is defined as a subjective assessment of satisfaction with self in relation to social contexts and operationalized by domains identified in Keyes’ (1995) framework of social well-being: 1) meaningfulness of society, 2) social integration, 3) social contribution, 4) social actualization, and 5) acceptance of others. The domain of positive relations with others was added to these five domains after being moved from the intrapersonal well-being items described above. All six subscales include three items, except meaningfulness of society, which includes two items. All items are coded the same as the intrapersonal well-being items from 1 “Strongly agree” to 7 “Strongly disagree” with 4 indicating “Neither agree nor disagree.” Examples of items for each domain of interpersonal well-being include: meaningfulness of society (e.g., “I cannot make sense of what’s going on in the world”), social integration (e.g., “I feel close to other people in my community”), acceptance of others (e.g. “People do not care about other people’s problems”), social contribution (e.g., “I have something valuable to give to the world”), and social actualization (e.g., “Society is not improving for people like me”), positive relations with others (e.g., “Maintaining close relationships is difficult for me”).

The 17 items from the six subscales were included in a factor analysis using the principal components method to create a global measure of interpersonal well-being rather than constructing separate subscales for each domain. First, I eliminated the three items for "acceptance of others" because they were not conceptually consistent with the other items. These three items pertained to attitudes about other people in general (e.g., "People who do a favor expect nothing in return"), not real relationships between the individual and others, so they did not provide useful information about interpersonal well-being. Next, I eliminated one item for "social actualization" ("Society has stopped making progress"), which similarly pertained to a general attitude about society but not in relation to the self.

The factor analysis on the remaining 13 items produced four factors with eigenvalues over 1 (F1 eigenvalue=4.187, F2 eigenvalue =1.481, F3 eigenvalue=1.191, F4 eigenvalue =1.052). No items had loadings below 0.3 on the first factor, but six items had high cross-loadings on other factors. I eliminated each item one-by-one starting with the item with the lowest loading on Factor 1 and re-fan the factor analysis until only one factor with an eigenvalue over 1 remained (F1 eigenvalue=3.015), explaining 43% of the variance. The final model included seven items: three items for "social contribution", two items for "social integration", one item for "social actualization", and one item for "positive relations with others". Table 2.2b displays the factor loadings for these seven items in the final factor analysis and the reasons for eliminating each of the other items (e.g., conceptual inconsistency, low loadings on the primary factor, or high cross-loadings on other factors).

The final scale for interpersonal well-being was constructed by calculating the mean of the seven items, so the range remained 1-7. The scale was reverse coded so that higher values corresponded with higher levels of interpersonal well-being. To be included in the final

interpersonal well-being scale, the observation had to be complete for at least four items; that is, responses were averaged across the valid items with a minimum of four items. The reliability coefficient for the seven-item interpersonal well-being scale is 0.77, indicating adequate reliability.

Life satisfaction is defined as a rating of contentment with different domains of life. Respondents were asked to rate their current level of satisfaction with the domains of health, work, financial situation, relationship with spouse/partner, relationship with children, sexuality, contribution to the welfare of others (currently), and contribution to the welfare of others (across whole life), and life overall. These questions were asked at the beginning of each module of the MIDUS questionnaire (e.g., respondents were asked to rate their level of satisfaction with their health at the beginning of the health module). Responses for each life satisfaction item are coded 0 “Worst possible rating of satisfaction” to 10 “Best possible rating of satisfaction”.

Before conducting the factor analysis on these nine items, I averaged the two items for relationship with partner/spouse and relationship with children, and I separately averaged the two items for contribution to the welfare of others. These steps were taken to create composite variables for overall rating of relationships with family and rating of contribution to the welfare of others, respectively, so that the life satisfaction scale would not be biased towards the domains that had two items each when all other domains had only one item. This step was taken based on guidelines in the MIDUS documentation on the satisfaction variables (Brim et al., 2010; Ryff et al., 2004).

Next, I conducted a factor analysis using the principal components method to determine whether the seven items loaded together. The first run of the factor analysis with all items produced three factors with eigenvalues over 1 (F1 eigenvalue=2.887, F2 eigenvalue=1.104, F3

eigenvalue=1.003). No items had a loading lower than 0.4 on Factor 1, but two items had higher loadings on Factor 2 or 3 (ratings of satisfaction with sexuality and contribution to the welfare of others). I eliminated each of these items one by one and re-ran the factor analysis until only one factor with an eigenvalue over 1 remained (F1 eigenvalue=2.446) explaining 49% of the variance. The factor loadings for the five remaining items are listed in Table 2.2c. The items that remained in the final factor analysis were ratings of satisfaction with health, work, family, financial situation, and life overall.

The scale for life satisfaction was constructed by averaging the five items. In order to be included in the life satisfaction scale, observations had to have a minimum of three items complete (just over half of the items); that is, responses were averaged across the valid items with a minimum of three items. The final measure remains on a 0-10 scale, with higher scores reflecting higher ratings of life satisfaction. The reliability coefficient for the life satisfaction scale is 0.72, indicating adequate reliability.

Construction of quality of life latent factor variable: By modeling quality of life as a latent variable, the dimensionality of the data was reduced by aggregating the large number of observed variables in the model to represent the underlying construct that cannot be directly observed (Bollen, 2014). The steps for constructing the latent variable for quality of life were as follows: First, exploratory factor analyses using the principal components method were performed on the items for each indicator (e.g., life satisfaction) of the construct of quality of life as described above. Second, manifest scales were constructed for each indicator by averaging the items that loaded together in the factor analyses. Third, an exploratory factor analysis using the principal components method and a confirmatory factor analysis were performed on the three indicators of quality of life. The fit of the measurement model produced by the confirmatory

factor analysis was tested using structural equation modeling for the latent variable for quality of life based on the three indicators.

The three indicators of quality of life loaded together strongly in the exploratory and confirmatory factor analyses with factor loadings of 0.62 for life satisfaction, 0.67 for interpersonal well-being, and 0.77 for intrapersonal well-being. For the purpose of calculating descriptive statistics for the dependent variable, quality of life was constructed as a manifest variable based on the three indicators (See Chapter 3: Preliminary Analyses). Respondents had to be complete on at least two of the three indicators to be included in the manifest quality of life scale. The reliability coefficient for the manifest quality of life scale was 0.76. Results of the exploratory and confirmatory factor analyses for modeling the latent variable of quality of life are explained in more detail in Chapter 5: Aim 2 Results.

2.3.3 Mediator Variables – Negative Work to Family Spillover of Stress and Social Support

Negative work to family spillover of stress is defined as the spread of negative stressors from the work domain to the family domain (Gryzwacz, 2000). It is operationalized with a four-item scale assessing the frequency with which work stressors negatively impact family life (e.g., "Stress at work makes you irritable at home" or "Job worries or problems distract you when you are at home"). Response codes range from 1 "All the time" to 5 "Never". The four items are summed to create the spillover scale and reverse-coded so that high values indicate more negative work to family spillover (range: 4-20). To be included in the final spillover scale, respondents had to be complete on at least two items (half the scale items). The reliability coefficient for the spillover scale is 0.81.

Social support outside of work is defined as a social resource characterized by affectual solidarity from family, friends, and spouse/partner (Whalen & Lachman, 2000; Schuster et al., 1990). Each of the three interpersonal sources of social support were operationalized by two subscales for *support* adjusted for *strain*. Support was conceptualized as a resource and strain was conceptualized as a stressor. For the family and friend scales, support includes four items (e.g., "How much can you rely on them for help if you have a serious problem?") and strain includes four items (e.g., "How often do they get on your nerves?"). There were six items each for support and strain for the partner/spousal scales. The support items were coded from 1 "A lot" to 4 "Not at all", and the stain items were coded from 1 "Often" to 4 "Never". The social support scales were calculated as the mean of the eight items from the strain and support subscales for family and friends (minimum four valid items required), and the mean of the 12 items for the spousal/partner scale (minimum six valid items required). Strain items are reverse-coded so that higher scores indicate lower levels of strain. The reliability coefficients of the spousal/partner, family, and friend social support scales are 0.91, 0.82, and 0.77, respectively. The three support scales were then averaged to create a composite *social support outside of work* scale (minimum two valid items required) ranging from 1 to 4. The reliability coefficient for the final social support outside of work scale was 0.63.

2.3.4 Moderator Variables – Education, Income, and Social Support

There are two types of moderators assessed in this analysis: status characteristics and resources. The status moderators used are education and household income. The resource moderators used are social support at work (i.e., from coworkers and supervisors) and social support outside of work (i.e. from family, friends, and significant others).

Education was operationalized as a continuous variable based on years of schooling completed. The continuous education variable was used as a control in all aims. For the moderation analysis in Aim 3, the education variable was dichotomized to compare group differences for people with 1 "Bachelor's degree or more" to 0 "Less than a bachelor's degree." Sensitivity analyses were also performed to determine if dichotomizing the variable at high school diploma or making a three-category variable for 1 "Less than high school," 2 "High school diploma or GED," and 3 "Bachelor's degree or more" would alter the moderation results. However, the results of the moderation analysis did not change depending on the construction of the education groups. See Chapter 6: Aim 3 Results for more details on the sensitivity analysis.

Household income is a continuous variable calculated as the sum of nine variables that assess personal earning income, pension income, and social security income, for the respondent, the respondent's spouse, and any other adults in the household. Household income is capped at $300,000 to account for outliers. A log transformation is performed for the household income variable because it remained skewed even after capping the maximum income. The log-transformed variable approximates the normal distribution. For the moderation analysis, the household income variable was dichotomized using a median split at $55,500.

Social support outside of work was measured in terms of affectual solidarity from spouse/partner, support from family (non-partner), and support from friends (Whalen & Lachman, 2000; Schuster et al., 1990) by the scale described above for the mediator variable. This scale was then dichotomized at the median for high and low *social support outside of work* to serve as a moderator.

Social support at work was measured by two sub-scales for coworker (two items) and supervisor support (three items). Response codes assessed frequency of support received from

each source ranging from 1 “All the time” to 6 “Never”. The items within each scale were summed to create a coworker scale ranging from 2 to 12 (minimum one valid item required) and a supervisor scale ranging from 3 to 18 (minimum two valid items required). The two scales were then averaged to create a final *social support at work* scale ranging from 2.5 to 15, low to high support. The reliability coefficient for the *social support at work* scale is 0.65. This scale was then dichotomized at the median for high and low *social support at work* to serve as a moderator.

2.3.5 Control Variables – Demographic, Work, and Health Characteristics

Demographic characteristics: Status variables based on demographic characteristics that are hypothesized as potential confounders include: age, gender, race, marital/cohabitation status, having children, education level, and household income. *Age* is a continuous variable measured in years (range 25-74). *Race* is a dichotomous variable for 1 “Non-Hispanic white” versus 0 “Person of color”. *Gender* is a dichotomous variable comparing 1 “Women” versus 0 “Men”. *Having children* is a dichotomous variable for 1 “At least one child” versus 0 “No children”. The *cohabitation* variable is combined with the *marital status* variable to capture co-residence in addition to formal relationship status. The combined *marital status/cohabitation* variable is dichotomized to compare 1 “Married or living with a partner” versus 0 “Not living with a partner.” A dichotomous indicator variable for *wave of interview* coded 1 “Wave 1 (1995-1996)” versus 0 “Wave 2 (2004-2006)” is also included to assess age/period effects.

Work characteristics: *Job strain* was operationalized by three scales for *skill discretion*, *decision authority*, and *demands* validated by Karasek and Theorell (1990). The items of these scales assess the frequency with which workers felt they had high autonomy (i.e., control) or

were subjected to excessive workload expectations (i.e., demands). Response codes for all items ranged from 1 “All the time” to 5 “Never”, and were reverse-coded so that higher values corresponded with higher levels of demands or higher levels of control. There were two sub-scales for *control*: *skill discretion*, or the extent to which a worker has the necessary capacity to achieve work goals and opportunities to learn and grow (e.g., “How often do you learn new things at work?”); and *decision authority*, or the ability of the worker to decide what tasks are performed and how to perform them (e.g., “How often do you have a say in decisions at work?”). The items for decision authority (six items) and skill discretion (three items) were averaged to create the *job control* scale (minimum five valid items required), producing a final control scale with a range from 4.5 to 22.5, low to high control.

The *job demands* scale assesses the intensity of workload requirements imposed on the worker (e.g., “How often do different people or groups at work demand things from you that you think are hard to combine?). The five items of the demands scale were averaged (minimum three valid items required) to create a final demands scale ranging from 5 to 25, low to high demands. The reliability coefficients for the *control* and *demands* scales were 0.75 and 0.73, respectively. Job demands and control were included as individual variables in main effects models and as a multiplicative interaction term in models testing for moderation.

Effort-reward imbalance was operationalized by two variables for *perceived inequality at work* and *perceived thought or effort put into work*. Unlike the job strain scales that were modeled directly on items from Karasek’s (1979) Job Content Questionnaire, there were no widely-used scales for operationalizing the constructs in Siegrist’s (1996) ERI model at the time the MIDUS study was conducted. One pre-constructed scale in the MIDUS data set measuring *perceived inequality at work* assesses a worker’s perception of the rewards provided from their

job compared to other jobs, which can be understood as a measure of procedural injustice at work for assessing inadequate rewards (e.g. “I feel cheated about the chances I have had to work at good jobs” or “Most people have more rewarding jobs than I do”). Six items were included for *perceived inequality at work* with responses ranging 1 “A lot” to 4 “Not at all”. The items were averaged to construct the scale, with a minimum of three valid items needed to be included in the scale. The reliability coefficient for the *perceived inequality at work scale* was 0.75.

A single continuous variable measuring a respondent’s *perceived thought/effort put into work* with responses ranging from 0 “None” to 10 “A lot” was used in this analysis to operationalize the effort construct of the ERI model. The *perceived inequality scale* and the *effort* variable were included as individual variables in main effects models and as a multiplicative interaction term in models testing for moderation. The multiplicative interaction term of *effort* by *control* was also included for a test of an adapted model combining hypotheses from the job strain model and the ERI model in Aim 1.

Occupation and *industry* variables are derived from three open-ended questions: “What kind of business or company is this?”, “What is your job title?”, and “What are you most important activities or duties?” Responses were double-coded to match the 1990 Alphabetic Index of Industries and Occupations published by the U.S. Census Bureau (Brim et al., 2010). Although more extensive questions about occupation and industry were asked in MIDUS 1 based on the Dictionary of Occupational Titles for the 1980 Census, this information was not included in MIDUS 2 because the DOT codes were replaced by the Occupational Information Network (O*NET) codes which aggregated occupations into nine major occupational groups within 12 major industry groups at wave two (U.S. Department of Labor, 2006). No major groups for

occupation or industry were included for wave one, so these variables could not be used for the multivariate models (Brim et al., 2010).

Occupational prestige was operationalized by nine variables from indexes created using the Hauser and Warren (1996) method for deriving occupational socioeconomic status based on the education and income of workers by gender in the 1990 Census and cross-validated against the 1989 occupational prestige ratings from the General Social Survey. This composite variable for occupational prestige was intended to be used as a measure of rewards for the ERI model in Aim 1, but it had to be dropped due to several thousand missing values.

Regular work schedule was constructed using four variables regarding the days of the week worked and the times of day during which the person was at work. These four variables measure the number of days, evenings, nights, and weekends worked in an average week. These variables were combined into one composite variable and recoded so that the final schedule variable was dichotomized to compare those with 1 "Regular schedule" (worked only week days, no evenings, nights, or weekends in an average week) versus 0 "Irregular schedules" (worked at least one evening, night, or weekend in an average week).

Personal income is operationalized as the sum of two continuous variables measured in U.S. dollars based on self-reported wages in the last calendar year and total respondent income including wages, pension income, and social security income in the last year. *Household income* was measured by a continuous variable on the sum of these three sources of income for all household members. *Household income* dichotomized at the median was also used in the moderation analysis, as described above.

Employment benefits were operationalized into two dichotomous variables for having a retirement/pension plan and having health insurance. *Retirement* is measured by as dichotomous

variable asking whether the respondent 1 “has a retirement plan offered by their employer” or 0 “does not”. *Health insurance* is measured with a dichotomous variable asking whether the respondent’s employer or union 1 “provides health insurance” versus 0 “does not”.

Health and psychosocial characteristics: Health and psychosocial characteristics include self-rated physical and mental health, having any chronic conditions, currently have a mental health condition, and currently have an alcohol or drug problem. *Self-rated physical health* and *Self-rated mental health* are both ordinal variables from 1 “Excellent to 5 “Poor”. *Currently any chronic conditions* was a count variable for number of chronic conditions that was then dichotomized into 1 “Any” vesus 0 “None”. *Currently have a mental health condition* is a dichotomous variable for self-reported anxiety, depression, or any other affective or mood disorder for 1 “Yes” versus 0 “No”. *Currently have a drug or alcohol problem* is a self-reported dichotomous variable for 1 “Yes” versus 0 “No”.

2.4 Statistical Analysis

The specific aims for this dissertation were to: 1) identify the determinants of perceived job insecurity among adults in the United States; 2) test causal pathways linking job insecurity with quality of life; and 3) estimate group differences in the effect of job insecurity on quality of life based on statuses and resources. Univariate, bivariate, and multivariate statistical procedures were used to test each aim. All analyses were conducted in Stata/MP 13.1 (StataCorp, 2013).

Preliminary univariate analyses were performed on all study variables to produce descriptive statistics of means and standard deviations for continuous variables and proportions for categorical variables. Histograms were used along with measures of spread and central tendency to examine the distributions of continuous variables and to assess the appropriateness

of various transformations. Correlations (for continuous variables) and bivariate regressions (for categorical variables) were used to assess bivariate tests of associations between covariates for each aim. Variance inflation factors (VIF) and tolerance statistics were used to assess multicollinearity between covariates.

Diagnostics were performed to assess the assumptions of multivariate regression models including assumptions of normally distributed errors (normality) with mean zero and constant variance (homoscedasticity), independence of errors (no serial correlation), and linearity of the relationship between independent and dependent variables. In order to test the linearity assumption, scatterplots were graphed to check for curvilinearity, which may require transformation. In order to test the normality assumption, normal probability plots of the residuals were graphed to determine if there was skewness (bow-shaped pattern of residuals) or kurtosis (S-shaped pattern). If a violation of the normality assumption was detected, non-linear transformations were performed and tests of influential values (studentized residuals, leverage, Cook's distance, and dfbeta) were performed to examine if outliers were skewing the distribution. When outliers can be explained and provide important information about the pattern of the relationship, they were retained or top-coded to restrict the range. When an outlier was too influential or appeared to be an impossible value (e.g., a mistake during data entry) it was removed from the analysis.

Multivariate analysis procedures included a multivariate generalized structural equation model (GSEM) to test Aim 1 and multivariate linear structural equation models (SEM) with a latent dependent variable to test Aims 2 and 3. Analytic procedures used in Stata include SEM syntax for modeling linear structural equation models with continuous outcomes, and SEM builder to create path diagrams and specify indicators of the factor variable in the measurement

model, post-estimation of the decomposition of total effects into direct and indirect effects for testing mediation, invariance tests using multi-group analysis procedures for testing moderation, and overall model and comparative goodness-of-fit statistics.

2.4.1 Analysis Plan for Specific Aim 1 – Determinants of Perceived Job Insecurity

The dependent variable for Aim 1 was perceived job insecurity and the four independent variables for objective job insecurity were: employment status in the year prior to the interview, full-time employment status for all of the last 10 years, ever being out of work for at least six months in the last 10 years, and number of employment status changes in the last 10 years. Number of changes in employment status over the last 10 years and and full-time employment for all of the last 10 years were highly correlated (correlation greater than 0.6), so full-time employment for all of the last 10 years was excluded because number of changes in employment status explained a larger proportion of the variance.

Perceived job insecurity was modeled using GSEM with an ordinal logistic link function (identical to multivariate ordinal logistic regression model). First, the bivariate associations between the objective job insecurity variables and perceived job insecurity were tested followed by a multivariate model with all four objective job insecurity IVs included together. Full-time employment for all of the last 10 years and ever being out of work for six months or more in the last 10 years were not significant in the model with the other objective job insecurity variables, so they were dropped from subsequent models. Second, variables for demographic and health characteristics were added to control for spuriousness. Third, the variables for job strain were added to the model to test both the main effects of job demands and job control and the interaction of job demands by job control. Fourth, the variables for effort-reward imbalance were

added to the model to test both the main effects of perceived thought/effort put into work and perceived inequality at work and the interaction of effort by inequality. Last, the final model tested an integration of the job strain and effort-reward imbalance models with an interaction term for effort by control. Covariates that were not significantly associated with the dependent variable were excluded and models were re-run until optimal fit was obtained based on the AIC and BIC statistics. The pseudo-R^2 test was not used to compare logistic models with different covariates.

2.4.2 Analysis Plan for Specific Aim 2 – Mediation Analysis

Aim 2 involved modeling the relationship between perceived job insecurity and quality of life, but there were several steps that had to be completed before testing the focal relationship. First, quality of life was modeled as a latent factor composed of the three sub-scales of life satisfaction, intrapersonal well-being, and interpersonal well-being described in the constructs and measures section above. The first step was to run an exploratory factor analysis for each of the sub-scales of the three indicators in order to decide if they loaded together into three cohesive constructs with loadings above a minimum of 0.300. Next, an exploratory factor analysis was performed with each of the three indicators to see if the items grouped together on a common latent factor we could conceptually name "quality of life". Then, a confirmatory factor analysis was tested to assess whether the indicators of the factor were consistent with the conceptualization of quality of life proposed. This process was achieved by testing the fit of a hypothesized measurement model based on the theory of the stress process model and pre-existing research on the nature of quality of life. Confirmatory factor analysis was the first step for assessing the fit of the proposed measurement model to be used in the structural equation

model (SEM). The likelihood ratio chi-squared test, the root mean square error of approximation (RMSEA), and the comparative fit index (CFI) were assessed to determine model fit.

The SEM was made up of two parts: the measurement model produced in the confirmatory factor analysis, and the structural model, which specified the relationships and direction of causal pathways between variables. When the factor structure for the latent dependent variable of quality of life was confirmed, the full model was built step-by-step expanding outward from the focal relationship between perceived job insecurity and quality of life. All relationships in an SEM can be tested simultaneously, but I built the model in steps to avoid problems with convergence due to the relatively large number of candidate variables.

After modeling the focal relationship between perceived job insecurity and quality of life, the antecedents of perceived job insecurity as determined by the conceptual model were added to the model. Then, the controls for demographic, work, and health characteristics were added as described in Aim 1. Finally, the last step was to test for mediation by negative work to family spillover and social support outside of work. I assessed the direct, indirect, and total effects based on MacKinnon's criteria for mediation. The proportion of the total effect explained by the mediator was reported for all levels with significant indirect effects. The decomposition total effects into direct and indirect effects was assessed to determine if there was significant mediation through all paths and if the theoretical ordering of the variables was the appropriate causal sequencing to model the relationship.

2.4.3 Analysis Plan for Specific Aim 3 – Moderation Analysis

A multi-group moderation approach was used to determine if status and resource characteristics altered the mediated relationship between perceived job insecurity and quality of

life. Multi-group specification is the recommended method for testing discrete moderator variables (i.e., nominal or ordinal variables if there is a theoretically logical cutpoint) (Sauer & Dick, 1993). This method was used for moderation based on the status characteristics of education and household income and the resources of social support in the workplace and social support outside of work.

In a multi-group moderation analysis, invariance of the measurement model and the structural model must both be tested. Measurement invariance of the measurement model refers to equivalence across groups of item intercepts, factor loadings, and error variances for the latent variable of quality of life. Structural invariance of the measurement model refers to equivalence of variances and covariances of the latent variable. Invariance of the structural (causal) paths in an SEM model – the relationship between the latent construct and other variables in the model – refers to equivalence of coefficients for the paths in the structural model (Little, 2013).

Invariance tests begin with assessment of the measurement model for the latent construct, followed by a series of increasingly restrictive tests (Bryne, 1994). Table 2.3 provides a list of the invariance tests in the order they were performed. Each model was compared to the previous model based on a likelihood ratio chi-square difference test. When items are determined to be invariant across groups, these parameters were constrained to be equal for subsequent tests of the other parameters. It was possible to have partial invariance, in which some parameters are equal across groups, while others are not. In the event of partial invariance, parameters known to be equal across groups were constrained while the other parameters were allowed to vary freely.

The first step was to test for configural invariance of the latent variable (preliminary step before running Model 1 in Table 2.3), which means that the same general factor structure and same number of factors is observed in all groups. The second step was to test the equivalence of

factor loadings, intercepts, and residuals of the latent variable for quality of life (collectively referred to as measurement invariance of the measurement model). The third step was to test equivalence of factor variances, covariances, and means of the latent variable (collectively referred to as structural invariance of the measurement model). Finally, I tested for equivalence of causal paths between the latent variable and other variables in the structural equation model (moderation). Steps 1-3 were tests of invariance of the measurement model and Step 4 was a test of invariance of the structural model.

Demonstrating configural invariance and at least partial measurement invariance of the measurement model was required for testing invariance of causal paths, but demonstrating structural invariance of the measurement model was not required (Byrne, 1994). Measurement invariance of the measurement model is crucial in testing for moderation in order to show that potential group differences in means or coefficients in the structural model can be interpreted reliably as differences in the causal paths versus differences in the interpretation of the latent construct (Byrne, 1994). The purpose of testing for measurement invariance is to confirm that there is equivalence in the structure of the measure for quality of life across groups (i.e., that the three-item measure for quality of life based on intrapersonal well-being, interpersonal well-being, and life satisfaction is measuring the same construct for all groups). Without testing for measurement invariance, any differences in the causal paths assumed to be moderation may actually be artifacts of differences in the meaning of the latent dependent variable across groups.

Measurement and structural invariance of the measurement model were assessed by a series of increasingly restrictive goodness of fit tests for models with parameters constrained. When the items for a model were determined to be invariant across groups, those parameters were constrained to be equal for tests of subsequent models. Each model was tested using a

difference test of the chi-square value relative to the degrees of freedom when compared to the less restrictive model that preceded it. When the change in the chi-square value was small relative to the degrees of freedom and not significant (p-value >0.05), the fit of the model was determined to be no worse than the less restrictive model against which it was compared. The factor mean was constrained to zero to improve convergence for all models that would not converge after more than 100 iterations.

Configural invariance was assessed by modeling the latent variable using confirmatory factor analysis for each group separately (data not shown) and then simultaneously using structural equation modeling to fit the base model (Model 0). In Model 1, all parameters were allowed to vary freely. In Model 2, the factor loadings for the indicators of quality of life were constrained to be equal across groups (metric invariance). In Model 3, the intercepts were constrained to be equal (strong or scalar invariance). In Model 4, the residuals were constrained to be equal (strict invariance). In Models 5 and 6, factor means and factor variances were constrained to be equal, respectively (strict invariance plus factor means and variances). Metric invariance (Model 2) was the minimum standard for determining that the factors in the measurement model were measuring the same underlying construct in all groups. Strong invariance (Model 3) and strict invariance (Models 4-6) were not required for proceeding with the multi-group moderation analysis to test for differences in causal paths. If a model was determined to not be metrically invariant, then the loadings for individual indicators were released one at a time while the others were constrained until the fit was no worse than the baseline model.

Moderation was inferred if there was a significant difference in the joint parameter test of invariance of the coefficients for the relationship between perceived job insecurity and quality of

life. Group differences in individual parameters were tested by constraining paths to be equal across groups and sequentially releasing constraints if there was a significant improvement in model fit based on the modification indices (e.g., CFI, RMSEA). The process continued until there was no improvement in model fit. The paths that were released indicate variation across groups and the paths that were not released were inferred to be invariant (equal) across groups.

The adequacy of model fit was determined by established thresholds for fit statistics in relation to the final analytic sample size, the complexity of the model, and the ratio of indicators to latent factors. Any modifications needed to improve the fit were completed after assessing the likelihood ratio chi-squared statistic, BIC, RMSEA, and CFI.

2.5 Conclusion

The analytic methods proposed for this analysis were ideal for assessing relationships between psychosocial characteristics and abstract constructs such as quality of life, which cannot be easily captured with a few measured items. The final SEM model of the relationship between perceived job insecurity and quality of life with mediation and moderation effects provides a comprehensive picture of the relationships that influence both the perception of job insecurity and its effects on multiple dimensions of health and well-being. The SEM approach was also suited for testing causal assumptions since the relationships in the model are tested simultaneously accounting for all parameters in the model. The next chapter describes the preliminary analyses on sample characteristics.

CHAPTER 3: PRELIMINARY ANALYSES

3.1 Introduction

This chapter presents the characteristics of the analytic sample for Aim 1 (n=5,424) and analytic sample for Aims 2 and 3 (n=5,113). Weighted and unweighted descriptive statistics are briefly discussed for variables on which the distributions differed with the application of the weights, but the tables include only unweighted descriptive statistics. The purpose of this comparison is to determine if the unweighted sample used for the analysis differs from the weighted sample, which may bias the study results. The unweighted and weighted sample characteristics did not differ on most study variables.

3.2 Univariate Distribution of Study Variables

Univariate distributions of all study variables are presented in Table 3.1. Means and standard deviations are reported for all continuous variables and proportions are reported for all categorical variables. A detailed description of each variable is provided below.

INDEPENDENT VARIABLE: In the Aim 1 analytic sample, 66% of observations reported excellent perceived job security, 19% very good security, 9% good security, 4% fair security, and 3% poor security. The distribution of perceived job insecurity in the analytic sample for Aims 2 and 3 was similar, with a slightly lower proportion reporting excellent security and slightly higher proportion reporting very good security. The proportions reporting good, fair, or poor security were the same. The skewed distribution of perceived job insecurity did not change across waves, although a slightly larger proportion of the sample reported excellent job security at Wave 2 (68% at Wave 2 versus 64% at Wave 1). The proportions for all other response categories on the perceived job insecurity variable remained consistent within 2%

across waves. Levels of perceived job insecurity were low in the sample, with 17% at baseline and 14% at follow-up perceiving their jobs to be insecure (good, fair, or poor security). Data from the Current Population Survey (CPS) and General Social Survey (GSS) demonstrate that the distribution of perceived job insecurity in the analytic sample was comparable to population characteristics at the time of the study (Burgard et al., 2009).

DEPENDENT VARIABLE: Quality of life was distributed the same in both analytic samples. Quality of life was approximately normally distributed at both waves with a slightly long left tail. Average quality of life was 6 (range 0-10), indicating moderate to high levels of quality of life among observations. Among the three indicators of quality of life, observations reported moderate to high levels of life satisfaction (mean = 7.4, range = 0-10), intrapersonal well-being (mean = 5.6, range = 1-7), and interpersonal well-being (mean = 4.9, range = 1-7).

MEDIATORS: Negative work to family spillover of stress and social support outside of work from family, friends, and spouse/partner were distributed the same in both analytic samples. Moderate levels of both positive spillover (mean = 11.7, range: 4-20) and negative spillover (mean = 10.1, range: 4-20) from work to family life were reported. Positive spillover is not displayed in the table because it was not included in multivariate models. High levels of social support outside of work were reported (mean = 3.2, range: 1-4).

MODERATORS: Education, household income, and social support at work and outside of work were distributed the same in both analytic samples. Approximately 60% of the sample at both waves had a high school diploma or GED but not a bachelor's degree. Five percent did not have a high school diploma or GED. Thirty percent had a bachelor's degree at baseline and 37% at Wave 2. Respondents in the sample had higher levels of educational attainment than the U.S. population at both waves (U.S. Census Bureau, 2006). In 1995, approximately 20% of the U.S.

population had less than a high school degree, 55% had a high school degree, and 20% had a bachelor's degree or more. Population educational attainment increased slightly between 1995 and 2005, with about 15% having less than a high school degree and 25% having a bachelor's degree in 2005, and roughly the same proportion having a high school degree as in 1995.

The average personal income for observations was $18,000 (median = $25,550) at baseline and $42,000 at follow-up. The average household income was approximately $83,000 in the Aim 1 analytic sample and $80,000 in the Aim 2/3 analytic sample (median = $55,000 in both samples) at baseline and follow up. The income distribution of the samples was roughly equal to the population income distribution at the time of both interviews. The distribution of household income in the sample was strongly skewed and thus was log-transformed for the multivariate analyses to approximate the normal distribution.

High levels of social support outside of work from family, friends, and spouses/partners were reported, as mentioned above under mediator variables. Moderately high levels of social support at work from supervisors and coworkers (mean = 10.0 for the Aim 1 analytic sample and 10.7 in the Aim 2/3 analytic sample, range=2.5-15).

OTHER DEMOGRAPHIC CHARACTERISTICS: The distribution of age, gender, race, marital status, cohabitation, and parental status was the same in both the Aim 1 analytic sample and the Aim 2/3 analytic sample. The average age in the sample was 45 years old (range: 25-74 years old). Women and men participated in approximately equal proportions at baseline (51% women vs. 48% men), but more men than women were lost to follow up. When comparing the weighted versus unweighted gender distributions by wave, a difference is observed with the application of the post-stratification weight adjusting for region, age, race, and education at Wave 2 (weighted proportions: 62% women vs. 37% men). The gender distribution of the

sample was altered more by the weights than any other variable in the analysis. The means and proportions of other variables did not change with the application of the survey weights. It is not clear why the gender distribution would shift so drastically when the weights are applied.

Non-Hispanic white people were overrepresented in the sample and all other racial and ethnic groups were underrepresented. More than 90% of the sample at both waves identified their race as White/Caucasian, compared to 4% who identified as Black/African American and 5% who identified as another race. Furthermore, only 4% of the sample at both waves identified their ethnicity as Hispanic/Latino, far below the population proportion of Hispanics/Latinos in the United States. In 1995, Hispanics/Latinos made up 10% of the population and increased to 13% by 2005. Blacks/African Americans made up approximately 12.5% of the population 1995 and 13% of the population in 2005. In contrast, whites made up 83% of the population in 1995 and declined to 81% in 2005. Non-Hispanic whites were only 74% of the population in 1995 and 70% in 2005, but they made up nearly 90% of the analytic samples (U.S. Census Bureau, 2006). Since racial and ethnic distribution of the population also varies by age, with whites overrepresented among older people, the external validity of the study findings may be impaired because this sample includes only midlife and older adults. Additionally, the MIDUS study interviews were only conducted in English, which may further limit the representativeness of the sample based on race, ethnicity, and language.

Approximately two-thirds of the sample was married at baseline and just under 70% at Wave 2. Two-thirds were cohabiting with a spouse or partner, and more than 80% reported have at least one child under the age of 18 years old at Wave 1. The question about having any children under the age of 18 years old was not asked at follow up, so total number of children of any age is the only information known across the sample.

WORK CHARACTERISTICS: Distributions for employment status, changes in employment over the last 10 years, ever being out of work for six months or more in the last 10 years, and working full-time for all of the last 10 years were the same in both analytic samples. More than 80% reported working full-time in the previous year before the interview. Thirteen percent reported working part-time in the Aim 1 sample and 11% reported working part-time in the Aim 2/3 sample. Three percent reported being out of work in both samples and less than 1% were full-time students. Comparing across waves, the proportion of non-working respondents increased dramatically from 18% in Wave 1 to 48% in Wave 2, due primarily to high rates of retirement for the older workers in the sample between waves. Approximately 46% of working respondents at baseline worked in executive, managerial, or professional occupations (i.e., "white-collar" jobs) and 34% worked in professional industries (highest status and generally most secure workers). Occupational and industry distributions are not reported in the table because they were not included in multivariate models. The classifications were not the same for each wave, so they could not be pooled across waves.

Workers in both analytic samples put in an average 43 hours per week. Seventy percent worked only week days during an average week (regular schedule). The majority of respondents had no changes in employment status over the last 10 years (61%) and the same proportion was employed full-time for all of the last 10 years. Less than one in five was out of work for at least six months during the last 10 years. These findings indicate that most workers had very stable employment status histories and the majority had not experienced unemployment or job loss recently.

Other objective job characteristics that are related to insecurity include not having employer-provided health insurance and/or retirement or pension plans. Health insurance

coverage was not asked in the same way at both waves, so the proportion of the sample insured at baseline is unknown. Ninety-three percent of the sample was insured at follow up. Thirty percent of the sample at both baseline and follow up in both analytic samples lacked a retirement plan.

The distributions of all subjective job characteristics were the sample in both analytic samples. Most reported moderate levels of demands at their jobs (mean: 15, range: 5-25) but also reported moderate levels of control (mean = 16, range 4.5-22.5). The average level of perceived inequality at work was low to moderate (mean = 1.7, range = 1-4), although levels of perceived chronic job discrimination were low (asked only at Wave 2, not shown in table). Workers felt that their own level of effort put into work was high (mean=8, range = 0-10). Based on these subjective job characteristics, it appears that most workers in the sample had active jobs (high demands/high control) with a moderately high level of self-reported stressors but also adequate control to meet the demands and expectations of the jobs.

HEALTH CHARACTERISTICS: The health characteristics of both analytic samples were distributed the same. Half of the sample reported having very good or excellent physical health and mental health. Three fourths of the samples had at least one chronic condition. Only 3% reported having a current alcohol or drug problem. Seventeen percent reported having anxiety, depression or another emotional or mental health condition.

3.2 Distribution of Quality of Life by Perceived Job Insecurity and Demographic Characteristics

Quality of life was above average for those that reported excellent perceived job security (mean quality of life=6.0). Quality of life was below average for all other levels of perceived job

security (very good, good, fair, and poor). Figure 3.2 displays average quality of life at each level of perceived job insecurity. There was a large drop in quality of life between those that rated their job security as very good/excellent and those that rate their job security as good/fair/poor. Consistent with previous literature suggesting that job insecurity may be more harmful to well-being than unemployment (Ferrie et al. 2005), mean quality of life was higher for those not working than for all levels of perceived security except excellent security There was nearly an entire standard deviation difference in quality of life between those with excellent job security and those with poor job security. This disparity in quality of life was larger than the disparity based on all demographic characteristics, followed most closely by the disparities in quality of life based on education and income. Quality of life for those with excellent perceived job security was approximately equal to quality of life for those with at least a bachelor's degree, those with an annual household income between $100,000 and $199,999, and those between the ages of 60 and 69 years old. There were no significant gender or racial differences in quality of life.

Quality of life increased with age and peaked between the ages of 60-69 years old, coinciding with the period of life in which most people in the United States retire. Quality of life was slightly below average until around the age of 50 years old and remained above average for all remaining years after 50, decreasing slightly after the age of 70. Quality of life was higher for those aged 70 years old and older than for all age groups under 50 years old.

Quality of life increased linearly with household income in both waves. Quality of life was below average for those making $55,000/year or less in household income in both waves, coinciding closely with the median income in the sample of $55,000/year in Wave 1 and $57,500

in Wave 2. There was a large disparity in quality of life between those making more than $200,000/year and those in all other income brackets.

Quality of life increased with education in both waves. The inflection point at which quality of life turned from negative to positive was when a person achieved a bachelor's degree. It was below average for those with less than a bachelor's degree. Median years of education in the sample was 13 years and mean was 14 years in both waves, indicating that those who had completed high school and some college but not a bachelor's degree had below average quality of life.

In summary, there were large disparities in quality of life based on education, income, and perceived job insecurity, especially between the groups at the bottom and top of each socioeconomic hierarchy. Disparities in quality of life based on age were small, and no significant disparities based on gender and race were observed. These preliminary correlational findings between the dependent variable and key study variables suggest that quality of life is associated with social position.

The next chapter (Chapter 4) discusses the determinants of perceived job insecurity. Chapters 5 and 6 describe the relationship between perceived job insecurity and quality of life as well as mediators and moderators in the relationships.

CHAPTER 4: AIM 1 RESULTS – DETERMINANTS OF PERCEIVED JOB INSECURITY

4.1 Introduction

In this chapter, I present the results of Specific Aim 1, which examines the determinants of perceived job insecurity. There were three primary objectives for this aim: 1) to test whether objective job insecurity increases perceived job insecurity; 2) to determine what other demographic, work, and health characteristics are associated with perceived job insecurity, and 3) to test whether job strain and effort-reward imbalance increase perceived job insecurity.

Objective job insecurity was operationalized with four variables: a four-category nominal variable for employment status in the previous year (full-time, part-time, not working six months or more, or full-time student), a dichotomous variable for having two or more changes in employment status over the last 10 years, a dichotomous variable for ever not working six months or more in the last 10 years, and a dichotomous variable for being employed full-time for all of the last 10 years. The most secure group for each variable served as the reference category: being employed full-time in the previous year, zero or one changes in employment status over the last 10 years, never being out of work for six months or more in the last 10 years, and working full-time for all of the last 10 years, respectively.

Perceived job insecurity was operationalized by an ordinal variable with responses to the question, “If you wanted to keep your job for the next two years, what are the chances you could keep it?” Response categories ranged from 1=excellent to 5=poor. The reference category for this variable was excellent security. Excellent security indicates low insecurity, so higher values correspond with higher insecurity.

4.2 Research Questions and Hypotheses Tested

The four research questions and corresponding hypotheses for Aim 1 are:

1) **Does educational attainment increase perceived job insecurity?**

   Hypothesis 1) Educational attainment is negatively associated with perceived job insecurity, net of controls for objective job insecurity, demographic and health characteristics, job strain, and effort-reward imbalance.

2) **Does objective job insecurity increase perceived job insecurity?**

   Hypothesis 2a) Relative to being employed full-time in the previous year, being employed part-time, not working six months or more, or being a full-time student is associated with higher perceived job insecurity.

   Hypothesis 2b) Having two or more changes in employment status in the last 10 years is positively associated with perceived job insecurity.

   Hypothesis 2c) Not working for six months or more in the last 10 years is positively associated with perceived job insecurity.

   Hypothesis 2d) Working full-time for all of the last 10 years is negatively associated with perceived job insecurity.

3) **Does job strain increase perceived job insecurity?**

   Hypothesis 3a) Job demands are positively associated with perceived job insecurity.

   Hypothesis 3b) Job control is negatively associated with perceived job insecurity.

   Hypothesis 3c) Job strain (high demands and low control) is positively associated with perceived job insecurity. The effect of job demands on perceived job insecurity is conditional on job control, as suggested by Karasek's (1979) job strain model.

4) **Does effort-reward imbalance increase perceived job insecurity?**

Hypothesis 4a) Perceived thought or effort put into work is negatively associated with perceived job insecurity.

Hypothesis 4b) Perceived inequality at work is positively associated with perceived job insecurity.

Hypothesis 4c) The relationship between perceived thought/effort put into work and perceived job insecurity is conditional on perceived inequality at work. A reciprocity deficit (e.g., when inequality prevents a worker's efforts from resulting in expected rewards) is associated with high perceived job insecurity, as suggested by Siegrist's (1996) effort-reward imbalance model.

Hypothesis 4d) The relationship between perceived thought/effort put into work and perceived job insecurity is conditional on job control.

This chapter describes how educational attainment was negatively associated with perceived job insecurity when controlling for objective job insecurity, demographic and health characteristics and job strain. However, educational attainment was not associated with perceived job insecurity in the model testing for effort-reward imbalance. Next, this chapter describes how two aspects of objective job insecurity were positively associated with perceived job insecurity, while two were not associated, net of controls. Relative to being full-time employed in the previous year, being part-time employed, not working six months or more, and being a full-time student were all positively associated with perceived job insecurity, net of controls. Having two or more changes in employment status over the last 10 years was also positively associated with perceived job insecurity. Ever not working for six months or more in the last 10 years and being full-time employed for all of the last 10 years were not associated

with perceived job insecurity, net of controls. Finally, this chapter describes how measures of other psychosocial job stressors were associated with perceived job insecurity.

4.3 Bivariate Associations Between Perceived Job Insecurity and Study Variables

Bivariate odds ratios and robust standard errors for tests of association between perceived job insecurity and study variables are displayed in Table 4.1. Educational attainment was weakly and inversely associated with perceived job insecurity. As expected in hypothesis 1, I found that each additional year of education reduced the odds of perceived job insecurity by 6%.

Bivariate ordinal logistic analyses of perceived job insecurity regressed on each of the objective job insecurity variables revealed that perceived job insecurity was significantly associated with all measured aspects of objective job insecurity. The findings of the bivariate tests of association were consistent with all hypotheses for the second research question. As expected in hypothesis 2a, being employed part-time in the previous year, not working for six months or more, and being a full-time student, were all associated with substantially higher odds of perceived job insecurity compared to being employed full-time in the previous year. Working part-time in the previous year was associated with 48% higher odds of perceived job insecurity, not working in the previous year was associated with 96% higher odds of perceived job insecurity, and being a full-time student is associated with 2.7 times higher odds of perceived job insecurity, all compared to working full-time in the previous year. The magnitudes of these effects were large.

As expected in hypothesis 2b, having two or more changes in employment status in the last 10 years was strongly associated with perceived job insecurity. Compared to having zero or only one change in employment status in the last 10 years, having two or more changes was

associated with 69% higher odds of perceived job insecurity, a large effect. Having a stable employment status history had a large effect on reducing perceived job insecurity compared to changing employment status frequently. Consistent with hypothesis 2c, ever being out of work for six months or more in the last 10 years was associated with perceived job insecurity. Having at least one experience of being out of work within the last 10 years was associated with 49% higher odds of perceived job insecurity, a large effect. Having a consistent employment history with no extended gaps provided a moderately large reduction in perceived job insecurity. Finally, working full-time all of the last 10 years was inversely associated with perceived job insecurity. Having a full-time job for all of the last 10 years with no changes in employment status reduced perceived job insecurity by 35%, a moderate to large effect.

Bivariate ordinal logistic regressions between perceived job insecurity and other study variables demonstrated significant associations with all tested covariates except having children, having a regular schedule (i.e., working only standard hours on weekdays with no evenings, nights, or weekends), and having an alcohol or drug problem. Greater odds of perceived job insecurity were found in bivariate regressions for women compared to men, higher job demands, higher perceived inequality at work, the interaction of perceived thought/effort put into work by perceived inequality at work, lower self-rated physical health compared to higher self-rated physical health, having a mental health condition compared to not, and having at least one chronic health condition compared to none. Lower odds of perceived job insecurity in bivariate ordinal logistic regressions were found for wave one compared to wave two, being non-Hispanic white compared to being a person of color, being married or cohabiting compared to living alone, having health insurance compared to not, having a retirement or pension plan compared to

not, older age, higher household income, working more hours per week, higher job control, the interaction of demands by control, and higher thought/effort put into work.

To prevent multicollinearity and reduce the number of parameters in the multivariate models, the following variables were dropped before running the multivariate ordinal generalized structural equation (GSEM) model for perceived job insecurity: having children, having a regular schedule, having an alcohol or drug problem, ever not working six months or more in the last 10 years, being full-time employed for all of the last 10 years, hours worked per week, having health insurance, having a retirement or pension plan, self-rated physical health, and having a chronic health condition. Having children, having a regular schedule, and having an alcohol or drug problem were dropped because they were not significantly associated with perceived job insecurity. Ever not working for six months or more in the last 10 years and being full-time employed for all of the last 10 years were dropped due to collinearity with the variable for number of changes in employment status in last 10 years. All three variables were constructed from the same set of 10-year employment status history questions. Hours worked per week and having a retirement or pension plan were dropped due to collinearity with employment status in previous year. Having health insurance was dropped because the variable was severely skewed with more than 91% reporting that they had health insurance. Self-rated physical health and having a chronic condition were dropped because mental health status was a more appropriate control for health status than physical health for this aim, which focuses on predicting the psychosocial stressor of perceived job insecurity.

The findings from the bivariate associations provided preliminary support for all hypotheses. In the next section, I explain how the inclusion of other variables in the multivariate models altered these relationships.

4.4 Multivariate Relationship between Objective Job Insecurity and Perceived Job Insecurity, Net of Controls for Demographic and Health Characteristics, Job Strain, and Effort-Reward Imbalance

Table 4.2 displays the odds ratios and robust standard errors for a series of GSEM models of perceived job insecurity on the objective job insecurity variables, net of controls for demographic and health characteristics, job strain, and effort-reward imbalance. The goodness of fit for each model was assessed with the Akaike information criterion (AIC) and the Bayesian information criterion (BIC). Lower AIC and BIC values indicate better model fit. AIC and BIC both balance model fit with parsimony, and each penalizes based on the number of parameters. BIC imposes a larger penalty for complex models. As a result, AIC may overfit the model while BIC may underfit the model, but generally they correspond closely with one another (Burnham & Anderson, 2004).

After eliminating the variables discussed above, five models were built expanding from the primary relationship between objective and perceived job insecurity (Model 1). In the second model, demographic characteristics and mental health status were included to control for spuriousness (Model 2). Next, the main effects and interaction of job demands and control were added to test the job strain model (Model 3). Next, the main effects and interaction of perceived thought/effort put into work by perceived inequality at work were added to test whether effort-reward imbalance explains perceived job insecurity above and beyond job strain (Model 4). Finally, the interaction of effort by control was added to test a novel integrated model combining aspects of both the job strain and effort-reward imbalance models (Model 5).

Model fit improved for each subsequent model compared to the model that preceded it, with substantial improvements in fit between Model 3 vs. Model 2 when the job strain measures

were added, and between Model 4 vs. Model 3 when the effort-reward imbalance measures were added. Model 5 was the best fit based on the lowest fit statistics (AIC=10042.11, BIC=10179.96). Parameter estimates for each model relevant to the research questions are discussed below. However, parameter estimates and significance levels cannot be compared across logistic models, so only model fit is used to compare across models (Harrell, 2015).

In Model 1 testing the relationship between objective job insecurity and perceived job insecurity, all objective job insecurity measures were significantly associated with higher odds of perceived job insecurity with large effects. Compared to working full-time in the last year before the interview, working part-time was associated with 38% higher odds of perceived job insecurity, not working six months or more was associated with 73% higher odds of perceived job insecurity, and being a full-time student was associated with 2.22 times higher odds of perceived job insecurity, net of changes in employment status in the last 10 years. Compared to having one or no changes in employment status in the last 10 years, having at least two changes in employment status was associated with 56% higher odds of perceived job insecurity, net of employment status in the last year.

In Model 2, all objective job insecurity measures, education, household income, gender, age, cohabitation status, and mental health status were significantly associated with perceived job insecurity, net of other variables in the model. All findings discussed below are net of controls for other variables in the model. Compared to working full-time in the last year before the interview, working part-time was associated with 37% higher odds of perceived job insecurity, not working six months or more was associated with 63% higher odds of perceived job insecurity, and being a full-time student was associated with 90% higher odds of perceived job insecurity. Compared to having one or no changes in employment status in the last 10 years,

having at least two changes in employment status was associated with 44% higher odds of perceived job insecurity. The magnitude of the effects of objective job insecurity on perceived job insecurity were large for all variables.

For each additional year of education, odds of perceived job insecurity decreased by 4%, a small effect. For each one unit increase on the log of household income scale, odds of perceived job insecurity decreased by 5%. Odds of perceived job insecurity were 15% lower for women compared to men, a moderate effect. For each additional year of age, odds of perceived job insecurity decreased by 40%, a large effect. Odds of perceived job insecurity were 15% lower for married or cohabiting people compared to people living alone, a moderate effect. Odds of perceived job insecurity were 33% higher for those with a mental health condition compared to those without a mental health condition, a moderate to large effect. The results of Model 2 indicated that the relationship between objective job insecurity and perceived job insecurity was strong and significant even after controlling for demographic and health characteristics.

In Model 3 testing job strain, all objective job insecurity measures, education, household income, race, and job demands were significantly associated with perceived job insecurity, net of other variables in the model. Compared to working full-time in the last year before the interview, working part-time was associated with 55% higher odds of perceived job insecurity, not working six months or more was associated with 2.06 times higher odds of perceived job insecurity, and being a full-time student was associated with 2.15 times higher odds of perceived job insecurity. Compared to having one or no changes in employment status in the last 10 years, having at least two changes in employment status was associated with 37% higher odds of perceived job insecurity. All objective job insecurity measures had large effects on perceived job insecurity, net of controls.

For each additional year of education, odds of perceived job insecurity decreased by 3%, a small effect. For each one unit increase on the log of household income scale, odds of perceived job insecurity decreased by 12%. Odds of perceived job insecurity were 42% lower for non-Hispanic white people than people of color, a large effect. For each one unit increase on the job demands scale, odds of perceived job insecurity increased by 19%, a moderate effect. The main effect of control and the interaction of demands by control were not significant. The findings of Model 3 indicated that job strain did not significantly increase perceived job insecurity.

In Model 4 testing effort-reward imbalance, all objective job insecurity measures, race, age, job demands, job control, and the interaction of effort put into work by perceived inequality at work were significantly associated with perceived job insecurity, net of all other variables in the model. Compared to working full-time in the last year before the interview, working part-time was associated with 51% higher odds of perceived job insecurity, not working six months or more was associated with 89% higher odds of perceived job insecurity, and being a full-time student was associated with 2.29 times higher odds of perceived job insecurity. Compared to having one or no changes in employment status in the last 10 years, have at least two changes in employment status was associated with 34% higher odds of perceived job insecurity. All objective job insecurity measures had large effects on perceived job insecurity, net of controls.

Odds of perceived job insecurity were 45% lower for non-Hispanic white people than people of color, a large effect. For each additional year of aging, odds of perceived job insecurity increased by 1%, a small effect. For each one unit increase on the job demands scale, odds of perceived job insecurity increased by 7%, a small effect. For each one unit increase on the job control scale, odds of perceived job insecurity decreased by 7%, a small effect.

The interaction of perceived effort put into work by perceived inequality at work was significantly associated with perceived job insecurity. Figure 4.1 displays a plot of the interaction with three lines for level of effort put into work on the probability of having excellent perceived job security (lowest level of insecurity) when holding the level of inequality at work constant at the mean and one standard deviation above and below the mean. The slopes of all three lines were significantly greater than zero, and the slopes were progressively steeper at lower levels of inequality, indicating that the probability of excellent security increased as the level of effort put into work increased, but the relationship was stronger at lower levels of inequality. High effort increased the odds of excellent security, but the protective effect of effort diminished as the level of inequality increased. The findings from Model 4 indicate that objective job insecurity increased perceived job insecurity net of controls for demographic, work, and health characteristics, and the interaction for effort-reward imbalance predicted perceived job insecurity beyond the effects of job strain. However, the main effects of demands and control also contributed to perceived job insecurity, with demands increasing the odds of insecurity and control decreasing the odds of insecurity.

In Model 5 testing a novel integration of the job strain and effort-reward imbalance models, all objective job insecurity measures, race, job demands, perceived inequality at work, and the interaction of perceived effort put into work conditional on job control were significantly associated with perceived job insecurity, net of all other variables in the model. The interactions of demands by control (job strain) and effort by inequality (effort-reward imbalance) were not significantly associated with perceived job insecurity. Compared to working full-time in the last year before the interview, working part-time was associated with 51% higher odds of perceived job insecurity, not working six months or more was associated with 90% higher odds of

perceived job insecurity, and being a full-time student was associated with 2.38 times higher odds of perceived job insecurity. Compared to having one or no changes in employment status in the last 10 years, have at least two changes in employment status was associated with 33% higher odds of perceived job insecurity. All objective job insecurity measures had large effects on perceived job insecurity, net of controls.

Odds of perceived job insecurity were 45% lower for non-Hispanic white people than people of color, a large effect. For each one unit increase on the job demands scale, odds of perceived job insecurity increased by 7%, a small effect. For each one unit increase on the perceived inequality at work scale, odds of perceived job insecurity increased by 2.15 times, a very large effect.

Finally, the interaction of effort by control was significantly associated with perceived job insecurity. Figure 4.2 displays a plot of the interaction with three lines for level of effort put into work on the probability of having excellent security when holding the level of job control constant at the mean and one standard deviation above and below the mean. The slopes of the lines at average and high levels of control were significantly greater than zero, but the slope of the line at low control was not significantly different from zero. Effort increased the probability of having excellent security for those with average and high levels of control but not for those with low control. The findings of Model 5 demonstrated that objective job insecurity increased perceived job insecurity, net of controls, and that the novel integrative model had better predictive power than either the job strain model or the effort-reward imbalance model.

4.5 Summary of Key Findings

The four research questions for Specific Aim 1 investigated: 1) the effect of education on perceived job insecurity, 2) the relationship between objective and perceived job insecurity, 3) the relationship between job strain and perceived job insecurity, and 4) the relationship between effort-reward imbalance and perceived job insecurity. The results provide support for some but not all hypotheses proposed for the four research questions. A brief discussion of the results from the best fitting model (Model 5) is summarized below.

Contrary to hypothesis 1, education was not significantly associated with perceived job insecurity, net of controls. Consistent with hypotheses 2a and 2b, working part-time in the last year, not working in the last year, being a full-time student in the last year, and having two or more changes in employment status in the last 10 years were all associated with higher odds of perceived job insecurity, net of controls. These findings suggest that recent employment status is a stronger determinant of perceived job insecurity than long-term employment status history, but having an unstable employment history still contributes to perceived insecurity even after controlling for demographic and health characteristics, job strain, and effort-reward imbalance.

Recent full-time employment reduces perceived job insecurity compared to part-time employment. Possible explanations for the protective effect of full-time employment include that it provides higher income, more stability in hours and schedule control, better fringe benefits, and more time in the workplace to build relationships with coworkers and supervisors, thus increasing social support (Kalleberg, 2000). Full-time employment likely reduces perceived job insecurity compared to being out of work in the same ways, but to an even greater extent because the disparities in all of these resources are wider between full-time workers and people who are not working than between full-time workers and part-time workers. Full-time employment

provides much better short-term perceived job security than full-time study, but both would be expected to have comparable long-term effects on job security. The more instability a person has in their employment status history, the more insecure they will feel about their current job. Workers who have experienced recent unemployment or have changed jobs or statuses frequently in the last decade may feel less confident in both their short-term and long-term job prospects than workers who have been consistently employed, particularly those consistently employed full-time.

Consistent with hypothesis 3a, the main effect of job demands was a significant determinant of perceived job insecurity, but contrary to hypotheses 3b and 3c, the main effect of job control and the interaction of job demands by control were not associated with perceived job insecurity, net of the other variables in the model. These findings provide equivocal support for the job strain model if only the main effects and not the interaction are considered, but this interpretation is logically inconsistent with the conceptualization of job strain discussed by Karasek (1979) as a conditional relationship between job demands and stress outcomes based on level of control. The job strain model has been inconsistently applied in practice with some researchers arguing that additive relationships are sufficient while others are adamant that a multiplicative relationship must be present to conclude that the job strain model is supported (Van der Doef & Maes, 2010). These findings suggest that job strain – as operationalized by a conditional relationship between demands and control – is not a significant determinant of perceived job insecurity. However, the variables from the job strain model may still provide explanatory power for predicting perceived job insecurity, as discussed below for hypothesis 4d.

Consistent with hypotheses 4b, the main effect of perceived inequality at work was a very strong determinant of perceived job insecurity, but contrary to hypotheses 4a and 4c, the main

effect of effort put into work and the interaction of effort by inequality were not associated with perceived job insecurity, providing equivocal support for the effort-reward imbalance model. Most previous studies using the effort-reward imbalance model focus on inputs and outputs of the specific job where a person works, but the perceived inequality at work scale used in this analysis expands to make social comparisons between an individual's experience and the experience of people around them both in and outside of the workplace (e.g., "Most people have more rewarding jobs than I do"). The perceived inequality scale utilized in this analysis is another way to assess a reciprocity deficit. Inequality, or procedural injustice, is a psychosocial stressor that creates a hostile work environment and reduces solidarity and support between workers. When opportunities for growth and advancement are not equally available to everyone in the workplace, workers may feel less confident that the employer will honor their side of the psychological contract, which is the unwritten set of expectations and rules that define the employer-employee relationship (Stone, 2000). Feeling cheated out of job opportunities or that others receive unfair advantages may increase a person's perceived job insecurity because trust in the employer is eroded (Robinson, 1996).

Consistent with hypothesis 4d, the interaction of effort by control was significantly associated with perceived job insecurity. High effort conditional on high control decreases the odds of perceived job insecurity. This finding provides support for the over-commitment hypothesis in the effort-reward imbalance literature (Van Vegchel et al., 2005; de Jonge et a., 2000). According to the over-commitment hypothesis, people who put more effort into work or exhibit more ambition when presented with inadequate rewards experience more job stress unless they have a high level of control to meet the demands of the work and/or control over how to alter the rewards structure. The significant interaction of effort by control suggests that aspects

of the job strain model and the effort-reward imbalance model can be integrated to improve our understanding of the interplay between intrinsic and extrinsic demands and effort in relation to control. Despite weak or equivocal support for the job strain model and the effort-reward imbalance model, aspects of both Karasek's (1979) job strain model and Seigrist's (1996) effort-reward imbalance model are important determinants of perceived job insecurity as evidenced by the significant interaction of effort by control and the main effects of demands and inequality.

In addition to parameters discussed above for each of the hypotheses, race was also a significant determinant of perceived job insecurity. Being non-Hispanic white was associated with lower odds of perceived job insecurity compared to being a person of color. This finding was consistent with large body of literature on racial disparities in job stress and job security (Williams et al, 2009; Williams et al., 1997; Karasek et a., 1981). No other demographic, work, or health characteristics were significantly associated with perceived job insecurity in Model 5.

In summary, the results for this chapter suggest that race, objective job insecurity, job demands, perceived inequality, and the interaction of effort by control significantly increase perceived job insecurity. It is not surprising that work-related characteristics and stressors would be strong determinants of perceived job insecurity because these factors are proximal to the outcome. The next chapter will discuss the relationship between perceived job insecurity and quality of life.

CHAPTER 5: AIM 2 RESULTS – MEDIATION ANALYSIS

5.1 Introduction

This chapter describes the results of Specific Aim 2, which examines the relationship between perceived job insecurity and quality of life and tests whether negative work to family spillover of stress and social support outside of work from family, friends, and spouse/partner act as mechanisms explaining that relationship. A better understanding of pathways by which perceived job insecurity affects quality of life would improve intervention strategies to reduce stress among workers and their families. This aim includes a test of two possible pathways linking perceived job insecurity and quality of life through the proliferation of stressors from work to family life and by social support.

The four primary variables for this analysis are perceived job insecurity (observed independent variable), quality of life (latent dependent variable), negative work to family spillover of stress (observed mediator), and social support outside of work (observed mediator). Perceived job insecurity is operationalized with an ordinal variable measuring a person's perceived chances of keeping their job over the next two years (1-5, excellent to poor). Excellent security indicates low insecurity, and poor security indicates high insecurity. The reference category for this variable is excellent job security. Quality of life is modeled as a continuous latent variable based on three multi-item indicators for life satisfaction, intrapersonal well-being, and interpersonal well-being. Negative work to family spillover of stress is measured by a scale including four items related to how stressors and worries from work permeate family life. Social support outside of work is measured by a scale composed of three multi-item subscales for support adjusted for strain from family, friends, and spouse/partner. Control variables for this analysis include demographic, work, and health characteristics.

5.2 Research Questions and Hypotheses Tested

The four research questions and corresponding hypotheses for Aim 2 are:

1) **Do the indicators of intrapersonal well-being, interpersonal well-being, and life satisfaction load together on one common latent factor for quality of life?**

   Hypothesis 1: Intrapersonal wellbeing, interpersonal wellbeing, and life satisfaction load together strongly as indicators of quality of life.

2) **Does perceived job insecurity impair quality of life?**

   Hypothesis 2: Perceived job insecurity is inversely associated with quality of life net of controls for demographic, work, and health characteristics.

3) **Does negative work to family spillover of stress mediate the relationship between perceived job insecurity and quality of life?**

   Hypothesis 3a: Perceived job insecurity is positively associated with negative work to family spillover of stress.

   Hypothesis 3b: Negative work to family spillover of stress is negatively associated with quality of life.

   Hypothesis 3c: Negative work to family spillover of stress partially mediates the relationship between perceived job insecurity and quality of life, transmitting the effect of perceived job insecurity on quality of life.

4) **Does social support outside of work from family, friends, and spouse/partner mediate the relationship between perceived job insecurity and quality of life?**

   Hypothesis 3a: Perceived job insecurity is positively associated with social support outside of work because support is mobilized when a person feels insecure.

Hypothesis 3b: Social support outside of work is positively associated with quality of life.

Hypothesis 3c: Social support outside of work partially mediates the relationship between perceived job insecurity and quality of life, transmitting the effect of perceived job insecurity on quality of life.

This chapter describes how intrapersonal well-being, interpersonal well-being, and life satisfaction load together to form the latent variable for quality of life. It also discusses how the relationship between perceived job insecurity and quality of life is confounded by perceived inequality at work. Finally, it discusses how the relationship between perceived inequality at work and quality of life is mediated by negative work to family spillover of stress and social support outside of work.

5.3 Measurement Model for Quality of Life

To answer the first research question, exploratory and confirmatory factor analyses were performed on intrapersonal well-being, interpersonal well-being, and life satisfaction to construct the measurement model for quality of life. The fit of models in this analysis were assessed using the likelihood ratio chi-squared test (LR), comparative fit index (CFI), and the root mean squared error of approximation (RMSEA). The chi-squared test indicates the difference between the observed and expected covariance matrices, with smaller values closer to zero indicating better fit. The CFI evaluates the discrepancy between the data and the hypothesized model while adjusting for sample size. CFI ranges from 0.000 to 1.000, with 0.900 or larger considered to indicate adequate model fit. RMSEA similarly evaluates the discrepancy between the data and the hypothesized model but avoids issues with sample size by analyzing the model with optimal

parameter estimates and the population covariance matrix. RMSEA also ranges from 0.000 to 1.000, with 0.600 indicating acceptable fit and 0.500 or lower indicating good model fit.

Before performing the factor analyses, a correlation matrix of associations among intrapersonal well-being, interpersonal well-being, and life satisfaction was constructed. Table 5.1 displays the correlation matrix. The three indicators were correlated with one another between r=0.400 (moderate correlation) to r=0.600 (strong correlation). This preliminary step suggested that the three items were not independent of one another and would likely load together to form the latent variable.

Table 5.2 displays the results of two exploratory factors analyses. When using the principal factors method, the three items grouped together on one common factor with strong loadings above 0.600 and produced only one factor with an eigenvalue over 1.000 (F1 eigenvalue=1.497). When using the principal components method, even stronger loadings above 0.800 were found. Again, only one factor with an eigenvalue over 1 (F1=2.085) emerged, and this factor explained 69.5% of the variance, suggesting that the factor structure of the model was very stable.

If the quality of life variable was measured by a manifest scale averaged across the items (with a minimum of two valid items), the reliability coefficient for the scale would be 0.761, indicating good reliability. This scale was used to report descriptive statistics for quality of life in the preliminary analyses, but quality of life was modeled as a latent variable for the Aim 2 and Aim 3 analyses. A confirmatory factor analysis using structural equation modeling was used to construct the measurement model for the latent variable for quality of life.

Table 5.3 displays the results of the confirmatory factor analysis for quality of life. The measurement model describes the relationship between the set of observed indicator variables –

life satisfaction, intrapersonal well-being, and interpersonal well-being – and the continuous latent variable for quality of life with a set of linear regression equations. Relationships in the measurement model are disattentuated for measurement error. The unstandardized beta coefficients correspond to the factor loadings for each indicator with the first indicator fixed at 1 in order to identify the model. The fixed parameter is pre-specified to define the metric for the latent variable for quality of life. With the loading for life satisfaction constrained at 1, the loadings for intrapersonal well-being and interpersonal well-being were very strong. Consistent with hypothesis 1, the results of the confirmatory factor analysis indicate that life satisfaction, intrapersonal well-being, and interpersonal well-being load together strongly to form the underlying latent factor for quality of life.

The measurement model for quality of life with three indicators was a saturated model, which means that there were no degrees of freedom and the model had perfect fit (RMSEA=0.00 and CFI=1.00). The number of parameters in a saturated model of k observed variables is computed with the formula k*(k+1)/2+k. For the measurement model for quality of life, this calculation is 3*(3+1)/2+3=9 parameters. The nine parameters in this model are four variances and five coefficients.

5.4 Bivariate Relationship Between Perceived Job Insecurity and Quality of Life, Unadjusted and Adjusted for Objective Job Insecurity

When the structure of the measurement model for quality of life was confirmed, I proceeded to test the bivariate association between quality of life and perceived job insecurity, which was significant and negative. Table 5.4a displays the unstandardized regression coefficients and robust standard errors for the bivariate relationship (Model 1). Higher levels of perceived job insecurity (i.e., poorer security) correlated with lower levels of quality of life,

except among the two lowest levels of security. Quality of life was slightly lower for those with fair security compared to those with poor security. In reference to people reporting excellent job security (highest security level), quality of life was b=0.213 (SE=0.033, p<0.000) units lower on the quality of life scale (range: 0-10) for people with very good security, b=0.410 (SE=0.048, p<0.000) units lower for those with good security, b=0.557 (SE=0.081, p<0.000) units lower for those with fair security, and b=0.466 (SE 0.096, p<0.000) units lower for those with poor security. The fit of the model of the bivariate model was excellent, with an RMSEA of 0.040 and a CFI of 0.985. The fit indices suggest that the model is reasonably consistent with the data (Kenny, 2015).

A second model in Table 5.4a adjusts for the objective job insecurity variables of employment status in the previous year and having two or more changes in employment status in the last 10 years (Model 2). These two variables were added to the model to examine whether the relationship between perceived job insecurity and quality of life is confounded by objective experiences with job insecurity or whether perceived job insecurity has independent effects on quality of life above and beyond the effects of objective characteristics.

When adjusting for employment status in the previous year and changes in employment status over the last 10 years, the magnitude of the coefficients for perceived job insecurity on quality of life did not decrease and remained significant at all levels. Employment status in the previous year was not significantly associated with quality of life and was dropped from the remaining models. Having two or more changes in employment status over the last 10 years was negatively associated with quality of life corresponding to a b=0.184 (SE=0.037, p<0.000) unit decline in quality of life compared to those that had one or no changes in employment status in the last 10 years. The fit of Model 2 with the objective job insecurity characteristics included was

slightly worse than the fit of Model 1 with only perceived job insecurity, as seen by the larger LR chi-squared value, larger RMSEA, and smaller CFI. The fit was worse because the number of variables doubled and the employment status variables were not significant determinants of quality of life. Nonetheless, the fit was still very good. Based on Models 1 and 2, I concluded that perceived job insecurity was strongly associated with quality of life beyond the effects of objective job insecurity. However, other characteristics may have been influencing the relationship, so I proceeded with the multivariate models to test for alternative explanations based on demographic, work, and health characteristics.

5.5 Multivariate Linear Structural Equation Models of Quality of Life Regressed on Perceived Job Insecurity, Net of Controls

Table 5.4b displays the results of a sequence of structural equation models (SEM) for the relationship between perceived job insecurity and quality of life, net of controls for demographic (Model 3), work (Model 4), and health characteristics (Model 5) that may confound the relationship. Although the SEM procedure is able to model all relationships simultaneously, I built the model in steps in order to avoid problems with convergence due to having too many parameters. A proposed mediator, negative work to family spillover of stress, was included in all models.

In Model 3, the coefficients for perceived job insecurity on quality of life were attenuated at all levels but each level remained significantly different from excellent security with large magnitude of effects on quality of life. In addition to perceived job insecurity, having two more changes in employment status over the last 10 years, being married or cohabiting with a partner compared to not, having a higher level of education, and having higher household income were

positively associated with quality of life. Having children compared to not and higher levels of negative work to family spillover were negatively associated with quality of life. Wave, age, gender, and race were not significantly associated with quality of life. However, these demographic characteristics were not dropped from succeeding models because they were used to account for unequal probabilities of selection, since the weights were not used in the multivariate analysis.

In Model 4, the objective work characteristic of hours worked per week was added along with the subjective characteristics of job demands and control, effort put into work and perceived inequality at work, and the interaction of effort by control. The purpose of Model 4 was to determine if perceived job insecurity decreased quality of life beyond the effects of other job stressors. The relationship between perceived job insecurity and quality of life was marginally no longer significant when the job characteristics were added to the model. A closer examination of the individual job stress variables indicated that inequality at work was the main confounder of the relationship between perceived job insecurity and quality of life. Although perceived job insecurity was not associated with quality of life, as hypothesized, the objective job insecurity measure of having two or more changes in employment status over the last 10 years remained negatively associated with quality of life compared to have one or no changes. Negative work to family spillover and having children were also negatively associated with quality of life, net of controls for work characteristics. Age was significant determinant of quality of life in Model 4, suggesting a possible suppression effect due to the addition of the job stress measures. However, the magnitude of the effect of age on quality of life was negligible, amounting to less than a 0.010 unit decline in quality of life for each additional year, net of controls. Cohabitation,

education, and income remained positively associated with quality of life, with a large effect for cohabitation and small effects for education and income.

Among the job characteristic variables, number of hours worked per week was positively associated with quality of life with a very small effect. Job demands and inequality at work were negatively associated with quality of life, with a small effect for demands and a very large effect for inequality at work. The interaction of effort by control was marginally significant, such that high effort conditional on high control had a small positive effect on quality of life. Neither the interactions for demands by control nor effort by inequality were significant, so those interactions were not included in the table.

In Model 5, two variables for having a mental health condition and having any chronic health conditions were added to test whether quality of life was determined more by health status than by job stressors. Self-rated health and having a problem with alcohol or drugs were also tested as potential alternative explanations but were dropped from the model due to high correlations with the other health variables. When accounting for all of the demographic, work, and health characteristics, having two or more changes in employment status in the last 10 years compared to one or none, higher negative work to family spillover of stress, older age, having children compared to not, high job demands, and higher inequality at work remained negatively associated with quality of life. Cohabitation, education, and income remained positively associated with quality of life. Having a mental health condition and having a chronic health condition were both negatively associated with quality of life, as expected.

The results of the sequential models were not consistent with hypothesis 2. Perceived job insecurity was not significantly associated with quality of life when controlling for inequality at work. I proceeded with the mediation analysis testing the mediating effect of negative work to

family spillover of stress in the relationship between perceived inequality at work and quality of life.

5.6 Unstandardized Direct, Indirect, and Total Effects of Inequality at Work on Quality of Life via Negative Work to Family Spillover and Social Support

To test hypothesis 3, I constructed a mediation model using SEM by simultaneously running the regression models predicting the mediator of negative work to family spillover and the dependent variable of quality of life. Next, the decomposition of the total effects into direct and indirect effects was examined to determine if the effect of perceived inequality at work was transmitted to quality of life through negative work to family spillover.

Based on MacKinnon's (2008) product of coefficients method for calculating indirect effects, the magnitude of the indirect effect was obtained by multiplying the *a* and *b* paths, with *a* corresponding to the coefficient for the relationship between inequality at work and negative work to family spillover and *b* corresponding to the coefficient for the relationship between spillover and quality of life. Figure 5.1 explains the notation for the mediation model. The indirect effect (*ab)* is equivalent to the reduction of the direct effect (*c - c'*) of inequality at work on quality of life. The proportion of the total effect (*c*) that was mediated by negative work to family spillover was calculated by dividing the indirect effect by the total effect (*ab/c*).

Table 5.5a displays the unstandardized direct, indirect, and total effects of inequality at work on quality of life via negative work to family spillover of stress along with all of the covariates from Model 5. There are significant direct, indirect, and total effects of inequality at work on quality of life. The reduction in the direct effect of inequality at work on quality of life due to negative work to family spillover was small resulting in 7% of the total effect being

explained by the mediator. The results provide evidence for partial mediation via negative work to family spillover but suggest that other mechanisms are likely at play in this relationship. Because the proportion of the total effect that was mediated was small, a second mediation model was tested to determine if social support from family and friends also mediates the relationship between inequality at work and quality of life. The second mediation model will be discussed after a brief discussion of the effect of negative work to family spillover in the relationships between quality of life and the other covariates from Model 5.

In addition to partially mediating the effect of inequality at work on quality of life, negative work to family spillover of stress also mediated the relationships several other covariates and quality of life. Significant indirect effects were found for the following variables: perceived job insecurity, having two or more changes in employment status over the last 10 years, wave, age, being non-Hispanic white, education, income, having children, hours worked per week, job demands, inequality, having a mental health condition, and having a chronic health condition. Of these variables, two or more changes in employment status over the last 10 years, age, education, income, having children, job demands, having a mental health condition, and having a chronic health condition also had significant direct and total effects on quality of life. Perceived job insecurity, wave, race, and hours worked per week had no direct effects on quality of life and household income had a change in sign from positive to negative between the direct and indirect effects, suggesting inconsistent mediation (e.g. suppression due to omitted variable bias) between these variables and quality of life. Among the variables with evidence of consistent mediation, the proportion of the total effect that was mediated was large for job demands (55%), moderate for age (33%), and small to moderate for two or more changes in employment status compared to one or none (13%), having children compared to not (14%),

having a mental health condition compared to not (11%), and having at least one chronic health condition compared to none (19%). Negative work to family spillover partially mediates the relationships between these variables and quality of life with the largest mediating effect between job demands and quality of life.

The fit of the mediation model with all covariates from Model 5 was very good with an RMSEA of 0.052 and CFI of 0.931. A second mediation model (Table 5.5b) with all of the job characteristics removed except inequality at work was also run to determine if a model with comparable fit could be estimated with fewer parameters since the fit of Model 4 was close to Model 5. The fit of the model in Table 5.5b with only inequality at work included for job characteristics was very close to the fit of the larger model with more job characteristics (RMSEA of 0.056 vs. 0.052 and CFI of 0.924 vs. 0.931). This reduced model had the same pattern of significant direct, indirect, and total effects as the expanded model, except that two or more changes in employment status over the last 10 years no longer had significant indirect effects on quality of life. For the multi-group models in the moderation analysis for Aim 3, this reduced model was used because the multi-group SEM procedure crashes when there are too many variables and the model cannot converge.

After testing the mediating effect of negative work to family spillover on the relationship between inequality at work and quality of life, I tested a second mediation model with social support outside of work from family, friends, and spouse/partner as the intervening variable. Table 5.6a displays the unstandardized direct, indirect, and total effects of inequality at work on quality of life via social support outside of work. Significant direct, indirect, and total effects were observed. A larger proportion of the total effect of inequality at work on quality of life was explained by the mediator of social support (22%) than by spillover (7%), but the direct effect of

inequality at work on quality of life remained large. The findings of the two mediation models provide support for partial mediation via negative work to family spillover and via social support outside of work in the relationship between inequality at work and quality of life. Inequality at work also has strong direct effects on quality of life not explained by the mediators.

Significant indirect effects on quality of life via social support outside of work were also observed for the following variables: fair security compared to excellent security (but not the other levels of perceived job insecurity), two or more changes in employment status over the last 10 years, wave, cohabitation, race, having children, hours worked per week, job demands, the interaction of effort by control, and mental health status. Inconsistent mediation was found in the relationships between the following variables and quality of life via social support: wave, race, having children, hours worked per week, and the interaction of effort by control. No significant direct effects were found for these variables. Among the variables with significant direct, indirect, and total effects via social support, the proportion of the total effect that was mediated by social support was moderately large for fair security compared to excellent security (24%), two or more changes in employment status over the last 10 years compared to one or none (20%), cohabitation (27%), job demands (28%), and having a mental health condition compared to not having a condition (16%). The fit of the model mediated by social support outside of work was adequate with an RMSEA of 0.054 and a CFI of 0.912.

As with the spillover mediation model, a reduced model with only the inequality variable included for job characteristics was run, and the fit and patterns of mediation were similar in both the full and reduced models. The variable for two or more changes in employment status over the last 10 years no longer had significant indirect effects on quality of life when the other

job characteristics were removed, although significant direct and total effects remained. Otherwise the mediated pathways remained the same between the full and reduced models.

The findings of the mediation analysis suggest that spillover and social support are mediators that transmit some of the effect of inequality at work on quality of life. Both spillover and social support mediate many other relationships in the model, as well. The relationship between perceived job insecurity and quality of life was inconsistently mediated by spillover and partially mediated by social support for those with fair security compared to excellent, but not those at all other levels of security.

5.7 Summary of Key Findings

The results for Aim 2 provide support for some but not all hypotheses informed by the theoretical framework. Consistent with hypothesis 1, life satisfaction, intrapersonal well-being, and interpersonal well-being loaded together to form the latent variable for quality of life, as expected. The fit of the latent variable measurement model was strong when other observed variables were added.

Perceived job insecurity was significantly associated with quality of life net of controls for demographic characteristics and objective job insecurity. However, perceived job insecurity was not associated with quality of life when controlling for other job characteristics, particularly inequality at work, not consistent with hypothesis 2. Aim 1 demonstrated that inequality was a strong determinant of perceived job insecurity, and it is not surprising that inequality also determines quality of life. Inequality may confound the relationship between perceived job insecurity and quality of life by damaging personal resources such as self-esteem, optimism, and mastery as well as social resources such as support from coworkers and trust in the employer.

Although perceived job insecurity is detrimental to health, inequality may be an even more threatening job stressor. The results for this aim provide support for the reciprocity deficit hypothesis from Siegrist's (1996) ERI model.

Consistent with hypothesis 3a, perceived job insecurity was positively associated with spillover, and consistent with hypothesis 3b, spillover was negatively associated with quality of life. Although the results of the mediation model initially seemed to indicate that spillover significantly transmitted the effect of perceived job insecurity on quality of life (as evidenced by the significant indirect effect), the lack of an underlying relationship between insecurity and quality of life and the lack of direct effects in the mediation analysis suggest that the relationship is inconsistently mediated by spillover. The findings do not provide support for hypothesis 3c.

However, when the independent variable of perceived job insecurity was replaced by the confounder, inequality at work, all three hypotheses for the third research question were confirmed. The same was also true for hypotheses 4a, 4b, and 4c for the fourth research question examining the mediating effect of social support outside of work. Both spillover and social support mediate the relationship between inequality at work and quality of life.

Chapter 6 will discuss the results of the moderation analysis to test for group differences in the relationship between inequality at work and quality of life.

CHAPTER 6: AIM 3 RESULTS – MODERATION ANALYSIS

6.1 Introduction

This chapter describes the results for Specific Aim 3, which investigates group differences in the relationship between perceived job insecurity and quality of life via the mechanism of negative work to family spillover of stress. The objective of this aim was to test whether the relationship between the stressors of perceived job insecurity and spillover and the outcome of quality of life is conditional on social status and resources. The stress process model suggests that statuses and resources act as moderators that buffer the effect of stressors on health (Pearlin et al., 1981). Because the results for Specific Aim 2 did not provide support for the hypothesized relationship between perceived job insecurity and quality of life, group differences in the relationship between the confounder of inequality at work and quality of life are examined instead in this chapter.

The primary variables for this aim were perceived job insecurity (independent variable), inequality at work (rival independent variable), quality of life (dependent variable), negative work to family spillover of stress (mediator), education (status moderator), household income (status moderator), social support at work (resource moderator), and social support outside of work (resource moderator). The demographic characteristics of gender, age, race, and the indicator for wave of interview were also tested as moderators. The construction of the moderators is discussed briefly below.

Dichotomizing variables using a median split can be used to create categorical moderators out of continuous variables for multi-group structural equation modeling (SEM) when there are no natural thresholds that correspond with meaningful categories (Sauer & Dick, 1993). The median split procedure was used to create high and low categories for household

income (median = $55,000, range = $0-300,000), social support outside of work (median = 3.25, range = 1-4), social support at work (median = 10, range = 2.5-15), and age (median = 44 years old, range = 25-74). Gender, race, and wave were already dichotomous variables, so no changes were made for the multi-group moderation analysis.

The education variable was categorized based on highest degree attained rather than a median split because access to different types of jobs is more dependent on educational credentialing, such as a degree, than on years of schooling completed (Kim et al., 2014; Standing, 2011; Duncan et al., 2002). The median years of education in the sample (13 years) did not align with a threshold for either a high school diploma (12 years) or a four-year bachelor's degree (16 years). I categorized the education variable in two ways, both of which were tested as moderators in this analysis. First, I split education into a three-category variable for those with 1 "No high school degree", 2 "High school diploma or GED but no bachelor's degree", or 3 "Bachelor's degree or more". Six percent had no high school degree, 58% had a high school diploma or GED, and 37% had a bachelor's degree or other advanced degree. Although equal sample sizes between groups are not required, the multi-group procedure functions better with less variation across groups and when all groups have a sample size of at least 200 (Kenny, 2011). Because such a small proportion of the sample reported having less than a high school diploma, the cell sizes for education by perceived job insecurity were likely too small to detect significant moderating effects. As a result, I tested a second version of the education moderator variable dichotomized at bachelor's degree.

6.2 Research Questions and Hypotheses Tested

The research questions and hypotheses for Specific Aim 3 are as follows:

1) **Is the measurement model for the latent variable of quality of life invariant across groups (i.e., is quality of life understood as the same construct across groups)?**

   Hypothesis 1a: The measurement model for the latent variable of quality of life is invariant across educational groups.

   Hypothesis 1b: The measurement model for the latent variable of quality of life is invariant across high and low household income.

   Hypothesis 1c: The measurement model for the latent variable of quality of life is invariant across high and low social support at work.

   Hypothesis 1d: The measurement model for the latent variable of quality of life is invariant across high and low social support outside of work.

2) **Are the relationships among inequality at work, negative work to family spillover of stress, and quality of life conditional on socioeconomic status?**

   Hypothesis 2a: Educational attainment moderates the relationship between inequality at work and quality of life such that the relationship is stronger for those with less than a bachelor's degree, and even stronger among those with less than a high school degree.

   Hypothesis 2b: Household income significantly buffers the effect of inequality at work on quality of life, such that the effect of inequality at work on quality of life is stronger for those with low household income than those with high household income.

3) **Are the relationships among inequality at work, negative work to family spillover, and quality of life conditional on access to social resources?**

   Hypothesis 3a: The negative effect of inequality at work on quality of life is buffered by social support at work from coworkers and supervisors.

Hypothesis 3b: The negative effect of inequality at work on quality of life is buffered by social support outside of work from family, friends, and spouses/partners.

4) **Are the relationships among inequality at work, negative work to family spillover, and quality of life conditional on other status characteristics and wave?**

   Hypothesis 4a: The relationships between inequality at work, spillover, and quality of life are stronger for men than women.

   Hypothesis 4b: The relationships between inequality at work, spillover, and quality of life are stronger for younger workers than older workers.

   Hypothesis 4c: The relationships between inequality at work, spillover, and quality of life are stronger in wave one than wave two (1995-1996 vs. 2004-2006).

   Hypothesis 4d: The relationships between inequality at work, spillover, and quality of life are stronger for people of color than for non-Hispanic white people.

This chapter explains that the latent variable for quality of life was metrically invariant across groups by education (consistent with hypothesis 1a) and social support outside of work (consistent with hypothesis 1b), as well as gender, age, wave, and race. However, it was only partially metrically invariant across groups by household income (partial support for hypothesis 1b) and social support at work (partial support for hypothesis 1d). Metric invariance is the minimum standard needed to test for group differences in the structural paths of the relationships between a latent variable and other variables in the model. Without demonstrating metric invariance, it is unknown whether group differences in structural paths are actually indicative of moderation, or the underlying construct of quality of life is understood in different ways by people in the groups (Kenny, 2011). Therefore, the results of the moderation tests for hypothesis

2b (moderation by household income) and hypothesis 3a (moderation by social support at work) should be interpreted with caution because the latent variable for quality of life is only partially metrically invariant by income and social support at work.

When testing for group differences in the structural paths of the model, neither socioeconomic status (education and income) nor social resources (social support at work and outside of work) moderated the relationship between perceived job insecurity, spillover, and quality of life. However, household income significantly moderated the effect of inequality at work on spillover and the effect of spillover on quality of life, such that stronger effects were observed for people in low income households compared to high income households (consistent with hypothesis 2b. Interestingly, the effect of inequality at work on quality of life was significantly moderated by social support at work, such that the relationship was stronger for people with high social support at work compared to those with low social support at work, the opposite of what was hypothesized (3a). Possible explanations for this seemingly paradoxical finding are presented in the discussion. No significant moderation was observed in the relationship between inequality at work and quality of life based on education or social support outside of work (inconsistent with hypotheses 2a and 3b).

Significant group differences in the relationship between inequality at work and quality of life were observed based on age and wave of interview. The indirect effects inequality at work via spillover on quality of life were stronger for older workers than younger workers (opposite of hypothesis 4b), but stronger for observations from wave one in 1995-1996 than wave two in 2004-2006 (consistent with hypothesis 4c). There was no evidence of moderation based on gender (inconsistent with hypothesis 4a) or race (inconsistent with hypothesis 4d).

6.3 Tests of Invariance for Quality of Life Latent Variable

6.3.1 Description of Invariance Tests

To estimate group differences in the relationships among inequality at work, negative work to family spillover of stress, and quality of life, I used a multi-group structural equation modeling (SEM) procedure to test for invariance of both the measurement model and the structural model. The first step was to test for configural invariance of the latent variable, which means that the same general factor structure and the same number of factors are observed in all groups. The second step was to test the equivalence of factor loadings, intercepts, and residuals of the latent variable for quality of life (collectively referred to as measurement invariance of the measurement model). The third step was to test equivalence of factor variances, covariances, and means of the latent variable (collectively referred to as structural invariance of the measurement model). Finally, I tested for equivalence of causal paths between the latent variable and other variables in the structural model (moderation). Steps 1-3 were tests of invariance of the measurement model and Step 4 was a test of invariance of the structural model.

Demonstrating configural invariance and at least partial measurement invariance of the measurement model was required for testing invariance of causal paths, but demonstrating structural invariance of the measurement model was not required (Bryne, 1994). Measurement invariance of the measurement model is crucial in testing for moderation in order to show that potential group differences in means or coefficients in the structural model can be interpreted as differences in the causal paths versus differences in the measurement of the latent construct. The purpose of testing for measurement invariance is to ascertain whether there is equivalence in the structure of the measure for quality of life across groups (i.e., that the three-item measure for quality of life based on intrapersonal well-being, interpersonal well-being, and life satisfaction is

the same construct by all groups). Without measurement invariance, any differences in the causal paths assumed to be moderation may actually be artifacts of differences in the meaning of the latent dependent variable across groups (Bryne et al., 1989).

Measurement and structural invariance of the measurement model were assessed by a series of increasingly restrictive goodness of fit tests for models with parameters constrained. When the items for a model were determined to be invariant across groups, those parameters were constrained to be equal for tests of subχsequent models. Each model was tested using a difference test of the chi-square value relative to the degrees of freedom when compared to the less restrictive model that preceded it. When the change in the chi-square value was small relative to the degrees of freedom and not significant (p-value >0.05), the fit of the model was determined to be no worse than the less restrictive model against which it was compared. The factor mean was constrained to zero to improve convergence for all models that would not converge after more than 100 iterations.

Configural invariance was assessed by modeling the latent variable using confirmatory factor analysis for each group separately (data not shown) and then simultaneously for both groups using SEM to fit the base model (Model 1). In Model 1, all parameters were allowed to vary freely. In Model 2, the factor loadings for the indicators of quality of life were constrained to be equal across groups (metric invariance). In Model 3, the intercepts were constrained to be equal (strong or scalar invariance). In Model 4, the residuals were constrained to be equal (strict invariance). In Models 5 and 6, factor means and factor variances were constrained to be equal, respectively (strict invariance plus factor means and variances). Metric invariance (Model 2) was the minimum standard for determining that the factors in the measurement model were measuring the same underlying construct in all groups. Strong invariance (Model 3) and strict

invariance (Models 4-6) were not required for proceeding with the multi-group moderation analysis to test for differences in causal paths. If a model was determined to not be metrically invariant, the loadings for individual indicators were released one at a time while the others were constrained until the fit was no worse than the base model.

6.3.2 Results of Invariance Tests

Tables 6.1a, 6.1b, and 6.1c display the results of the tests of invariance of the measurement model grouped by each moderator variable. I demonstrated configural invariance with a consistent number of indicators for the latent variable across groups for all variables (Model 1). The most important fit statistics to evaluate in each table are for Model 2 versus Model 1 corresponding to the test for metric invariance. A small change in the chi-square value relative to the degrees of freedom and large p-value>0.05 for Model 2 compared to Model 1 indicates that the latent variable was metrically invariant across groups. I found metric invariance for education, social support outside work, race, gender, age, and wave. I did not find strong or strict invariance for any models, but these stringent tests were not required to proceed with the multi-group moderation analysis.

The latent variable for quality of life was not fully metrically invariant based on household income or social support at work. When re-evaluating the configural models separated by group for each of these variables, I found that the loadings for the indicator of life satisfaction varied across groups, but the loadings for intrapersonal well-being and interpersonal well-being were invariant across groups for both variables. As a result, I freed the equality constraint for the loading of life satisfaction, but retained the equality constraints for intrapersonal well-being and interpersonal well-being. I determined that there was partial metric invariance for the latent

variable grouped by these two moderators, so I was able to proceed with the multi-group moderation analyses but was cautious about the inferences for the models grouped by these two variables.

In future analyses with data including more extensive measures of well-being and life satisfaction, quality of life could be modeled with different indicators among these groups because the life satisfaction scale constructed from these data appears to be measured as a different construct in groups defined by income and social support at work. Some researchers view configural invariance as sufficient for comparing the construct across groups, but configural invariance indicates only that the construct is related to the same set of indicators in both groups, whereas metric invariance indicates that the construct has the same validity coefficients across groups (Vandenberg & Lance, 2000). Configural invariance means that the same number of factors in each group and the same pattern of fixed and free parameters apply across groups, whereas metric invariance means that the factor loadings are also equal across groups (Byrne et al., 1989). Configural invariance is required to infer that the construct has *similar* meaning across groups, but metric invariance is required to infer that the construct has the *same* meaning across groups. As a result, I am cautious about the inferences of my multi-group analyses based on household income and social support at work.

6.4 Multi-group Analyses of Conditional Effects in Relationships Among Inequality at Work, Negative Work to Family Spillover, and Quality of Life

After demonstrating measurement invariance of the latent variable, I proceeded with the multi-group moderation analyses to test the invariance of causal paths between inequality at work, negative work to family spillover, and quality of life. Beginning with the best fitting model

from Chapter 5: Aim 2 Results (Table 5.5a), I dropped the variables for hours worked per week, job demands, job control, effort, and the interaction of effort by control, because the fit of the model was comparable with only the inequality at work variable. A large number of parameters in SEM can cause problems with convergence resulting in models that iterate endlessly. My initial runs of the multi-group SEM models encountered this problem, so I eliminated these five variables and used the model that had comparable fit that included only the variable for perceived inequality at work as a control for psychosocial job stressors (Table 5.5b). All subsequent multi-group SEM models converged with no problems.

Table 6.2 displays the main effects model for the mediated relationship between inequality at work, spillover, and quality of life, controlling for demographic and health characteristics. Table 6.3 displays the direct, indirect, and total effects of the mediation model used for the multi-group analysis. A more extensive discussion of the decomposition of the total effects of the mediated relationship into direct and indirect effects can be found on page 108 in Chapter 5: Aim 2 Results.

6.4.1 Conditional Effects by Education, Household Income, and Social Support

To answer the second and third research questions, I tested whether the strength and/or direction of the relationship between inequality at work, spillover, and quality of life varies significantly by the status characteristics of education and household income and the social resources of social support at work and social support outside of work. No evidence of moderation was found by education or social support outside of work, but household income and social support at work were significant moderators of the relationship. Figure 5.1 explains the notation for the pathways in the mediation model on which the moderators were tested. Household income significantly moderated the relationship between inequality at work and

spillover (*a* pathway) and inequality at work and quality of life (*c'* pathway). Social support at work significantly moderated the mediated pathway between inequality at work and quality of life (*c'* pathway). These moderated pathways are explained in more detail below following a brief description of the hypothesized conditional relationships in each model.

Table 6.4 displays the results of the multi-group moderation analysis by educational attainment. No evidence for moderation based on education was found for either configuration of the education variable split into three groups for highest degree attained (Model 1) or dichotomized at bachelor's degree (Model 2)., as evidenced by the non-significant chi-square values for the Wald tests. For simplicity, only the results of the multi-group analysis on the reduced model with the independent, dependent, and mediator variables grouped by education are displayed in Table 6.4 because no paths in the full model with all covariates were moderated. None of the Wald tests for invariance of parameters or joint tests of invariance of parameter classes were significant at the $p \leq 0.05$ significance level, indicating no group differences in the structural paths.

Table 6.5 displays the results of the multi-group analysis by household income. Because full metric invariance was not found for the latent variable of quality of life based on household income, the results of this multi-group analysis should be interpreted with caution. There was no evidence of moderation on the paths between perceived job insecurity and spillover, between spillover and quality of life, and between perceived job insecurity and quality of life based on household income. However, significant groups differences based on household income were observed on the pathways between inequality and spillover, inequality and quality of life, age and spillover, wave and quality of life, and having children and quality of life.

Inequality increased both spillover and quality of life more for those in low income households than those in high income households, as evidenced by the larger coefficients for the slopes in the low income group. The findings on the moderating effect of income on the relationships between inequality and spillover and inequality and quality of life are particularly meaningful for this analysis because they suggest that income has a stress-buffering effect. Although this moderating effect was expected on the pathways from perceived job insecurity to spillover and quality of life, this finding is still relevant since inequality is an alternative explanation for the relationships between perceived job insecurity and quality of life, as evidenced by the findings in Aim 2. In addition, age was negatively associated with spillover for both groups, but being older reduced spillover more for those in low income households than those in high income households. The effect of wave on quality of life varied by income, such that observations in wave one were associated with higher quality of life for low income people and lower quality of life for high income people. The negative relationship between having children and quality of life was stronger for low income people than high income people.

Table 6.6 displays the results of the multi-group analysis by social support at work. Because full metric invariance was not demonstrated for the latent variable of quality of life based on social support at work, the results of this multi-group analysis should be interpreted with caution. Significant moderation based on social support at work was observed on the pathway between inequality and quality of life. No other pathways in the model were moderated by social support at work. The negative relationship between inequality at work and quality of life was stronger for those with high social support at work than low social support at work. Although this finding seems paradoxical, since social support is usually hypothesized to be a stress-buffering resource, this moderation effect may reflect that support received from

coworkers and supervisors is not sufficient for overcoming the negative effects of inequality in the workplace, or that workers are even more adversely affected by inequality in the presence of high support because reciprocity deficits and organizational injustice are more unexpected in supportive environments (i.e., are perceived as signs of betrayal or breaches of trust). Another possible explanation is that support received is not optimally matched to individual needs (Thoits, 1995), for example, if support at work is received primarily from coworkers, who do not have the power to alter unequal or discriminatory practices imposed by the employer

Table 6.7 displays the results of the multi-group moderation analysis by social support outside of work from family, friends, and spouse/partner. There was no evidence of moderation on the paths between perceived job insecurity, spillover, and quality of life, or the paths between inequality at work, spillover, and quality of life based on social support outside of work. However, significant group differences were observed on the pathways between wave and quality of life and between mental health status and quality of life. For people with low social support, quality of life was higher in wave one than wave two, and for people with high social support, quality of life was higher in wave two than wave one. The negative relationship between having a mental health condition and quality of life was stronger for those with low social support. Social support from family and friends buffered the negative effects of having anxiety or depression on overall quality of life.

In summary, the findings of the multi-group analyses grouped by status and resources do not provide support for the moderation hypotheses based on household income and social support at work, but do not support the hypotheses based on education and social support outside of work. Moderation by household income in the relationship between inequality at work and quality of life is consistent with the role of status and economic resources as moderators of the

relationship between stressors and health in the stress process model. Although the moderating effect of social support at work was in the opposite direction than hypothesized, this finding still provides insight into how social resources interact with the stressor of inequality.

6.4.2 Conditional Effects by Demographic Characteristics and Wave of Interview

In addition to testing the moderating effects of socioeconomic status and social resources, wave of interview and the demographic characteristics of gender, race, and age were also tested as moderators. Gender and race differences were tested because the labor market is stratified by these characteristics (Miech et a., 2003; Tomaskovic-Devey, 1993). Age and wave were tested to evaluate aging/period effects in the relationship between perceived job insecurity and quality of life. In addition to testing whether differences in time period related to labor market and economic circumstances altered the strength of the relationship, testing wave as a moderator also allowed me to account for the repeated measures in the structure of the data and determine if the relationships of interest in this analysis functioned differently across waves.

I hypothesized that the relationships among inequality at work, spillover, and quality of life would be stronger among men vs. women, people of color vs. non-Hispanic white people, younger people vs. older people, and in the first wave vs. the second wave. The rationales for these hypotheses are provided in Chapter 1: Introduction. No group differences were observed based on race for any of the paths in the model, so the table for the multi-group analysis based on race is not shown or discussed.

Table 6.8 displays the results of the multi-group analysis by gender. No evidence for moderation was found on the pathways of interest among inequality at work, spillover and quality of life. However, significant gender differences were found on several other paths in the

model. Education was positively associated with spillover for both men and women, but the relationship was stronger for women than men. Cohabitation was positively associated with spillover for men and negatively associated with spillover for women. Cohabitation was positively associated with quality of life for both men and women, but the protective effect of cohabitation was stronger for men than women. Being non-Hispanic white was positively associated with quality of life for women and negatively associated with quality of life for men. Having children was negatively associated with quality of life for both men and women, but the relationship was stronger for women than men. Finally, having a mental health condition was negatively associated with quality of life for both men and women, but the relationship was stronger for men than women.

Table 6.9 displays the results of the multi-group analysis by age. Significant moderation by age was observed on the mediated pathway between spillover and quality of life, such that the relationship was stronger for younger people than older people, as expected. The positive relationship between inequality and spillover was stronger for older people than younger people, but the negative relationship between inequality and quality of life was stronger for younger people than older people. Other significant group differences based on age were observed on several pathways in the model. Household income was positively associated with spillover for all ages, but the relationship was stronger for older people than younger people. The relationship between cohabitation and quality of life was positive for younger people but not significant for older people. The relationship between household income and quality of life was positive for all ages, but the relationship was stronger for older people than younger people.

The stronger negative effects of spillover and inequality on quality of life for younger people may be due to having fewer resources for coping with occupational stressors due to being

less established in the workforce. Younger people are likely to have less stable job histories and to feel more insecure than older workers (Muffels, 2013). Furthermore, the negative effects of spillover on quality of life may be stronger because younger people are more likely to have children still living in the home and thus more opportunities for familial conflict and perceived insecurity about their role as a provider.

Table 6.10 displays the results of the multi-group analysis by wave. The mediated pathway between spillover and quality of life was significantly moderated by wave. Although the stronger relationship between spillover and quality of life at wave one was expected, it is surprising that spillover was not also negatively associated with quality of life at wave two. The fact that the relationship between spillover and quality of life is not significant at wave two may be due to low power due to small sample sizes because less than 30% of the sample is in wave two. The other significant group differences observed in the multi-group analysis by wave also suggest that the samples may have been significantly different between waves because almost every path to quality of life was significantly moderated. The moderation effects by wave may be due to differences in sample characteristics by wave or may be a proxy for aging since the same pattern is observed with stronger effects for the earlier time point when the sample was 10 years younger. If the wave effects were evidence of a period effect, I would expect the relationship to be stronger in wave two than wave one because the labor market was expanding throughout the 1990s and began contracting again starting in 2000. However, the effect may also be due to attrition and reduction in sample size between waves, so that it was more difficult to detect group differences in wave two due to reduced power.

To summarize the findings of the multi-group moderation analyses by demographic characteristics and wave of interview, support was found for hypotheses 4b (age) and 4c (wave), but not for hypotheses 4a (gender) and 4d (race).

6.5 Summary of Key Findings

The results for the first research question for this aim suggest that the latent variable for quality of life is metrically invariant across groups for most but not all characteristics. Quality of life was configurally invariant across groups for all variables tested – a lower standard of invariance than metric invariance – which indicates that the same number of factors loaded onto the latent variable in confirmatory factor analyses stratified by group. This was not surprising given that there were only three indicators. However, quality of life was only partially metrically invariant based on household income and social support at work. Upon further investigation, the factor loadings for the indicator of life satisfaction were significantly different by group for these two variables. Varying factor loadings may reflect that life satisfaction is measured differently for people based on these social categories. Because only partial metric invariance was demonstrated for quality of life when grouped by household income and social support at work, the inferences from the multi-group moderation analyses based on these characteristics should be interpreted with caution because group differences may actually be differences in how each group understands the underlying construct for quality of life.

There are several possible explanations for why the latent variable for quality of life was only partially metrically invariant based on household income. The loadings of the life satisfaction indicator may vary by household income because the life satisfaction scale include items for respondents to rate multiple aspects of family life and finances. Household income

level assesses who lives in the home and how many people contribute income to other members of the household, factors that are likely to influence one's conception of life satisfaction.

However, it is more difficult to explain why the level of social support at work would result in the construct being measured differently, especially when no such measurement invariance was found based on social support outside of work. It seems that social support at work is too specific to have such an impact on how life satisfaction is understood. Work is only one of seven domains in the life satisfaction scale, and there are many different aspects of work beyond social support that would be expected to affect one's current rating of satisfaction with work and life overall.

It is possible that other explanations, such as problems with the construction of the social support at work scale, may be contributing to differences in the loadings for life satisfaction. Both subscales for social support from coworkers and social support from supervisors have good reliability over alpha=0.80 and the composite scale for social support at work has marginally adequate reliability at alpha=0.69. However, a substantial proportion of observations were grouped at the lowest possible value on the social support at work scale (6%) than would be expected based on a normal distribution, as seen in Figure 6.1.

When re-examining the distributions of the sub-scales, similar patterns were found with respondents grouped at the lowest possible value of the scale for both variables (7% for support from coworkers and 11% for support from supervisors). Figures 6.2a and 6.2b display the distributions for social support from coworkers and social support from supervisors, respectively. Although the rest of the respondents were approximately normally distributed on both variables, the accumulation of people at the bottom end of both scales skew the overall distributions so dividing the composite social support at work scale at the median may not be the best way to

separate groups into high and low support because those individuals at the bottom of the scale seem to have substantially less support than others grouped with them in the "low social support" group. The scale for social support at work could be reconstructed excluding the individuals grouped at the bottom end of each scale or recut into three groups for low support, medium support, and high support.

The results for the second and third research questions on moderation by status and resources do not provide support for study hypotheses. Moderation by household income and social support at work on the pathways between inequality at work and quality of life provide partial support for hypotheses 2b and 3a, respectively. There is no evidence of moderation in the relationship between inequality at work, spillover, and quality of life by education and social support outside of work (inconsistent with hypotheses 2a and 3b, respectively). For education, this unexpected finding may be due to the fact that socioeconomic status is already accounted for by the model because both education and income are highly correlated with perceived job insecurity and are likely already captured by this variable. Alternatively, sample sizes in some cells may be too small to detect effects. For example, with the education variable, even when dichotomizing based on bachelor's degree, there are still less than 100 observations in each group for those with a bachelor's degree that rate their perceived job security as poor or fair. It is possible that lack of moderation is due to the model already accounting for status or due to problems with the data quality and skewed distributions on key variables.

The results for the fourth research question provide evidence of moderation by age and by wave, but not by gender and race. The lack of moderation by race may be due to the variable's skewed distribution making it difficult to detect effects in some groups due to small sample sizes. It is surpising that no gender differences were found in the models. The moderating

effect by wave may be a proxy for aging rather than a period effect because the conditional effects by wave correspond with the results for moderation by age, and more than 70% of observations for people below the median age of 44 years old in the sample were in wave one. Alternatively, the conditional effects by wave may be the result of deaths and attrition due to differential loss to follow up among men and unmarried/non-cohabiting people (Radler & Ryff, 2010).

Despite not finding significant moderation on all hypothesized pathways, groups differences on the paths between inequality at work, spillover, and quality of life suggest that status and resources do alter the relationship between stressors and health outcomes. These findings are not surprising given that inequality was an alternative explanation for the relationships between perceived job insecurity and quality of life in the results for Chapter 5: Aim 2. Although not on the pathway expected, these finding are still in line with the stress process model which suggests that personal, social and economic characteristics and resources can have stress-buffering effects.

The next chapter will summarize the key findings of this dissertation across all aims and explain the implications of the findings.

CHAPTER 7: DISCUSSION

7.1 Introduction

The goals of this dissertation were to identify the determinants of perceived job insecurity among adults in the United States, explain the relationship between perceived job insecurity and quality of life, and estimate group differences based on status and resources in the relationship between perceived job insecurity and quality of life. Perceived job insecurity is defined in this study as an anticipatory stressor related to the threat of job loss or loss of valued features of a job and a sense of powerlessness to overcome this threat (Greenhalgh & Rosenblatt, 2010). Quality of life is defined in this study as a general state of health, well-being, and satisfaction with life (Drotar, 2014; Felce & Perry, 1995; Cella, 1994). Elaborating the stress pathways through which job stressors impair quality of life and group differences in this relationship may improve our understanding of how stress proliferation contributes to health disparities. In this final chapter of the dissertation, the key findings of the analysis are discussed in relation to existing literature and the underlying theory of the stress process model. Next, the strengths and limitations of the study are presented. Finally, the chapter concludes by discussing the overall implications of the study findings and recommendations for future public health research.

7.2 Summary of Key Findings by Aim

Using data from the 1995-1996 and 2004-2006 waves of the National Survey of Midlife Development in the United States (MIDUS), this dissertation addressed three specific aims: 1) to describe the determinants of perceived job insecurity; 2) to explain the relationship between perceived job insecurity and quality of life and test whether negative work to family spillover of stress and social support from family, friends, and spouse/partner act as a mechanisms explaining

the relationship; and 3) to estimate group differences in the relationship between perceived job insecurity and quality of life based on status and resources.

The study sample consisted of 7,108 non-institutionalized, English-speaking adults between the ages of 24 and 74 years old in the United States (Brim et al, 2004). The unit of analysis for this dissertation was observation rather than respondent because the data across the waves were appended rather than merged. The analytic sample for Aim 1 included 5,242 observations and the analytic sample for Aims 2 and 3 included 5,113 observations pooled across both waves. Data from the study were self-reported by participants in telephone interviews and self-administered questionnaires. To assess the relationships among study variables, ordinal generalized structural equation modeling (Aim 1) and linear structural equation modeling with mediation (Aim 2) and moderation effects (Aim 3) were used, adjusting for demographic, work, and health characteristics. In the next section of this chapter, I explain the key findings for each specific aim.

7.2.1 Findings for Aim 1 – Determinants of Perceived Job Insecurity

Objective job insecurity was positively associated with perceived job insecurity, net of controls for demographic, work, and health characteristic. Compared to working full-time in the last year, working part-time, not working for six months or more, or being a full-time student were positively associated with perceived job insecurity. Compared to having one or no changes in employment status over the last 10 years, having two or more changes in employment status was positively associated with perceived job insecurity.

Being non-Hispanic white was negatively associated with perceived job insecurity, compared to being a person of color. Job strain – as operationalized by the interaction of

demands and control – was not associated with perceived job insecurity, but the main effect of demands and the interaction of effort by control were significantly associated with perceived job insecurity. Higher job demands were associated with higher perceived job insecurity and effort put into work was condition on control, such that higher effort expended when possessing higher control reduced insecurity but higher effort with low control increased insecurity. Effort-reward imbalance – as operationalized by the interaction of thought/effort put into work and perceived inequality at work – was not associated with perceived job insecurity, net of other variables in the model, but the main effect of inequality was strongly and positively associated with perceived job insecurity. In summary, the significant determinants of perceived job insecurity were race, objective job insecurity, job demands, inequality at work, and the interaction of effort put into work by level of job control.

7.2.2 Findings for Aim 2 – Mediation Analysis

The findings suggest that the measure of quality of life was both conceptually valid and statistically reliable. The three indicators for intrapersonal well-being, interpersonal well-being, and life satisfaction loaded together strongly to form the underlying latent variable for quality of life.

The relationship between perceived job insecurity and quality of life was confounded by inequality at work, such that higher inequality was associated with lower quality of life, net of controls. The findings of the mediation analysis demonstrate significant direct, indirect, and total effects in the relationship between inequality at work and quality of life via both negative work to family spillover and social support outside of work.

7.2.3 Findings for Aim 3 – Moderation Analysis

Because the relationship between perceived job insecurity and quality of life was confounded by inequality at work, group differences in this relationship were examined as well. The latent variable for quality of life was configurally invariant across all groups and metrically invariant based on education, social support outside of work, gender, age, race, and wave. The latent variable was only partially metrically invariant based on household income and social support at work indicating that group differences in the causal relationships for the models conditional on these variables may be due to different measurement of the underlying construct for quality of life. Upon further investigation, the loadings for the indicator of life satisfaction in the quality of life variable were found to vary across groups by level of household income and social support at work. As a result, the findings of the moderation analyses based on these variables should be interpreted with caution (Milfont & Fischer, 2015).

The relationship between perceived job insecurity and quality of life via negative work to family spillover was not conditional on any of the socioeconomic or resource characteristics tested as moderators. The relationship was conditional on age and wave, such that the negative effect of spillover on quality of life was stronger for younger people than older people and for observations in wave one than in wave two. Moderation in the relationship between inequality and quality of life based on household income, social support at work, age, and wave was also observed. The relationships between inequality at work and spillover and between spillover and quality of life were stronger for low income people than high income people. The relationship between inequality at work and quality of life was stronger for those with high social support at work, opposite the direction of the moderating effect expected, but nonetheless meaningful for understanding in which circumstances high support is likely to buffer stressors and when it may

actually exacerbate them. It is possible that high levels of social support at work are threatened and eroded when there is high perceived inequality, so quality of life is impaired because the individuals fear losing this valuable resource. Finally, the effect of inequality on quality of life was stronger for older people than younger people and in wave one than wave two. These findings suggest that status, resource, and demographic characteristics do modify the relationship between job stressors and quality of life.

7.3 Implications of the Key Findings

7.3.1 Implications of Aim 1 Findings - Job Stressors and Perceived Job Insecurity

The determinants of perceived job insecurity identified in this study add to existing knowledge on causes of job stressors (Greenhalgh & Rosenblatt, 2010; Erlinghagen, 2008). As expected, perceived job insecurity was strongly influenced by objective sources of job insecurity in the worker's employment experiences, such as instability in employment status over time and recent employment at less than full-time. This finding is an improvement on previous research on job insecurity, most of which assesses only objective or only subjective measures of job insecurity but rarely integrates both into the same study or evaluates the relationship between objective and subjective insecurity (See Burgard et al., 2009 for an exception).

In addition, the findings for Aim 1 demonstrate that psychosocial work characteristics from established job stress models including the job strain model and the effort-reward imbalance also contribute to perceived job insecurity. The current study includes a test of the job strain model, the effort-reward imbalance model, and an integrated model combining aspects of both job strain and effort-reward imbalance. Although occupational stress research has relied heavily on the job strain model as the dominant theoretical approach for studying job stress for

the last several decades, a growing body of evidence suggests that the effort-reward imbalance model has equal or better predictive power than the job strain model when assessing a range of stress-related outcomes (Rydstedt et al., 2007; Ostry et al., 2003; Wall et al., 1996).

The findings of this aim further improve upon the existing research by offering an integrated model including an interaction of effort by control which is a significant determinant of perceived job insecurity beyond the effects of job strain and effort-reward imbalance (Strazdins et al., 2004; Ostry et al., 2003; Peters et al., 1998). High effort can be beneficial for overcoming insecurity when a high level of control is possessed, but it can be neutral or detrimental in the absence of control. This combination of individual characteristics of the worker who expends high effort and structural conditions of the work environment that promote autonomy and growth may be particularly common among workers in "active jobs," as conceptualized by Karasek & Theorell (1990), such as teachers, engineers, and physicians. They may be less common in "high strain" jobs, such as garment workers, nursing aids, and restaurant wait staff, and even less common in "passive" jobs, such as watchmen or miners. It would be beneficial for future research to investigate whether Karasek's quadrant classification system for jobs based on demands by control would also apply for effort by control or whether a new matrix could provide more precision in classifying jobs by stressors and resources.

The lack of a significant relationship between education and perceived job insecurity when effort-reward imbalance and the interaction of effort by control were included in the model is not consistent with the larger body of literature on socioeconomic status and perceived job insecurity (Näswall & De Witte, 2003). In most previous studies, higher educational levels were found to decrease fear about the threat of involuntary job loss because highly-educated workers are more confident that they have skills and resources to deal with the consequences of job loss.

Additionally, highly-educated workers are objectively less likely like to lose their jobs than workers with lower levels of education (Farber, 2015). It is possible that perceived job insecurity is more strongly influenced by other current job characteristics rather than more upstream influences on job insecurity such as education, or that education has more of an effect on objective job insecurity by providing access to more stable, higher status jobs. Since education is related to several other variables in the model, this finding could also be due to collinearity.

Overall, the findings for the Aim 1 analysis suggest that perceived job insecurity results from the proliferation of both objective and subjective stressors. Perceived job insecurity is influenced primarily by other aspects of one's job or work environment, such as employment status, inequality at work, demands of work, and the level of effort put into work conditional on the level of control to meet job demands. Together these findings suggest that both individual job characteristics and contextual factors in the work environment contribute to perceived security.

Race is also associated with perceived job insecurity, such that non-Hispanic white workers feel more secure about the future of their jobs than people of color, all other factors being equal. Existing research suggests that attaining job authority – an aspect of control – leads to heightened perceptions of job security, but few studies have examined why this benefit does not operate equally across racial groups. A recent study on job authority, perceived job security, and race using data from the 2004 and 2006 General Social Survey suggests that among those who have achieved high job authority, workplace marginality based on racially discriminatory practices (i.e., inequality or procedural injustice at work) accounts for lower levels of perceived security among African American and Latino workers, compared to non-Hispanic white workers (Wilson & Mossakowski, 2012). My findings add to this evidence by demonstrating that race and inequality are significant determinants of perceived job insecurity even after controlling for

job strain, effort-reward imbalance, and the interaction of effort by control. More research is needed to investigate the nexus between psychosocial job stressors, inequality and race.

7.3.2 Implications of Aim 2 Findings – Perceived Inequality at Work as an Alternative Explanation for the Relationship between Perceived Job Insecurity and Quality of Life

A large and rapidly growing body of literature on the detrimental effects of perceived job insecurity on well-being (Mauno & Fisher, 2015; Burgard et al., 2009; de Jonge et al., 2000; Ferrie, 2001) suggests that perceived job insecurity impairs quality of life, net of controls for demographic, work, and health characteristics. However, the results of my analysis demonstrate that inequality at work confounds the relationship between perceived job insecurity and quality of life. Inequality at work is a strong determinant of both perceived insecurity and quality of life but is not hypothesized to be in the causal pathway as an intervening variable. As such, it influences both variables and accounts for the relationship between them. This alternative explanation for the relationship between perceived job insecurity and quality of life is not surprising given that inequality was an extremely strong determinant of perceived job insecurity, net of controls for other psychosocial job stressors and individual characteristics in Aim 1, and the link between forms of inequality, such as perceived discrimination, and health is well-established in public health literature (Williams & Mohammed, 2009; Gee, 2002; Williams, 1999).

The results of the mediation analysis demonstrate that negative work to family spillover and social support from family, friends, and spouse/partner are significant intervening variables transferring the effect of inequality at work on to quality of life. This analysis demonstrates that inequality at work leads to spillover, initiating a boundary-crossing process of stress

proliferation. This finding adds to previous studies by Schieman & Glavin (2016) on boundary-spanning work demands and psychological distress. Just as work responsibilities that spill into the home create role conflict leading to psychological distress, perceived inequality at work may lead to powerlessness or uncertainty about losing one's job in the future, which exacerbates work-family conflict and reduces quality of life (Greenhalgh & Rosenblatt, 2010). The physical and emotional boundaries separating work life from family life are becoming increasingly blurred, so an individual's experiences as a worker must be assessed across these domains (Glavin & Schieman, 2014). Like perceived job insecurity, inequality at work is a stressor that crosses boundaries between work and home through spillover of stressors.

The stress process model provides theoretical guidance on how to think of negative work to family spillover and social support as mechanisms that connect primary stressors in the workplace with secondary stressors and resources in the home, ultimately influencing health outcomes (Pearlin & Bierman, 2013). Negative work to family spillover acts as a mediator between inequality at work and quality of life impairing a person's ability to cope with chronic exposure to stressors (Gryzwacz et al., 2010). Inequality at work connects to family life through a process of stress proliferation.

7.3.3 Implications of Aim 3 Findings - Group Differences in the Relationship Between Perceived Inequality at Work and Quality of Life

The stress process model posits that status and resources moderate all paths in the model because stratification structures all institutions and relationships in society (Pearlin & Bierman, 2013). Status and resources affect both exposure to stressors and access to coping resources, which can be either material or immaterial. The findings of the multi-group analysis do not

demonstrate significant moderation on all pathways in the model. However, significant moderating effects are observed on the pathway between inequality and spillover based on household income, and on the pathway between inequality and quality of life based on household income, social support at work, age, and wave. These findings provide partial support for the integrative theoretical framework, which suggests that stress proliferation can be buffered by status and resources characteristics (Aneshensel & Mitchell, 2014; Pearlin & Bierman, 2013).

Moderation by household income on the pathway between inequality and spillover suggests that socioeconomic status and material resources can limit the proliferation of stressors from spilling over into family life. Reducing income inequality may simultaneously address concerns regarding perceived inequality, job insecurity, and effort-reward imbalance. Nonetheless, one should be cautious not to overstep the findings in this analysis, which are drawn from explanatory research, not a test of an intervention. While the findings can *inform* the development of interventions as discussed in the next section of this chapter, the findings do not provide information on potential effectiveness of intervention strategies.

Moderation by household income and age on the mediated pathway between spillover and quality of life suggests that these factors may contain the effects of stress proliferation before it impairs quality of life. The strongest negative effects of inequality on quality of life are experienced by low income people and by older people, but stronger effects of spillover on quality of life are experienced by younger people. It is not surprising that young people and low income people would experience a stronger relationship between spillover and quality of life because they have fewer resources to cope with the stress of spillover and have more role conflict due to being more likely to still have dependents in the home that they support.

The moderating effect of wave is observed on the mediated pathway in addition to nearly every other path between the covariates and quality of life. The effect of wave on quality of life could be seen as either a period effect or a proxy for the aging process. It is not likely that the results are evidence of a period effect because the negative relationships are stronger in wave 1 than wave 2 during a period of greater economic prosperity and security in conjunction with increasing labor force participation (Berntson et al., 2006; Toossi, 2002). The moderating effect may be seen as a proxy for aging because people are likely to acquire coping skills and resources as they age which help them to respond to stressors in ways that ameliorate their effects on quality of life (Mauno et al., 2003). Alternatively, this finding may suggest that the data should be stratified or merged rather than appended across waves.

7.4 Limitations and Strengths of the Study

There are several limitations in the current study. First, I am unable to control for unobserved heterogeneity that may bias my results. Most of the covariates in this analysis are self-reported subjective measures that may not coincide with an individual's true employment or health status. Social desirability bias may impact the accuracy of responses, particularly for questions asked by an interviewer on the telephone. Second, the external validity of the study findings is limited by the problems described in the methods chapter with the survey design weights and the exclusion and underrepresentation of key populations. For example, non-English speaking people are excluded from the sample and people of color across all racial and ethnic groups, except for white people, are underrepresented in the sample.

Third, the operationalization of perceived job insecurity is a single ordinal measure, which limits the reliability of this measure. The inherent lack of reliability of a single-item

measure attenuates observed associations with other variables and may generate type II errors. Although asking a person how likely it is that they will be able to keep their job is a common way of querying about perceived job insecurity, other questions that would be beneficial to ask include topics regarding the perceived ease of finding another comparable job in the event of a job loss, fears or anxieties about the consequences of job loss, and other forms of insecurity that may not pertain directly to job loss, such as inadequate wages or unpredictable scheduling. Additionally, questions regarding job insecurity should be asked not only to currently working people but to all people, particularly those who may be temporarily out of work as a result of a previously insecure job because it has been shown in this study that frequent changes in employment status increase perceived insecurity.

Fourth, the analysis was conducted on a pooled, cross-sectional sample rather than longitudinally with observations at wave one predicting observations at wave two. The wave variable embodied both age and period effects, which were confounded and could not be separated. Additionally, there were likely cohort differences in education in the study, but these could not be fully assessed with the analytic procedures in this study. The findings of the moderation analysis suggest that the samples are systematically different at wave one and wave two, so it may be useful to re-analyze the data stratifying on wave or restructure the data set merging observations at wave one with observations at wave two on the individual identification variable, rather than appending on the observations.

Despite these limitations, the analysis has several strengths that make it an important contribution to the literature on job stress and quality of life. First, the comprehensive information gathered regarding job and health characteristics allows me to account for a rich array of factors influencing both perceived job insecurity and quality of life. Being able to

compare a range of variables from existing job stress models with new measures in my proposed model allows me to explain how interactions between elements of the job strain model and effort-reward imbalance model influence perceived job insecurity and quality of life.

Second, the study assesses a novel, multidimensional outcome of quality of life that spans multiple domains of life including work, family, and health. This outcome for quality of life is an improvement over previous studies assessing well-being only as the absence of mental disorder or distress. Additionally, the method of constructing the measurement model for quality of life allows me to account for measurement error. Because I am able to control for mental health status and chronic conditions, health selection has been ruled out as an alternative explanation for the relationship between job stressors and quality of life, and the inferences about the relationships assessed in this study are strengthened.

Finally, my study provides support for an integrative model of job stress proliferation with significant mediators and moderators connecting the relevant constructs from multiple theories into a cohesive framework. My integrative framework situates the existing models within a larger social context using the stress process model as a guide for testing the mediating effects of secondary stressors and social resources and the moderating effects of statuses and resources. The analysis has elaborated important mechanisms linking job stressors and quality of life as well as group differences based on status, resources, and demographic characteristics.

7.5 Public Health Implications and Recommendations for Future Research

This study speaks to the need to investigate multiple psychosocial job stressors simultaneously because job stressors may to lead to additional stressors that cascade from work environments to other domains of life. Because both exposure to stressors and access to coping

resources are influenced by the stratification of society, stress proliferation from work to family life is likely to exacerbate existing population health disparities. To understand and address the cumulative impact of these job stressors on quality of life, future research is needed to build on these study findings. Priorities for future research, intervention, and policy recommendations are outlined below.

Research: Recommendations for future research include: 1) testing alternative measures of job insecurity; 2) testing multiple mediators simultaneously as causal mechanisms in the relationships between job stressors and health and evaluating reciprocal relationships (e.g., spillover from work to family and family to work); and 3) testing whether these findings generalize to other more diverse samples.

The measures for objective and subjective job insecurity used in the current study were limited by available data. Other forms of job insecurity that would be important to investigate include contract type, tenure with current employer, and firm or industry-level characteristics that provide contextual information on the security of the individual worker in relation to similar workers in their own work environment and the larger population. Multilevel data with workers nested within different companies, industries, and/or national contexts would be useful to assessing Siegrist's (2004) hypotheses from the ERI model regarding how macroeconomic climate impacts whether workers strategically invest in jobs with low rewards or leave the job. The measure of perceived job insecurity used in the current study asked workers how likely they would be able to keep their job if they wanted to keep it, but there may be a segment of the labor force that is not interested in long-term attachment with a particular employer, particularly as the labor market becomes increasingly flexible (Standing, 2011). Future research could investigate

whether some workers voluntarily choose more insecure employment relationships with high risk of job loss in order to maximize the potential for large gains (e.g., tech entrepreneurs).

To provide a more comprehensive understanding of how stress proliferation impacts health, it would be useful to investigate whether and how job stressors and health reciprocally determine one another. The current study has demonstrated how stressors from the work environment flow into the home environment, but stressors also flow in the opposite direction. It is also possible that protective resources and capacities that improve coping flow in both directions, so future analyses investigating reciprocal pathways would improve our understanding of how stressors impact quality of life.

The generalizability of this study was weakened by the lack of diversity in the sample and the non-availability of panel weights to account for unequal probabilities of selection. Replication studies would be beneficial for determining whether the associations among demographic characteristics, job stressors, and quality of life assessed in this study are consistent in other populations. Nationally-representative samples that more accurately reflect the racial population distribution would be advantageous because this analysis was not able to disaggregate beyond the level of non-Hispanic white versus people of color due to very small samples sizes for most racial/ethnic groups. Additionally, the inclusion of non-English speaking participants and institutionalized people would be especially beneficial because these populations are likely to have higher job insecurity than the general population of the United States and also face higher rates of discrimination in hiring and treatment in the workplace (Wacquant, 2009).

Interventions: The current study was explanatory in nature, thus any recommendations for intervention or policy would need to be tested for effectiveness, which was beyond the scope of this study. Priorities for intervention research based on the study findings include: 1) testing

whether interventions to improve social coping resources, such as improving social support and solidarity among workers, are effective at reducing the impact of perceived job insecurity and perceived inequality on quality of life; 2) evaluating multiple points of intervention to reduce exposure to job stressors and the spread of stressors; and 3) testing whether workplace interventions to reduce inequality also reduce insecurity among workers.

Public health interventions to improve social capital and promote social cohesion both within workplaces and in larger communities are likely to have broader effects on population health and wellness than programs to promote individual behavior change and or psychological coping strategies (Thoits, 2011; Hawe & Shiell, 2000). Social support may be particularly beneficial for young, low income workers and those marginalized by multiple dimensions of social position who experience more severe impairments in quality of life from inequality and spillover (Siegrist & Rödel, 2006). Coinciding with the decline of unionization and collective action among workers throughout the last half century in the United States, perceived solidarity among coworkers and job satisfaction have also declined (Blanchflower& Oswald, 1999). Interventions to improve social support among workers and reduce interpersonal strain both within and outside of the workplace are needed (Kawachi & Berkman, 2001).Future research should investigate what intervention components to improve social cohesion among workers and between workers and their families would be effective.

Because the causes and consequences of job stressors such as perceived insecurity and perceived inequality span boundaries between work and family life (Schieman & Glavin, 2016), there is a need for interventions acting on multiple ecological levels and locations to counteract the effects of stress proliferation (Quinlan et al., 2001). Emerging research on interventions to reduce workplace inequality suggests that multilevel intervention approaches utilizing strategies

at the dyadic, group, and organizational level are the most effective for reducing worker stress and improving retention (Saam, 2010). Additional research is needed to determine if the benefits of these interventions also spill over into other domains of life.

The study findings demonstrate that lack of reciprocity in the workplace leads to concerns about losing one's job, so interventions to alter the underlying structures of stratification which contribute to occupational segregation and inequality in the workplace may also help to reduce perceived job insecurity (Van Vegchel et al., 2002; Grusky et al., 2001). In the absence of large-scale changes to alter the structures of stratification that create and reinforce inequality in the workplace, interventions to reduce John Henryism – that is, a strategy of coping with chronic stress by expending higher levels of effort (James et al., 1983) – should be tested to determine whether workers can better distinguish circumstances when effort is likely to result in desired rewards and when it may result in more psychological and physiological damage for themselves. The interaction of effort by control and the main effects of inequality at work on perceived job insecurity demonstrate that psychosocial stressors related to discrimination can be even more harmful if workers with low control respond by expending even more effort in an attempt to achieve desired rewards. Interventions to help workers more accurately assess whether they have the level of control needed to achieve the desired ends may be useful for reducing excessive effort that is not likely to improve employment outcomes or health for the worker.

Policy Recommendations: Labor policy changes in the United States to improve protections for workers, such as protections against arbitrary termination and improved unemployment benefits for those that are fired or laid off would likely improve both objective and subjective job security and reduce the negative effects of spillover on quality of life by reducing the perceived severity of the threat of involuntary job loss. One strategy for reducing

inequality and improving security would be to implement a universal basic income for everyone in the population. Pilot experiments in specific regions of Canada, Europe, and some areas of the developing world suggest that implementing a universal basic income buffers worker stress, reduces perceived job insecurity, and improves population health by reducing the perceived severity of the consequences of involuntary job loss (Van Parijs, 2004). Because few institutional support programs exist for chronically insecure workers who are not yet unemployed, a universal basic income could provide a safety-net for workers struggling to cope with the ever-present fear of unemployment but who have not yet left or lost a job (Burgard et al., 2009). These policy recommendations are likely to reduce both the probability of losing one's job and ameliorate the spread of anxiety and fears that come along with worrying about job loss that can spill between work and family life (Mennino et al., 2005).

7.6 Conclusion

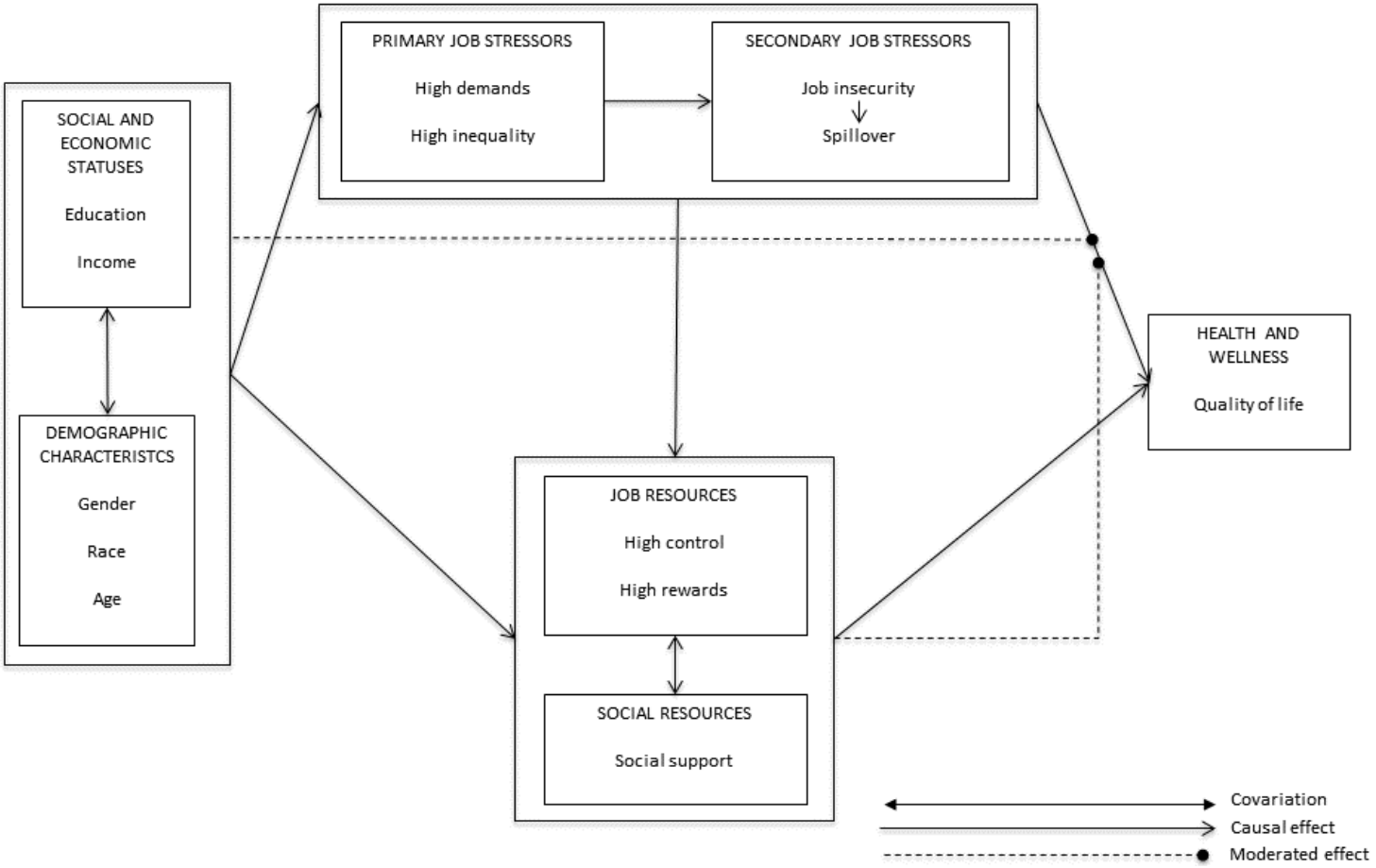
The overall goal of this dissertation was to investigate mechanisms and group differences in the relationship between perceived job insecurity and quality of life. Although the relationship between perceived job insecurity and quality of life was not significant after controlling for inequality at work, the mechanisms and groups differences found in the relationship between inequality at work and quality of life still provide important contributions to the existing literature on job stressors and health. This dissertation identified the determinants of perceived job insecurity, the pathways linking inequality at work with quality of life, and the buffering effects of status and resources characteristics on the relationship between inequality at work and quality of life. The study found that objective job insecurity, inequality at work, high job demands, effort-reward imbalance, and high effort conditional on low job control all contribute

to perceived job insecurity. Next, the findings indicated that perceived inequality at work significantly impairs quality of life net of controls for demographic, work, and health characteristics, and the relationship is partially mediated by the spillover of negative stressors from work to family life and social support from family, friends, and spouse/partner. Finally, group differences were found in the relationship between inequality at work and quality of life based on household income, social support at work, age, and wave.

The findings of this study point to the need to improve our understanding of the antecedents and consequences of perceived job insecurity because perceptions of uncertainty are likely to continue spreading throughout the labor force given the growth of precarious and temporary employment (Quinlan et al., 2001). As objective employment relationships become more insecure in the United States, it is likely that fears about job loss will continue to grow (Kalleberg, 2013). A more thorough and nuanced understanding of the relationship between perceived job insecurity, inequality, and quality of life may improve intervention strategies to reduce stress proliferation from work to family life.

APPENDIX: TABLES & FIGURES

Figure 1.1 Integrative Theoretical Framework[1]



[1] Adapted from:
Stress process model (Aneshensel & Mitchell, 2013, Pearlin et al., 1997; Pearlin et al., 1981)
Job strain model (Karasek & Theorell, 1990; Karasek, 1979)
Effort-reward imbalance Model (Siegrist, 1996)

Figure 1.2a Analytic Model for Aim 1

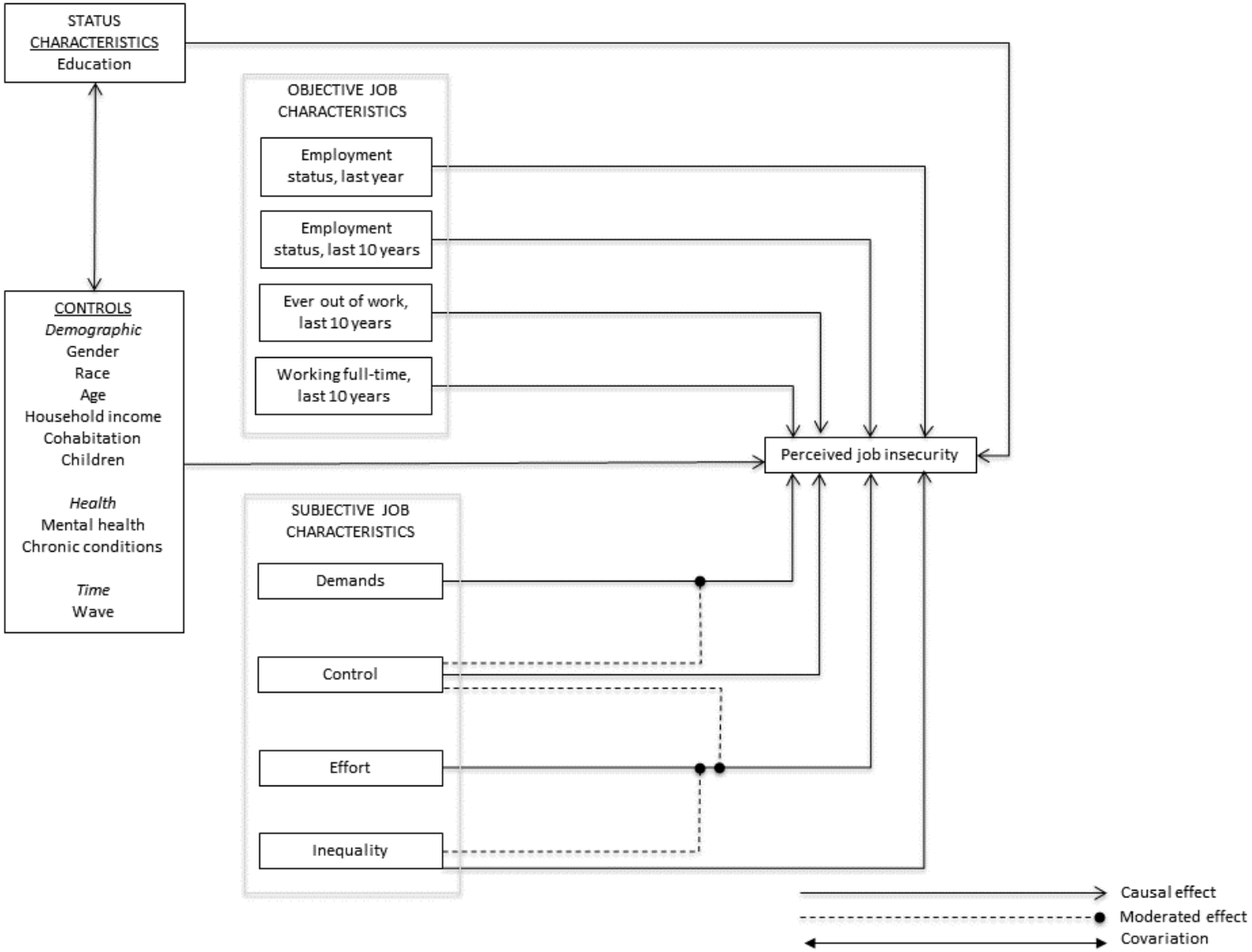


Figure 1.2b Analytic Model for Aim 2

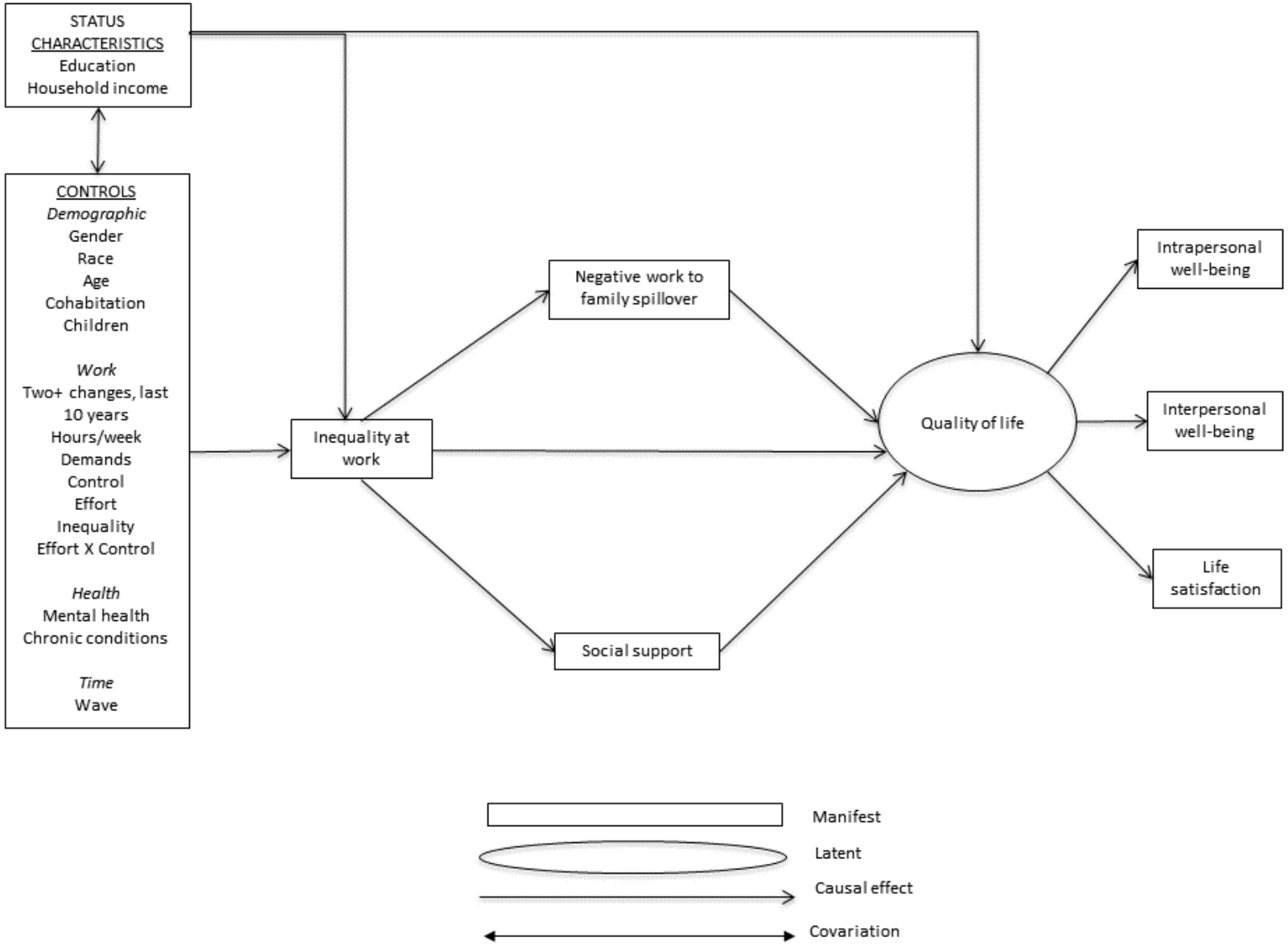


Figure 1.2c Analytic Model for Aim 3

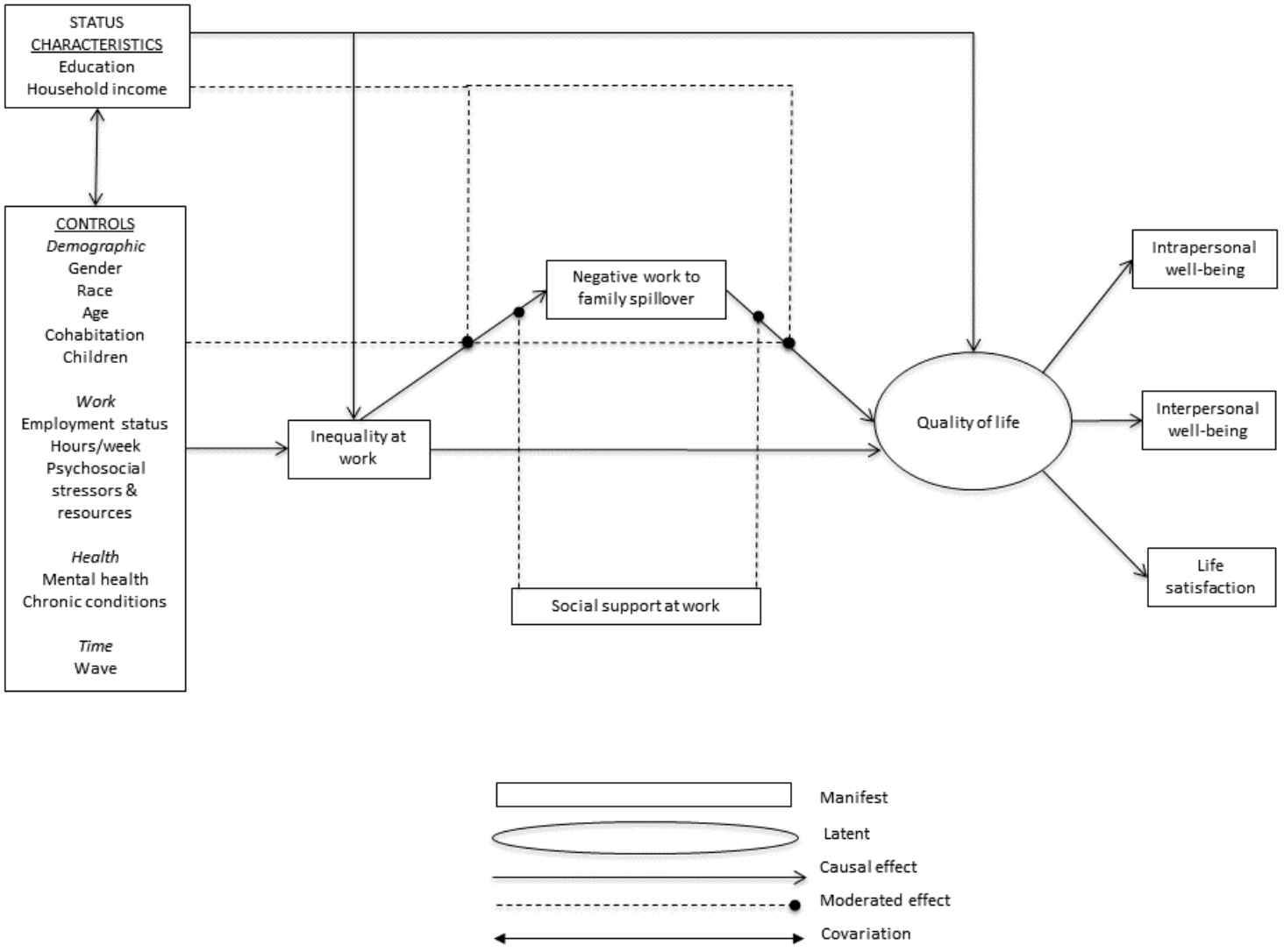


Table 2.1 Number of Interviews Targeted and Achieved Within Each Gender by Age Group for Main Random Digit Dial (RDD) Sample of MIDUS, Wave 1, 1995

	TARGETED	ACHIEVED
Men 25-34	400	398
Men 35-44	400	432
Men 45-54	400	415
Men 55-64	310	303
Men 65-74	200	173
Women 25-34	400	393
Women 35-44	400	421
Women 45-54	400	396
Women 55-64	380	355
Women 65-74	200	199
Total	3,490	3,485

Figure 2.1 Derivation of the Analytic Sample

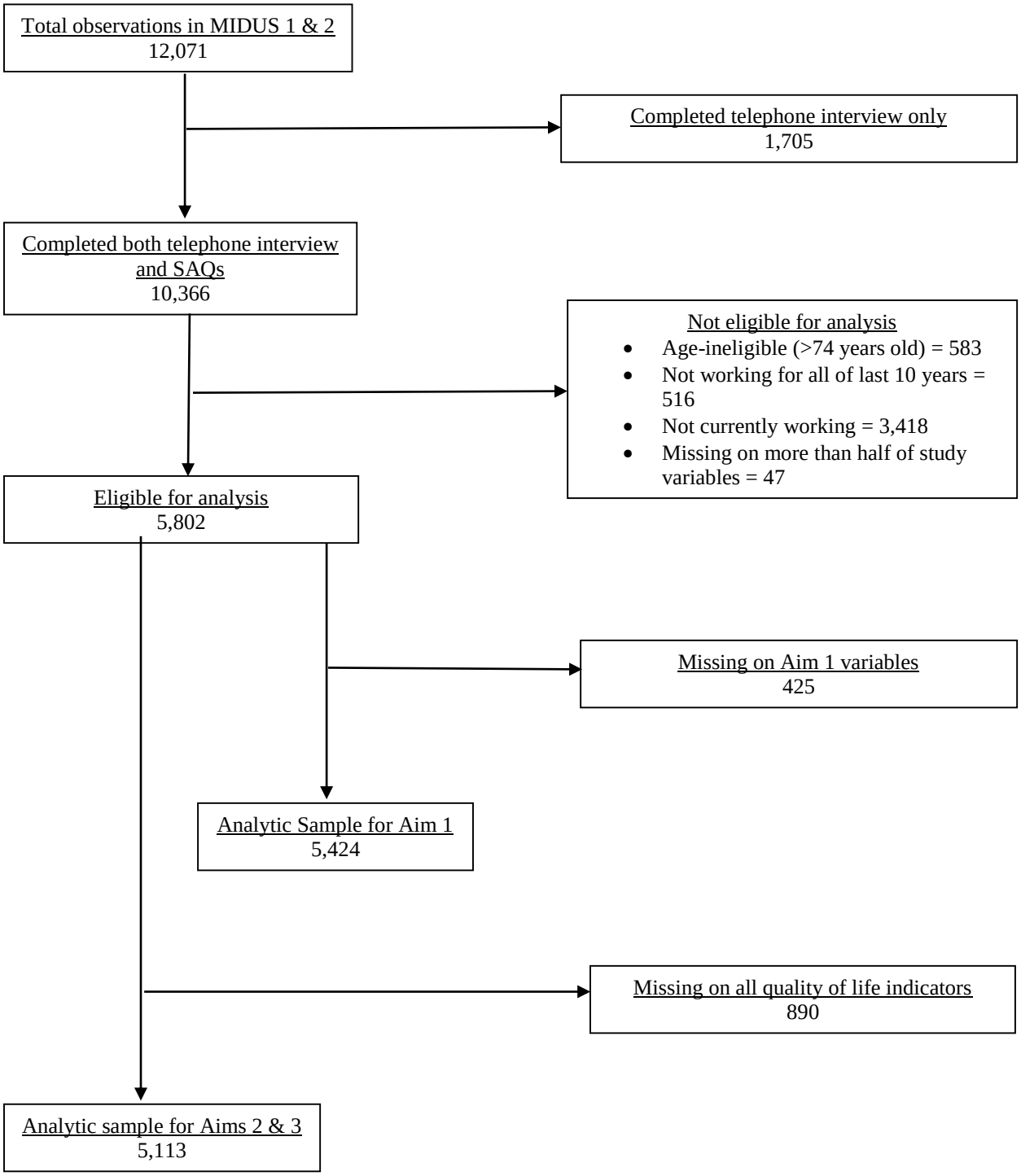


Table 2.2a Domains, Items, and Factor Loadings for Intrapersonal Well-being Scale

	Domain	Item	Loading
1	**Acceptance of self**	**"When I look at the story of my life, I am pleased with how things have turned out." (R)**	**0.677**
2	**Acceptance of self**	**"I like most parts of my personality." (R)**	**0.654**
3	**Acceptance of self**	**"In many ways I feel disappointed about my achievements in life."**	**-0.711**
4	**Environmental mastery**	**"In general, I feel I am in charge of the situation in which I live." (R)**	**0.645**
5	**Environmental mastery**	**"The demands of everyday life often get me down."**	**-0.559**
6	**Environmental mastery**	**"I am quite good at managing the many responsibilities of my daily life." (R)**	**0.606**
7	**Personal growth**	**"For me, life has been a continuous process of learning, changing, and growth." (R)**	**-0.637**
8	**Personal growth**	**"I gave up trying to make big improvements or changes in my life a long time ago."**	**0.585**
9	Personal growth	"I think it is important to have new experiences that challenge how you think about yourself and the world." (R)	a
10	**Purpose in life**	**"Some people wander aimlessly through life, but I am not one of them." (R)**	**0.616**
11	Purpose in life	"I live life one day at a time and don't really think about the future."	b
12	Purpose in life	"I sometimes feel as if I've done all there is to do in life."	b
13	Autonomy	"I tend to be influenced by people with strong opinions."	a
14	Autonomy	"I have confidence in my opinions, even if they are contrary to the general consensus." (R)	a
15	Autonomy	"I judge myself by what I think is important, not by the values of what others think is important." (R)	a
16	Positive relations with others	"Maintaining close relationships has been difficult and frustrating for me."	c
17	Positive relations with others	"People would describe me as a giving person, willing to share my time with others." (R)	c
18	Positive relations with others	"I have not experienced many warm and trusting relationships with others."	c
	Question stem:	Rate your level of agreement with the following statements	
	Response codes:	1 "Strongly agree" to 7 "Strongly disagree"	
	Scale construction method:	Mean of valid items, minimum of 5 items required	
	Number of original items	18	
	Number of items in final scale	9	
	Reliability coefficient of scale	0.81	

Notes: (R)= item reverse-coded
a=item dropped due to high cross-loading on secondary factor (>0.3)
b=item dropped due to low loading on primary factor (<0.3)
c=item dropped due to conceptual inconsistency with other items
bold=item included in final scale

Table 2.2b Domains, Items, and Factor Loadings for Interpersonal Well-being Scale

	Domain	Item	Loading
1	**Social contribution**	**"I have something valuable to give to the world." (R)**	**-0.621**
2	**Social contribution**	**"My daily activities do not create anything worthwhile for my community."**	**0.685**
3	**Social contribution**	**"I have nothing important to contribute to society."**	**0.758**
4	**Social integration**	**"I feel close to other people in my community." (R)**	**-0.657**
5	**Social integration**	**"I don't feel I belong to anything I'd call a community."**	**0.738**
6	Social integration	"My community is a source of comfort." (R)	a
7	**Social actualization**	**"Society isn't improving for people like me."**	**0.533**
8	Social actualization	"The world is becoming a better place for everyone." (R)	a
9	Social actualization	"Society has stopped making progress."	c
10	**Positive relations with others**	**"I have not experienced many warm and trusting relationships with others."**	**0.571**
11	Positive relations with others	"Maintaining close relationships has been difficult and frustrating for me."	a
12	Positive relations with others	"People would describe me as a giving person, willing to share my time with others." (R)	a
16	Meaningfulness of society	"The world is too complex for me."	a
17	Meaningfulness of society	"I cannot make sense of what's going on in the world."	a
13	Acceptance of others	"People who do a favor expect nothing in return."(R)	c
14	Acceptance of others	"People do not care about other people's problems."	c
15	Acceptance of others	"I believe that people are kind." (R)	c
	Question stem:	Rate your level of agreement with the following statements	
	Response codes:	1 "Strongly agree" to 7 "Strongly disagree"	
	Scale construction method:	Mean of valid items, minimum of 4 items required	
	Number of original items	17	
	Number of items in final scale	7	
	Reliability coefficient of scale	0.77	

Notes: (R)= item reverse-coded
a=item dropped due to high cross-loading on secondary factor (>0.3)
b=item dropped due to low loading on primary factor (<0.3)
c=item dropped due to conceptual inconsistency with other items
bold=item included in final scale

Table 2.2c Items and Factor Loadings for Life Satisfaction Scale

	Item		Loading
1	**Life overall**		**0.853**
3	**Health**		**0.682**
2	**Work**		**0.590**
4	**Financial situation**		**0.648**
5	**Relationship with family (mean of relationship with children and relationship with spouse/partner variables)**		**0.698**
6	Contribution to the welfare of others (mean of current and across whole life variables)		a
7	Sexuality		a
	Question stem:	Rate your level of satisfaction in each of the following aspects of your life	
	Response codes:	0 “Worst possible rating” to 10 “Best possible rating”	
	Scale construction method:	Mean of valid items, minimum of 3 items required	
	Number of original items	9	
	Number of items in final scale	5	
	Reliability coefficient of scale	0.72	

Notes: (R)= item reverse-coded
a=item dropped due to high cross-loading on secondary factor (>0.3)
b=item dropped due to low loading on primary factor (<0.3)
c=item dropped due to conceptual inconsistency with other items
bold=item included in final scale

Table 2.3 List of Measurement Invariance Tests

Order of invariance tests:
Model 1: All parameters free
Model 2: Metric (pattern) invariance – loadings are invariant
Model 3: Strong (scalar) invariance – loadings & intercepts are invariant
Model 4: Strict invariance – loadings, intercepts & residuals are invariant
Model 5: Strict invariance plus factor means are invariant
Model 6: Strict invariance plus factor means & variances are invariant

Table 3.1 Distribution of Study Variables, MIDUS 1&2, 1995-2005

	Full MIDUS Sample (N=12,071)			Aim 1 Analytic Sample (N=5,424)			Aims 2 & 3 Analytic Sample (N=5,113)		
	N	Mean /%	SD	N	Mean/%	SD	N	Mean/%	SD
INDEPENDENT VARIABLE									
Perceived job security	7,071			5,242			4,810		
Excellent		65.8			66.0			64.3	
Very Good		19.0			19.1			20.6	
Good		8.9			8.6			8.8	
Fair		3.6			3.6			3.7	
Poor		2.7			2.8			2.5	
DEPENDENT VARIABLE									
Quality of life (0-10)	9,149	6.0	0.9	5,242	6.0	0.9	5,113	6.0	0.9
Intrapersonal well-being (1-7)	8,846	5.6	0.9	5,113	5.6	0.9	4,990	5.6	0.9
Interpersonal well-being (1-7)	8,622	4.9	1.0	5,022	4.9	1.1	4,865	4.9	1.0
Life satisfaction (0-10)	9,149	7.4	1.4	5,242	7.4	1.3	5,113	7.4	1.3
MEDIATOR VARIABLES									
Negative work-family spillover (4-20)	7,312	10.3	2.9	5,242	10.4	2.8	4,841	10.5	2.8
Social support outside of work (1-4)	7,675	3.2	0.4	3,970	3.2	0.3	3786	3.2	0.3
MODERATOR VARIABLES									
Education (Years, 0-24)	12,051	13.8	5.0	5,242	14.6	4.9	5,104	14.4	2.4
Less than a high school degree		9.6			5.0			5.5	
High school diploma or GED		57.0			57.3			57.6	
Bachelor's degree or more		33.3			37.7			36.9	
Household income ($0-300,000, 1k)	9,964	71.6	61.0	5,242	82.6	61.7	4,999	79.9	60.3
Social support									
Outside of work (1-4)	7,675	3.2	0.4	3,970	3.2	0.3	3786	3.2	0.3
At work (2.5-15)	6,718	9.9	3.0	5,028	10.0	3.1	4755	10.7	2.5
WAVE OF INTERVIEW	12,071			5,242			5,113		
Wave 1: 1995-1996		58.9			76.8			77.2	
Wave 2: 2004-2006		41.1			23.3			22.8	
DEMOGRAPHIC CHARACTERISTICS									
Age (years, 25-74)	12,071	45.3	11.0	5,242	45.8	10.9	5,113	44.9	10.9

25-39		24.8			31.0			31.0	
40-49		26.0			32.0			34.7	
50-59		24.8			25.2			24.6	
61+		24.4			11.9			9.6	
Gender	11,990			5,242			5,113		
Men		47.6			47.6			49.0	
Women		52.4			52.4			51.1	
% Non-Hispanic white (0=no/1=yes)	12,071	82.2		5,242	89.4		5,113	87.4	
% Currently married (0=no/1=yes)	12,060	67.8		5,240	69.3		5,110	67.6	
% Cohabiting (0=no/1=yes)	8,562	60.9		4,360	69.1		5,111	67.2	
% Has children (0=no/1=yes)	12,070	87.0		5,242	84.7		5,112	84.2	
WORK CHARACTERISTICS									
Employment status, previous year	9,258			5,239			4,961		
Full-time		66.5			83.0			85.4	
Part-time		12.3			13.0			11.3	
Not working		20.2			3.2			2.4	
Full-time student		1.0			0.8			1.0	
% Two or more employment status changes in last 10 years (0=no/1=yes)	8,902	18.3		5,242	18.4		4,747	19.4	
% Working full-time all of the last 10 years (0=no/1=yes)	8,902	50.6		5,242	62.4		4,747	63.7	
% Out of work for six months or more in the last 10 years (0=no/1=yes)	8,902	31.6		5,242	16.5		4,747	15.9	
% Has health insurance (0=no/1=yes)	10,244	90.9		5,216	91.7		5,071	93.1	
% Has retirement or pension plan (0=no/1=yes)	9,876	61.8		5,157	69.7		4,962	75.0	
% Has regular schedule (0=no/1=yes)	9,565	47.3		5,209	71.9		5,021	70.0	
Hours worked per week (0-147)	8,797	42.8	16.2	5,132	43.3	14.9	5,057	43.4	13.7
Prestige (0-81)	7,279	40.5	14.2	2,879	39.8	14.2	2,839	40.0	14.2
Demands (5-25)	7,258	15.0	3.3	5,242	15.2	3.3	4,826	15.3	3.3
Control (4.5-22.5)	7,288	16.4	3.1	5,242	16.5	3.0	4,832	16.2	2.9
Skill discretion (3-15)	7,288	10.8	2.2	5,242	11.0	2.1	4,832	10.8	2.1
Decision authority (6-30)	7,287	22.1	4.6	5,242	22.1	4.5	4,832	21.5	4.3
Thought/effort put into work (0-10)	9,883	7.9	2.3	5,242	8.3	1.8	5,088	8.2	1.8
Perceived inequality at work (1-4)	7,255	1.7	0.6	5,242	1.7	0.6	4,835	1.7	0.6
HEALTH CHARACTERISTICS									
% Has excellent or very good physical health (0=no/1=yes)	12,059	36.9		5,240	46.1		5,110	46.3	
% Has excellent or very good mental health (0=no/1=yes)	12,059	38.6		5,240	51.0		5,113	50.4	
% Has an emotional or mental health condition (0=no/1=yes)	10,315	18.8		5,242	16.9		5,084	16.8	
% Has current alcohol or drug problem (0=no/1=yes)	10,339	3.4		5,240	3.3		5,098	3.2	
% Has any chronic health conditions (0=no/1=yes)	10,349	76.6		5,242	72.9		5,104	75.5	

Figure 3.1 Quality of Life by Perceived Job Insecurity and Work Status, MIDUS 1&2, 1995-2005 (N=12,701)

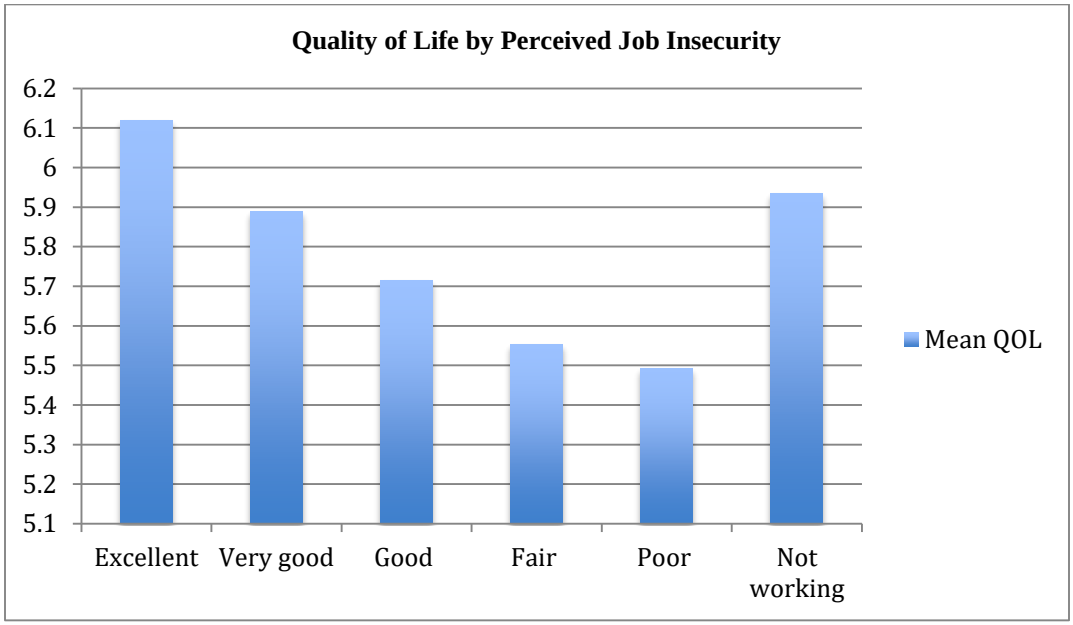


Table 4.1 Odds Ratios and Robust Standard Errors From Bivariate Relationships Between Perceived Job Insecurity and Study Variables, MIDUS 1&2, 1995-2005 (N=5,242)

Variable		Perceived job insecurity	
		OR	SE
Employment status, last year (Ref: Full-time)			
	Part-time employment	1.473***	0.120
	Not working six months or more	1.956***	0.294
	Full-time student	2.715***	0.830
Two or more changes in employment status, last 10 years (0=no/1=yes)		1.687***	0.118
Ever not working six months or more, last 10 years (0=no/1=yes)		1.487***	0.109
Worked full-time all of the last 10 years (0=no/1=yes)		0.648***	0.038
Demographic characteristics			
Wave 1 (Ref: Wave 2)		0.846*	0.058
Age (Years, 25-74)		0.992**	0.003
Women (Ref: Men)		1.215***	0.069
Non-Hispanic white (Ref: Person of color)		0.563***	0.049
Married or cohabiting (Ref: Living alone)		0.708***	0.045
Has children (0=no/1=yes)		0.920	0.052
Education (Years, 0-24)		0.940***	0.011
Household income (log)		0.726***	0.025
Work characteristics			
Hours worked per week (0-147)		0.991***	0.002
Has health insurance (0=no/1=yes)		0.767**	0.077
Has retirement or pension plan (0=no/1=yes)		0.753***	0.047
Has regular schedule (0=no/1=yes)		0.893	0.056
Job strain			
	Demands (5-25)	1.029***	0.009
	Control (4.5-22.5)	0.851***	0.008
	Demand X Control	0.996	0.003
Effort-reward imbalance			
	Perceived thought/effort put into work (0-10)	0.834***	0.013
	Perceived inequality at work (1-4)	2.960***	0.152
	Effort X Inequality	1.056***	0.025
	Effort X Control	0.984***	0.005
Health characteristics			
Self-rated physical health (Ref: Excellent)			
	Very good	1.402***	0.135
	Good	1.736***	0.165
	Fair	1.594***	0.17
	Poor	1.038	0.162
Has a mental health condition (0=no/1=yes)		1.461***	0.107
Has an alcohol or drug problem (0=no/1=yes)		1.338	0.205
Has a chronic health condition (0=no/1=yes)		1.204**	0.078

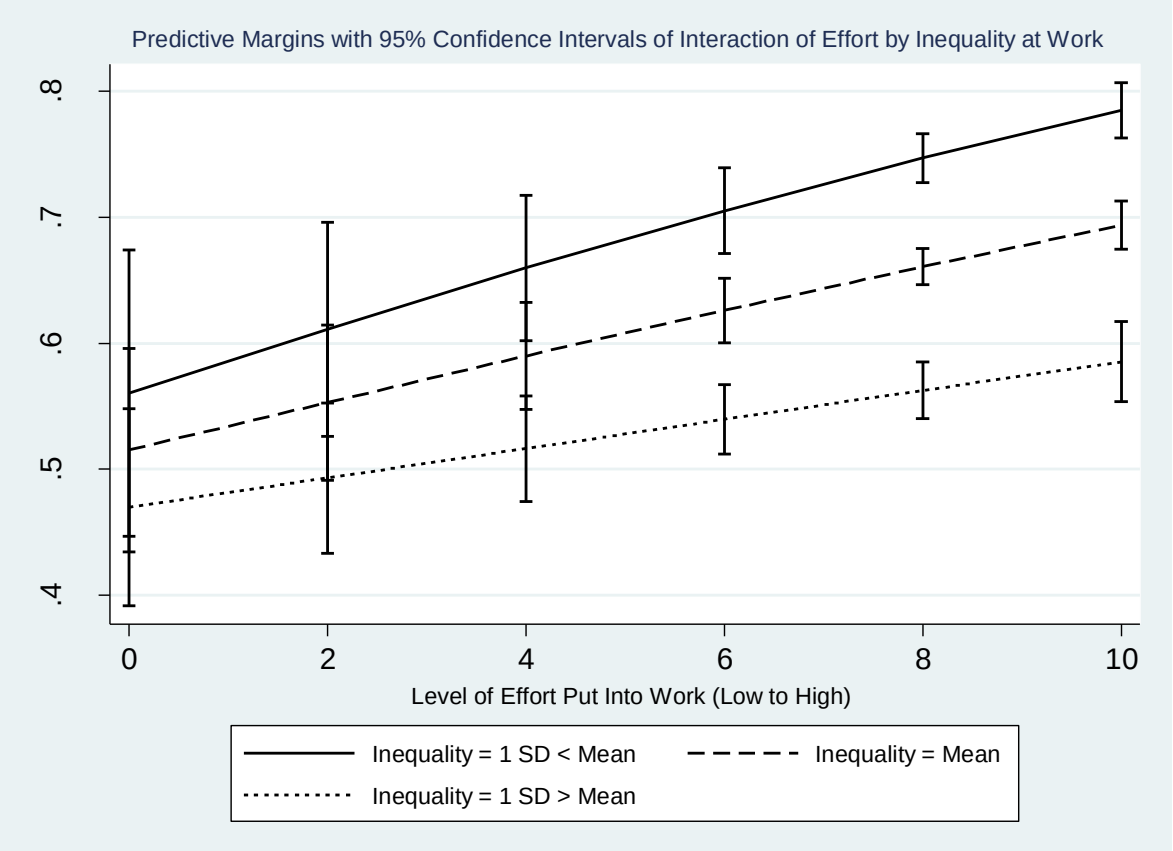
Notes: OR=bivariate odds ratio, SE=robust standard error
* =/< 0.05, ** =/< 0.01, *** =/< 0.001
Clusters on family identification variable= 3,284

Table 4.2 Odds Ratios and Robust Standard Errors From Generalized Ordinal Structural Equation Model of Perceived Job Insecurity on Objective Job Insecurity Variables, Net of Controls for Demographic and Health Characteristics, Job Strain, and Effort-Reward Imbalance, MIDUS 1 & 2, 1995-2005 (N=5,242)

		Model 1		Model 2		Model 3		Model 4		Model 5	
Variable		**OR**	**SE**	**OR**	**SE**	**OR**	**SE**	**OR**	**SE**	**OR**	**SE**
Employment status, last year (Ref: Full-time)											
	Part-time	1.374***	0.115	1.369***	0.123	1.549***	0.144	1.511***	0.141	1.505***	0.141
	Not working six months or more	1.727***	0.277	1.631**	0.268	2.058***	0.349	1.888***	0.317	1.902***	0.320
	Full-time student	2.219*	0.803	1.902	0.748	2.153	0.856	2.293*	0.868	2.379*	0.891
Two or more changes in employment status, last 10 years (0=no/1=yes)		1.557***	0.113	1.438***	0.108	1.366***	0.105	1.335***	0.105	1.332***	0.105
Wave 1 (Ref: Wave 2)				0.948	0.066	0.918	0.065	0.932	0.066	0.933	0.066
Education (Years, 0-24)				0.995*	0.003	0.971*	0.013	0.980	0.014	0.979	0.014
Household income (log)				0.954***	0.013	0.884**	0.038	0.926	0.039	0.930	0.040
Women (Ref: Men)				0.848***	0.035	1.084	0.070	0.986	0.064	0.987	0.064
Non-Hispanic white (Ref: Person of color)				1.011	0.064	0.575***	0.052	0.551***	0.050	0.555***	0.050
Age (years)				0.601***	0.054	0.998	0.003	1.006*	0.003	1.006	0.003
Married or cohabiting (Ref: Living alone)				0.851*	0.065	0.871	0.067	0.887	0.068	0.887	0.068
Has a mental health condition (0=no/1=yes)				1.332***	0.104	1.163	0.093	1.044	0.084	1.048	0.085
Job demands (5-25)						1.187***	0.059	1.065***	0.011	1.067***	0.011
Job control (4.5-22.5)						0.930	0.042	0.927***	0.011	1.082	0.045
	Demands X Control					0.995	0.003	-	-	-	-
Effort/thought put into work (0-10)								0.844**	0.045	1.260**	0.098
Perceived inequality at work (1-4)								1.404	0.301	2.152***	0.143
	Effort X Inequality							1.056*	0.028	-	-
	Effort X Control									0.981***	0.005
Cut 1		0.814***	0.037	-2.189***	0.443	-1.451	0.839	-0.957	0.678	2.277**	0.849
Cut 2		1.906***	0.045	-1.073*	0.441	-0.286	0.838	0.243	0.678	3.479***	0.849
Cut 3		2.872***	0.063	-0.095	0.441	0.717	0.840	1.27	0.678	4.506***	0.851
Cut 4		3.745***	0.087	0.783	0.447	1.608	0.843	2.173***	0.683	5.411***	0.856
Fit statistics	AIC	10624.28		10508.26		10237.17		10054.74		10042.11	
	BIC	10676.80		10613.29		10361.9		10192.59		10179.96	
	df	8		16		19		21		21	

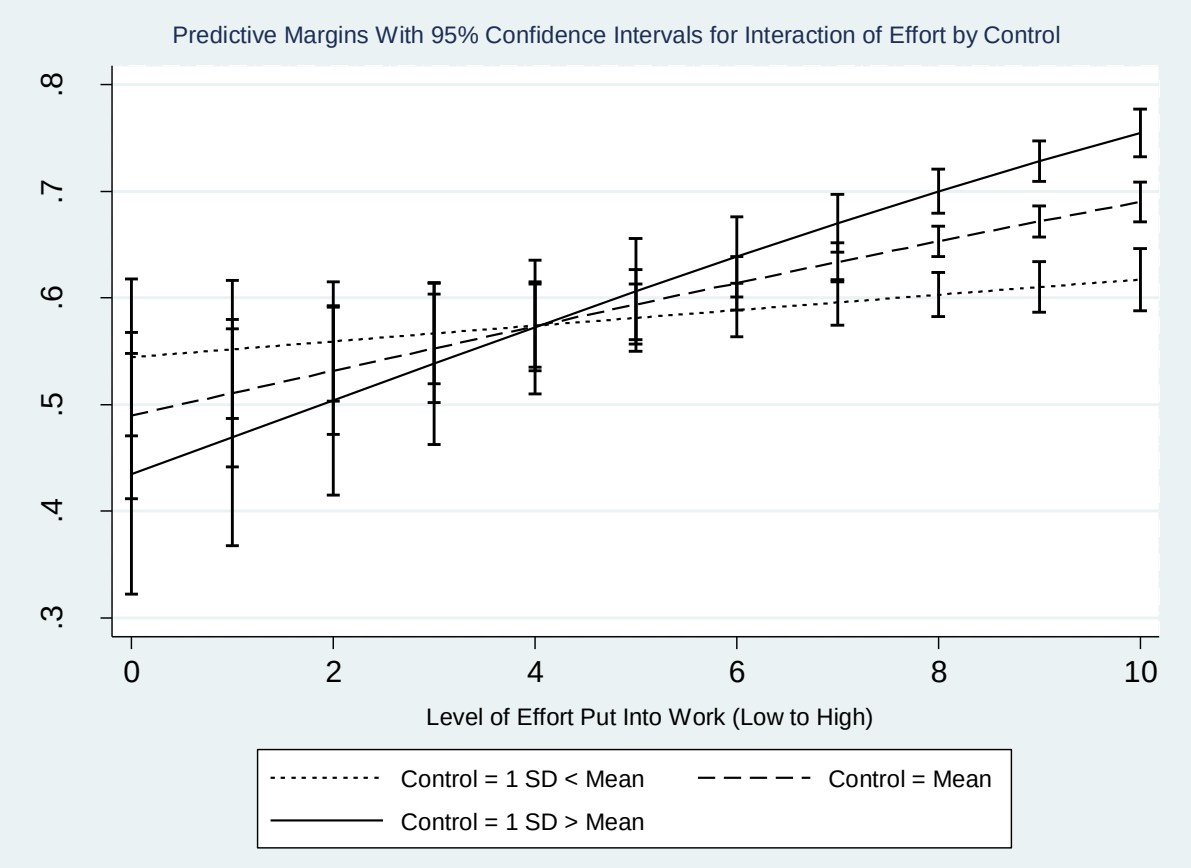
Notes: OR= odds ratio, SE=robust standard error, AIC=Akaike information criterion, BIC=Bayesian information criterion, df=degrees of freedom
*p ≤ 0.05, **p ≤ 0.01, ***p ≤ 0.001
Clusters on family identification variable= 3,284

Figure 4.1 Interaction Plot for Level of Effort Put Into Work by Level of Perceived Inequality at Work on Perceived Job Insecurity, MIDUS 1&2, 1995-2005, (N=5,242)



Notes: Excellent perceived job security refers to low perceived job insecurity.
Mean inequality at work = 1.676, standard deviation = 0.561, range: 1-4
Mean effort put into work = 8.251, standard deviation = 1.794, range: 0-10

Figure 4.2 Interaction Plot for Level of Effort Put Into Work by Level of Job Control on Perceived Job Insecurity, MIDUS 1&2, 1995-2005, (N=5,242)



Notes: Excellent perceived job security refers to low perceived job insecurity.
Mean job control = 16.544, standard deviation = 3.013, range: 4.5-22.5
Mean effort put into work = 8.251, standard deviation = 1.794, range: 0-10

Table 5.1 Correlation Matrix of Indicators of Quality of Life, MIDUS 1&2, 1995-2005 (N=4,777)

Variable	Life satisfaction	Interpersonal well-being	Intrapersonal well-being
Life satisfaction (0-10)	1.000		
Interpersonal well-being (1-7)	0.437***	1.000	
Intrapersonal well-being (1-7)	0.583***	0.603***	1.000

Note: N is smaller than 5,113 because observations only had to be complete on two of three indicators to be included in quality of life measure

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Table 5.2 Exploratory Factor Analyses for Indicators of Quality of Life, MIDUS 1&2 (N=4,777)

Method: Principal factors				
Factor	**Eigenvalue**	**Difference**	**Proportion**	**Cumulative**
Factor1	1.497	1.571	1.233	1.233
Factor2	-0.074	0.134	-0.061	1.171
Factor3	-0.208	.	-0.171	1.000
LR: independent vs. saturated: $\chi^2(3) = 7246.460$***				
Factor loadings (pattern matrix) and unique variances				
Variable	**Factor1**	**Uniqueness**		
Life satisfaction (0-10)	0.655	0.571		
Interpersonal well-being (1-7)	0.675	0.544		
Intrapersonal well-being (1-7)	0.782	0.388		
Method: Principal components				
Factor	**Eigenvalue**	**Difference**	**Proportion**	**Cumulative**
Factor1	2.085	1.521	0.695	0.695
Factor2	0.564	0.212	0.188	0.883
Factor3	0.352	.	0.117	1.000
LR: independent vs. saturated: $\chi^2(3) = 7246.460$***				
Factor loadings (pattern matrix) and unique variances				
Variable	**Factor1**	**Uniqueness**		
Life satisfaction (0-10)	0.802	0.357		
Interpersonal well-being (1-7)	0.814	0.338		
Intrapersonal well-being (1-7)	0.883	0.221		

Note: N is smaller than 5,113 because observations only had to be complete on two of three indicators to be included in quality of life measure

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Clusters: 3,242

Table 5.3 Unstandardized Coefficients, Robust Standard Errors, and Error Covariance Matrix from Confirmatory Factor Analysis of Measurement Model for Quality of Life Based on Life Satisfaction, Intrapersonal Well-being, and Interpersonal Well-being, MIDUS 1&2, 1995-2005, (N=5,113)

Measurement	**b**	**SE**
Life satisfaction (0-10) ←		
QOL	1.000	constrained
Constant	7.357***	0.018
Intrapersonal well-being (1-7) ←		
QOL	1.031***	0.031
Constant	5.614***	0.014
Interpersonal well-being (1-7) ←		
QOL	0.838***	0.023
Constant	4.907***	0.015
var(e.Life satisfaction)	0.909	0.023
var(e.Intrapersonal well-being)	0.171	0.016
var(e.Interpersonal well-being)	0.558	0.015
var(Quality of life)	0.654	0.029
LR	0.000	
RMSEA	1.000	
CFI	1.000	

Notes: b=unstandardized beta coefficients, SE=standard error, N=number of observations, clusters=number of clusters on family identification variable used to compute robust standard errors, LR=likelihood ratio chi-square test of significance, RMSEA=root mean squared error of approximation, CFI=comparative fit index
* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Table 5.4a Unstandardized Regression Coefficients for Structural Equation Models of Quality of Life on Perceived Job Security, Employment Status in Previous Year, and Changes in Employment Status in Last 10 Years, MIDUS 1&2, 1995-2005 (N=5,113)

Variable		Model 1 b	SE	Model 2 b	SE
Structural					
Perceived job security (Ref: Excellent)					
	Very good	-0.213***	0.033	-0.206***	0.034
	Good	-0.410***	0.048	-0.403***	0.048
	Fair	-0.567***	0.081	-0.564***	0.082
	Poor	-0.466***	0.096	-0.442***	0.095
Employment status, previous year (Ref: Full-time)					
	Part-time employed			0.038	0.041
	Not working six months or more			-0.015	0.095
	Full-time student			-0.070	0.149
Two or more changes in employment status, last 10 years (0=no/1=yes)				-0.184***	0.037
Measurement					
Life satisfaction		1.000	constrained	1.000	constrained
Constant		7.470***	0.020	7.498***	0.021
Intrapersonal well-being		0.999***	0.029	0.987***	0.029
Constant		5.726***	0.016	5.753***	0.017
Interpersonal well-being		0.832***	0.023	0.829***	0.023
Constant		5.001***	0.017	5.024***	0.018
LR		73.571***		179.253***	
RMSEA		0.040		0.045	
CFI		0.985		0.965	

Notes: b=unstandardized beta coefficients, SE=standard error, N=number of observations, clusters=number of clusters on family identification variable used to compute robust standard errors, LR=likelihood ratio chi-square test of significance, RMSEA=root mean squared error of approximation, CFI=comparative fit index
* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

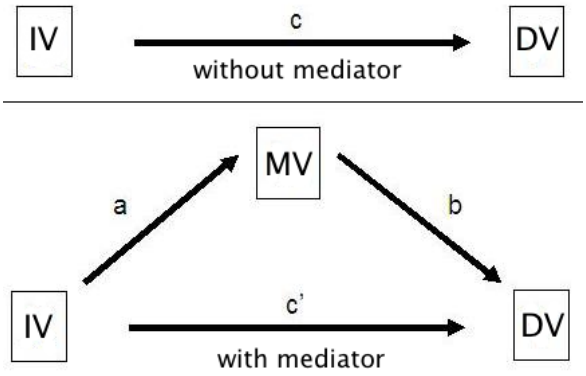
Table 5.4b Unstandardized Regression Coefficients for Structural Equation Models of Quality of Life on Perceived Job Security, Net of Controls for Demographic, Work, and Health Characteristics, MIDUS 1&2, 1995-2005 (N=5,113)

	Model 3		Model 4		Model 5	
Variable	**b**	**SE**	**b**	**SE**	**b**	**SE**
Structural						
Perceived job security (Ref: Excellent)						
Very good	-0.140***	0.033	-0.090	0.031	-0.011	0.031
Good	-0.267***	0.046	-0.064	0.045	-0.060	0.044
Fair	-0.410***	0.079	-0.132	0.077	-0.143	0.076
Poor	-0.299**	0.095	-0.093	0.089	-0.100	0.089
Negative work to family spillover (4-20)	-0.090***	0.006	-0.063***	0.006	0.006	0.006
Two or more changes in employment status, last 10 years (0=no/1=yes)	-0.155***	0.036	-0.108***	0.033	0.033	0.033
Wave 1 (Ref: Wave 2)	0.029	0.038	0.036	0.040	0.035	0.040
Age (Years, 25-74)	0.000	0.001	-0.004**	0.001	-0.003**	0.001
Women (Ref: Men)	0.036	0.026	0.015	0.025	0.038	0.025
Married or cohabiting (Ref: Living alone)	0.240***	0.036	0.231***	0.033	0.209***	0.032
Non-Hispanic white (Ref: Person of color)	0.000	0.039	0.025	0.038	0.032	0.038
Education (Years, 0-24)	0.056***	0.006	0.036***	0.005	0.036***	0.005
Household income (log)	0.124***	0.020	0.058**	0.018	0.054**	0.018
Has children (0=no/1=yes)	-0.072*	0.029	-0.075**	0.027	-0.084***	0.026
Hours worked per week (0-147)			0.003**	0.001	0.002	0.001
Demands (5-25)			-0.019***	0.005	-0.018***	0.005
Control (4.5-22.5)			-0.016	0.020	-0.014	0.019
Effort (0-10)			-0.028	0.035	-0.023	0.035
Inequality (1-4)			-0.492***	0.031	-0.471***	0.030
Effort X Control			0.005*	0.002	0.005*	0.002
Has a mental health condition (0=no/1=yes)					-0.372***	0.038
Has a chronic condition (0=no/1=yes)					-0.079**	0.027
Measurement						
Life satisfaction (0-10)	1.000	constrained	1.000	constrained	1.000	constrained
Constant	6.434***	0.204	7.942***	0.368	7.909***	0.366
Intrapersonal well-being (1-7)	0.919***	0.022	0.876***	0.025	0.876***	0.025
Constant	4.766***	0.185	6.126***	0.322	6.097***	0.321
Interpersonal well-being (1-7)	0.815***	0.021	0.791***	0.024	0.788***	0.024
Constant	4.155***	0.166	5.369***	0.292	5.342***	0.290
LR	542.399***		648.710***		657.711***	
RMSEA	0.060		0.055		0.052	
CFI	0.908		0.904		0.906	

Notes: b=unstandardized beta coefficients, SE=standard error, N=number of observations, clusters=number of clusters on family identification variable used to compute robust standard errors, LR=likelihood ratio chi-square test of significance, RMSEA=root mean squared error of approximation, CFI=comparative fit index

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Figure 5.1 Mediation Model



IV = Independent variable

DV = Dependent variable

MD = Mediator variable

a = Pathway between independent and mediator variable

b = Pathway between mediator and dependent variable

c' = Pathway between independent and dependent variable, adjusted for the mediator

c = Pathway between independent and dependent variable, not adjusted for the mediator

a*b = Indirect effect (mediated part of the model)

c' = Direct effect (unmediated part of the model)

a*b + c' = Total effect

Table 5.5a Unstandardized Direct, Indict, and Total Effects of Relationship Between Perceived Job Insecurity and Quality of Life, Mediated by Negative Work to Family Spillover of Stress, Net of Controls, MIDUS 1&2, 1995-2005 (5,113)

		Direct effects		Indirect effects		Total effects	
Variable		**b**	**SE**	**b**	**SE**	**b**	**SE**
Structural							
Negative work to family spillover (4-20) ←							
Perceived job security (Ref: Excellent)							
	Very good	0.211*	0.083	0	(no path)	0.211*	0.083
	Good	0.596***	0.120	0	(no path)	0.596***	0.120
	Fair	0.977***	0.178	0	(no path)	0.977***	0.178
	Poor	0.503*	0.251	0	(no path)	0.503*	0.251
Two or more changes in employment status, last 10 years (0=no/1=yes)		0.277**	0.096	0	(no path)	0.277**	0.096
Wave 1 (Ref: Wave 2)		0.179*	0.082	0	(no path)	0.179*	0.082
Age (Years, 25-74)		-0.011**	0.004	0	(no path)	-0.011**	0.004
Women (Ref: Men)		0.123	0.073	0	(no path)	0.123	0.073
Married or cohabiting (Ref: Living alone)		0.087	0.088	0	(no path)	0.087	0.088
Non-Hispanic white (Ref: Person of color)		0.449***	0.115	0	(no path)	0.449***	0.115
Education (Years. 0-24)		0.084***	0.015	0	(no path)	0.084***	0.015
Household income (log)		0.179***	0.055	0	(no path)	0.179***	0.055
Has children (0=no/1=yes)		0.243***	0.073	0	(no path)	0.243***	0.073
Hours work per week (0-147)		0.034***	0.003	0	(no path)	0.034***	0.003
Demands (5-25)		0.397***	0.012	0	(no path)	0.397***	0.012
Control (4.5-22.5)		0.034	0.059	0	(no path)	0.034	0.059
Effort (0-10)		0.155	0.108	0	(no path)	0.155	0.108
Inequality (1-4)		0.685***	0.080	0	(no path)	0.685***	0.080
Effort X Control		-0.012	0.007	0	(no path)	-0.012	0.007
Has a mental health condition (0=no/1=yes)		0.849***	0.094	0	(no path)	0.849***	0.094
Has a chronic condition (0=no/1=yes)		0.34***	0.074	0	(no path)	0.34***	0.074
Constant		-1.992	1.125				
Quality of life (0-10) ←							
Negative work to family spillover		-0.052***	0.006	0	(no path)	-0.052***	0.006
Perceived job insecurity (Ref: Excellent)							
	Very good	-0.011	0.031	-0.011*	0.004	-0.022	0.031
	Good	-0.060	0.044	-0.031***	0.007	-0.091*	0.045
	Fair	-0.143	0.076	-0.051***	0.011	-0.194*	0.076
	Poor	-0.100	0.089	-0.026*	0.013	-0.126	0.088
Two or more changes in employment status, last 10 years (0=no/1=yes)		-0.091**	0.033	-0.014**	0.005	-0.105**	0.033
Wave 1 (Ref: Wave 2)		0.035	0.040	-0.009*	0.004	0.025	0.039
Age (Years, 25-74)		-0.003**	0.001	0.001**	0.000	-0.003*	0.001
Women (Ref: Men)		0.038	0.025	-0.006	0.004	0.032	0.025
Married or cohabiting (Ref: Living alone)		0.209***	0.032	-0.005	0.005	0.205***	0.033
Non-Hispanic white (Ref: Person of color)		0.032	0.038	-0.023***	0.006	0.009	0.038
Education (Years, 0-24)		0.036***	0.005	-0.004***	0.001	0.031***	0.005
Household income (log)		0.054**	0.018	-0.009**	0.003	0.045*	0.018
Has children (0=no/1=yes)		-0.084***	0.026	-0.013**	0.004	-0.096***	0.026
Hours work per week (0-147)		0.002	0.001	-0.002***	0.000	0.000	0.001
Demands (5-25)		-0.018***	0.005	-0.021***	0.002	-0.038***	0.004
Control (4.5-22.5)		-0.014	0.019	-0.002	0.003	-0.016	0.020
Effort (0-10)		-0.023	0.035	-0.008	0.006	-0.031	0.036
Inequality (1-4)		-0.471***	0.030	-0.035***	0.006	-0.506***	0.031
Effort X Control		0.005*	0.002	0.001	0.000	0.005*	0.002

Has a mental health condition (0=no/1=yes)	-0.372***	0.038	-0.044***	0.007	-0.416***	0.038
Has a chronic condition (0=no/1=yes)	-0.079**	0.027	-0.018***	0.004	-0.096***	0.027
Measurement						
Life satisfaction (0-10)	1.000	constrained				
Constant	7.951***	0.334				
Intrapersonal well-being (1-7)	0.875***	0.020				
Constant	6.133***	0.292				
Interpersonal well-being (1-7)	0.788***	0.020				
Constant	5.374***	0.263				
LR	657.711***					
RMSEA	0.052					
CFI	0.931					

Notes 1: b=unstandardized beta coefficients, SE=standard error, N=number of observations, clusters=number of clusters on family identification variable used to compute robust standard errors, LR=likelihood ratio chi-square test of significance, RMSEA=root mean squared error of approximation, CFI=comparative fit index
* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Table 5.5b Unstandardized Direct, Indict, and Total Effects of Relationship Between Perceived Job Insecurity and Quality of Life, Mediated by Negative Work to Family Spillover of Stress, Net of Controls, MIDUS 1&2, 1995-2005 (N=5,113)

		Direct effects		Indirect effects		Total effects	
Variable		**b**	**SE**	**b**	**SE**	**b**	**SE**
Structural							
Negative work to family spillover (4-20) ←							
Perceived job security (Ref: Excellent)							
	Very good	0.267**	0.096	0	(no path)	0.267**	0.096
	Good	0.724***	0.140	0	(no path)	0.724***	0.140
	Fair	1.092***	0.217	0	(no path)	1.092***	0.217
	Poor	0.930**	0.294	0	(no path)	0.930**	0.294
Two or more changes in employment status, last 10 years (0=no/1=yes)		-0.119	0.110	0	(no path)	-0.119	0.110
Wave 1 (Ref: Wave 2)		0.091	0.092	0	(no path)	0.091	0.092
Age (Years, 25-74)		-0.030***	0.004	0	(no path)	-0.030***	0.004
Women (Ref: Men)		-0.019	0.083	0	(no path)	-0.019	0.083
Married or cohabiting (Ref: Living alone)		-0.100	0.103	0	(no path)	-0.100	0.103
Non-Hispanic white (Ref: Person of color)		0.689***	0.132	0	(no path)	0.689***	0.132
Education (Years, 0-24)		0.146***	0.018	0	(no path)	0.146***	0.018
Household income (log)		0.467***	0.064	0	(no path)	0.467***	0.064
Has children (0=no/1=yes)		0.218*	0.086	0	(no path)	0.218*	0.086
Inequality (1-4)		1.063***	0.082	0	(no path)	1.063***	0.082
Has a mental health condition (0=no/1=yes)		1.108***	0.111	0	(no path)	1.108***	0.111
Has a chronic condition (0=no/1=yes)		0.527***	0.089	0	(no path)	0.527***	0.089
Constant		2.294***	0.719				
Quality of life (0-10) ←							
Negative work to family spillover		-0.056***	0.005	0	(no path)	-0.056***	0.005
Perceived job security (Ref: Excellent)							
	Very good	-0.031	0.031	-0.015**	0.006	-0.046	0.031
	Good	-0.094*	0.044	-0.041***	0.009	-0.135**	0.045
	Fair	-0.181*	0.077	-0.061***	0.014	-0.243**	0.079
	Poor	-0.134	0.089	-0.052**	0.017	-0.186*	0.089
Two or more changes in employment status, last 10 years (0=no/1=yes)		-0.098**	0.033	0.007	0.006	-0.091**	0.033
Wave 1 (Ref: Wave 2)		0.012	0.039	-0.005	0.005	0.007	0.039
Age (Years, 25-74)		-0.004**	0.001	0.002***	0.000	-0.002	0.001
Women (Ref: Men)		0.031	0.024	0.001	0.005	0.032	0.024
Married or cohabiting (Ref: Living alone)		0.203***	0.033	0.006	0.006	0.209***	0.033
Non-Hispanic white (Ref: Person of color)		0.012	0.038	-0.039***	0.008	-0.026	0.039
Education (Years, 0-24)		0.037***	0.005	-0.008***	0.001	0.028***	0.005
Household income (log)		0.061***	0.018	-0.026***	0.004	0.034	0.018
Has children (0=no/1=yes)		-0.080**	0.026	-0.012*	0.005	-0.092***	0.027
Inequality (1-4)		-0.571***	0.029	-0.060***	0.007	-0.631***	0.030
Has a mental health condition (0=no/1=yes)		-0.373***	0.038	-0.062***	0.009	-0.435***	0.039
Has a chronic condition (0=no/1=yes)		-0.084**	0.027	-0.030***	0.006	-0.114***	0.027
Measurement							
Life satisfaction (0-10)		1.000	constrained				
Constant		8.166***	0.208				
Intrapersonal well-being (1-7)		0.892***	0.025				
Constant		6.335***	0.187				
Interpersonal well-being (1-7)		0.798***	0.024				
Constant		5.553***	0.167				
LR		575.781***					

RMSEA	0.056
CFI	0.924

Notes 1: b=unstandardized beta coefficients, SE=standard error, N=number of observations, clusters=number of clusters on family identification variable used to compute robust standard errors, LR=likelihood ratio chi-square test of significance, RMSEA=root mean squared error of approximation, CFI=comparative fit index

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Table 5.6a Unstandardized Direct, Indict, and Total Effects of Relationship Between Perceived Job Insecurity and Quality of Life, Mediated by Social Support Outside of Work, Net of Controls, MIDUS 1&2, 1995-2005 (N=5,113)

	Direct effects		Indirect effects		Total effects	
Variable	**b**	**SE**	**b**	**SE**	**b**	**SE**
Structural						
Social support outside of work (1-4) ←						
Perceived job security (Ref: Excellent)						
Very good	-0.020	0.014	0	(no path)	-0.020	0.014
Good	-0.031	0.021	0	(no path)	-0.031	0.021
Fair	-0.067*	0.032	0	(no path)	-0.067*	0.032
Poor	-0.024	0.040	0	(no path)	-0.024	0.040
Two or more changes in employment status, last 10 years (0=no/1=yes)	-0.031*	0.015	0	(no path)	-0.031*	0.015
Wave 1 (Ref: Wave 2)	0.032*	0.014	0	(no path)	0.032*	0.014
Age (Years, 25-74)	-0.001	0.001	0	(no path)	-0.001	0.001
Women (Ref: Men)	0.017	0.012	0	(no path)	0.017	0.012
Married or cohabiting (Ref: Living alone)	0.080*	0.033	0	(no path)	0.080*	0.033
Non-Hispanic white (Ref: Person of color)	0.062***	0.018	0	(no path)	0.062***	0.018
Education (Years, 0-24)	0.001	0.002	0	(no path)	0.001	0.002
Household income (log)	-0.005	0.009	0	(no path)	-0.005	0.009
Has children (0=no/1=yes)	-0.071***	0.012	0	(no path)	-0.071***	0.012
Hours work per week (0-147)	-0.001***	0.000	0	(no path)	-0.001***	0.000
Demands (5-25)	-0.015***	0.002	0	(no path)	-0.015***	0.002
Control (4.5-22.5)	-0.018*	0.009	0	(no path)	-0.018*	0.009
Effort (0-10)	-0.024	0.016	0	(no path)	-0.024	0.016
Inequality (1-4)	-0.160***	0.013	0	(no path)	-0.160***	0.013
Effort X Control	0.002*	0.001	0	(no path)	0.002*	0.001
Has a mental health condition (0=no/1=yes)	-0.093***	0.016	0	(no path)	-0.093***	0.016
Has a chronic condition (0=no/1=yes)	-0.013	0.012	0	(no path)	-0.013	0.012
Constant	3.885***	0.171				
Quality of life (0-10) ←						
Negative work to family spillover (4-20)	0.707***	0.051	0	(no path)	0.707***	0.051
Perceived job security (Ref: Excellent)						
Very good	-0.010	0.030	-0.014	0.010	-0.024	0.031
Good	-0.070	0.045	-0.022	0.015	-0.092*	0.045
Fair	-0.150*	0.070	-0.047*	0.023	-0.198**	0.077
Poor	-0.118	0.088	-0.017	0.028	-0.135	0.089
Two or more changes in employment status, last 10 years (0=no/1=yes)	-0.085**	0.032	-0.022*	0.011	-0.108***	0.034
Wave 1 (Ref: Wave 2)	0.005	0.040	0.022*	0.010	0.027	0.040
Age (Years, 25-74)	-0.002	0.001	-0.001	0.000	-0.002	0.001
Women (Ref: Men)	0.021	0.025	0.012	0.009	0.033	0.025
Married or cohabiting (Ref: Living alone)	0.154***	0.038	0.057*	0.024	0.211***	0.033
Non-Hispanic white (Ref: Person of color)	-0.034	0.037	0.044***	0.013	0.010	0.039
Education (Years, 0-24)	0.031***	0.005	0.001	0.002	0.032***	0.005
Household income (log)	0.048**	0.018	-0.003	0.006	0.045*	0.018
Has children (0=no/1=yes)	-0.047	0.026	-0.050***	0.009	-0.097***	0.026
Hours work per week (0-147)	0.001	0.001	-0.001***	0.000	0.000	0.001
Demands (5-25)	-0.028***	0.004	-0.011***	0.002	-0.039***	0.004
Control (4.5-22.5)	-0.004	0.019	-0.013*	0.006	-0.017	0.020
Effort (0-10)	-0.016	0.035	-0.017	0.011	-0.033	0.036

Inequality (1-4)	-0.400***	0.030	-0.113***	0.012	-0.513***	0.031
Effort X Control	0.004	0.002	0.002*	0.001	0.006*	0.002
Has a mental health condition (0=no/1=yes)	-0.351***	0.037	-0.066***	0.012	-0.417***	0.038
Has a chronic condition (0=no/1=yes)	-0.090***	0.027	-0.009	0.008	-0.099***	0.027
Measurement						
Life satisfaction (0-10)	1.000	constrained				
Constant	5.278***	0.404				
Intrapersonal well-being (1-7)	0.858***	0.239				
Constant	3.830***	0.343				
Interpersonal well-being (1-7)	0.788***	0.024				
Constant	3.268***	0.316				
LR	693.169***					
RMSEA	0.054					
CFI	0.912					

Notes 1: b=unstandardized beta coefficients, SE=standard error, N=number of observations, clusters=number of clusters on family identification variable used to compute robust standard errors, LR=likelihood ratio chi-square test of significance, RMSEA=root mean squared error of approximation, CFI=comparative fit index
* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Table 5.6b Unstandardized Direct, Indict, and Total Effects of Relationship Between Perceived Job Insecurity and Quality of Life, Mediated by Social Support Outside of Work, Net of Controls, MIDUS 1&2, 1995-2005 (N=5,113)

		Direct effects		Indirect effects		Total effects	
Variable		**b**	**SE**	**b**	**SE**	**b**	**SE**
Structural							
Social support outside of work (1-4) ←							
Perceived job security (Ref: Excellent)							
	Very good	-0.025	0.014	0	(no path)	-0.025	0.014
	Good	-0.041	0.021	0	(no path)	-0.041	0.021
	Fair	-0.078*	0.033	0	(no path)	-0.078*	0.033
	Poor	-0.041	0.040	0	(no path)	-0.041	0.040
Two or more changes in employment status, last 10 years (0=no/1=yes)		-0.017	0.015	0	(no path)	-0.017	0.015
Wave 1 (Ref: Wave 2)		0.031*	0.014	0	(no path)	0.031*	0.014
Age (Years, 25-74)		0.000	0.001	0	(no path)	0.000	0.001
Women (Ref: Men)		0.032**	0.011	0	(no path)	0.032**	0.011
Married or cohabiting (Ref: Living alone)		0.094**	0.033	0	(no path)	0.094**	0.033
Non-Hispanic white (Ref: Person of color)		0.050**	0.019	0	(no path)	0.050**	0.019
Education (Years, 0-24)		-0.001	0.002	0	(no path)	-0.001	0.002
Household income (log)		-0.014	0.009	0	(no path)	-0.014	0.009
Has children (0=no/1=yes)		-0.069***	0.012	0	(no path)	-0.069***	0.012
Inequality (1-4)		-0.185***	0.012	0	(no path)	-0.185***	0.012
Has a mental health condition (0=no/1=yes)		-0.102***	0.017	0	(no path)	-0.102***	0.017
Has a chronic condition (0=no/1=yes)		-0.023	0.012	0	(no path)	-0.023	0.012
Constant		3.562***	0.103				
Quality of life (0-10) ←							
Negative work to family spillover		0.750***	0.051	0	(no path)	0.750***	0.051
Perceived job security (Ref: Excellent)							
	Very good	-0.029	0.030	-0.019	0.011	-0.048	0.031
	Good	-0.107*	0.045	-0.030	0.016	-0.137**	0.045
	Fair	-0.189**	0.071	-0.058*	0.025	-0.247**	0.079
	Poor	-0.165	0.088	-0.031	0.030	-0.196*	0.090
Two or more changes in employment status, last 10 years (0=no/1=yes)		-0.08*	0.032	-0.013	0.012	-0.092**	0.034
Wave 1 (Ref: Wave 2)		-0.014	0.040	0.023*	0.011	0.009	0.039
Age (Years, 25-74)		-0.002	0.001	0.000	0.000	-0.002	0.001
Women (Ref: Men)		0.01	0.024	0.024**	0.009	0.033	0.025
Married or cohabiting (Ref: Living alone)		0.145***	0.038	0.070**	0.025	0.216***	0.033
Non-Hispanic white (Ref: Person of color)		-0.064	0.037	0.038**	0.014	-0.027	0.039
Education (Years, 0-24)		0.03***	0.005	-0.001	0.002	0.029***	0.005
Household income (log)		0.044*	0.018	-0.010	0.006	0.034	0.018
Has children (0=no/1=yes)		-0.04	0.026	-0.052***	0.010	-0.092***	0.027
Inequality (1-4)		-0.5***	0.029	-0.139***	0.013	-0.639***	0.030
Has a mental health condition (0=no/1=yes)		-0.36***	0.037	-0.076***	0.013	-0.436***	0.039
Has a chronic condition (0=no/1=yes)		-0.1***	0.026	-0.017	0.009	-0.117***	0.027
Measurement							
Life satisfaction (0-10)		1.000	constrained				
Constant		5.372***	0.260				
Intrapersonal well-being (1-7)		0.874***	0.020				
Constant		3.877***	0.223				
Interpersonal well-being (1-7)		0.801***	0.020				
Constant		3.317***	0.207				
LR		609.304***					

RMSEA	0.058
CFI	0.919

Notes 1: b=unstandardized beta coefficients, SE=standard error, N=number of observations, clusters=number of clusters on family identification variable used to compute robust standard errors, LR=likelihood ratio chi-square test of significance, RMSEA=root mean squared error of approximation, CFI=comparative fit index

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Table 6.1a Tests of Measurement Invariance for the Measurement Model for Quality of Life Grouped by Education and Household Income, MIDUS 1&2, 1995-2005 (N=5,113)

			Education (dichotomous)[b]			Education (three-category)[c]			Household income[d]		
Model	Type of invariance	Constraints[a]	$\Delta\chi^2$	df	p	$\Delta\chi^2$	df	p	$\Delta\chi^2$	df	p
1	Free	None	167.379	5	0.000	194.567	10	0.000	158.340	5	0.000
2	Metric (pattern)	Loadings	0.723	2	0.697	1.128	4	0.890	11.662	2	0.003
3	Strong (scalar)	Intercepts	177.341	3	0.000	209.108	6	0.000	155.692	3	0.000
4	Strict	Residuals	29.305	3	0.000	39.140	6	0.000	54.287	3	0.000
5	Strict plus factor means	Factor means	92.950	1	0.000	107.230	2	0.000	116.913	1	0.000
6	Strict plus factor means and variances	Factor variances	0.917	1	0.338	2.830	2	0.243	12.140	1	0.001

Notes: $\Delta\chi^2$=change in chi-squared value, df=degrees of freedom, p=p-value for test of significance, diff=difference

[a] Each model constrains the same parameters as the previous model plus an additional constraint (e.g., In Model 3, the factor loadings and intercepts are constrained, not only the intercepts).

[b] Dichotomous variable split to compared less than bachelor's degree versus bachelor's degree or more

[c] Three-category variable for less than high school, high school diploma or GED, and bachelor's degree or more

[d] Median split at $55,500, Range: $0-$300,000

Table 6.1b Tests of Measurement Invariance for the Measurement Model for Quality of Life Grouped by Social Support and Race, MIDUS 1&2, 1995-2005 (N=5,113)

			Social support at work[b]			Social support outside work[c]			Race[d]		
Model	Type of invariance	Constraints[a]	$\Delta\chi^2$	df	p	$\Delta\chi^2$	df	p	$\Delta\chi^2$	df	p
1	Free	None	80.146	5	0.000	406.666	5	0.000	16.139	5	0.006
2	Metric (pattern)	Loadings	11.013	2	0.004	3.952	2	0.139	4.165	2	0.125
3	Strong (scalar)	Intercepts	71.785	3	0.000	478.118	3	0.000	12.161	3	0.007
4	Strict	Residuals	27.878	3	0.000	22.661	3	0.000	36.568	3	0.000
5	Strict plus factor means	Factor means	66.887	1	0.000	362.270	1	0.000	1.207	1	0.272
6	Strict plus factor means and variances	Factor variances	33.339	1	0.000	16.896	1	0.000	0.248	1	0.618

Notes: $\Delta\chi^2$=change in chi-squared value, df=degrees of freedom, p=p-value for test of significance, diff=difference

[a] Each model constrains the same parameters as the previous model plus an additional constraint (e.g., In Model 3, the factor loadings and intercepts are constrained, not only the intercepts).

[b] Median split at 10, Range: 2.5-15

[c] Median split at 3.25, Range: 1-4

[d] Non-Hispanic white vs. person of color

Table 6.1c Tests of Measurement Invariance for the Measurement Model for Quality of Life Grouped by Gender, Age, and Wave, MIDUS 1&2, 1995-2005 (N=5,113)

			Gender[b]			Age[c]			Wave[d]		
Model	Type of invariance	Constraints[a]	$\Delta\chi^2$	df	p	$\Delta\chi^2$	df	p	$\Delta\chi^2$	df	p
1	Free	None	13.850	5	0.019	113.018	5	0.000	54.064	5	0.000
2	Metric (pattern)	Loadings	3.895	2	0.143	0.700	2	0.705	3.402	2	0.183
3	Strong (scalar)	Intercepts	9.644	3	0.022	117.355	3	0.000	52.342	3	0.000
4	Strict	Residuals	7.329	3	0.062	16.268	3	0.001	14.633	3	0.002
5	Strict plus factor means	Factor means	5.287	1	0.022	11.414	1	0.001	3.118	3	0.077
6	Strict plus factor means and variances	Factor variances	0.813	1	0.367	0.000	1	0.987	8.604	1	0.003

Notes: $\Delta\chi^2$=change in chi-squared value, df=degrees of freedom, p=p-value for test of significance, diff=difference

[a] Each model constrains the same parameters as the previous model plus an additional constraint (e.g., In Model 3, the factor loadings and intercepts are constrained, not only the intercepts).

[b] Women vs. men

[c] Median split at 44 years old, Range: 25-74 years old

[d] Wave 1 (1995-1996) vs. Wave 2 (2004-2006)

Table 6.2 Main Effects Relationship Between Perceived Job Insecurity and Quality of Life, Mediated by Negative Work to Family Spillover of Stress, Net of Controls, MIDUS 1&2, 1995-2005 (N=5,113)

		Model 1	
Variable		**b**	**SE**
Structural			
Negative work to family spillover ←			
Perceived job security (Ref: Excellent)			
	Very good	0.267**	0.096
	Good	0.724***	0.140
	Fair	1.092***	0.217
	Poor	0.930**	0.294
Wave 1 (Ref: Wave 2)		0.091	0.092
Age (Years, 25-74)		-0.030***	0.004
Women (Ref: Men)		-0.019	0.083
Married or cohabiting (Ref: Living alone)		-0.100	0.103
Non-Hispanic white (Ref: Person of color)		0.689***	0.132
Education (Years, 0-24)		0.146***	0.018
Household income (log)		0.467***	0.064
Has children (0=no/1=yes)		0.218*	0.086
Inequality (1-4)		1.063***	0.082
Has a mental health condition (0=no/1=yes)		1.108***	0.111
Has a chronic condition (0=no/1=yes)		0.527***	0.089
Constant		2.294***	0.719
Quality of life (0-10) ←			
Negative work to family spillover			
Perceived job security (Ref: Excellent)		-0.056***	0.005
	Very good	-0.031	0.031
	Good	-0.094*	0.044
	Fair	-0.181*	0.077
	Poor	-0.134	0.089
Wave 1 (Ref: Wave 2)		0.012	0.039
Age (Years, 25-74)		-0.004**	0.001
Women (Ref: Men)		0.031	0.024
Married or cohabiting (Ref: Living alone)		0.203***	0.033
Non-Hispanic white (Ref: Person of color)		0.012	0.038
Education (Years, 0-24)		0.037***	0.005
Household income (log)		0.061***	0.018
Has children (0=no/1=yes)		-0.080**	0.026
Inequality (1-4)		-0.571***	0.029
Has a mental health condition (0=no/1=yes)		-0.373***	0.038
Has a chronic condition (0=no/1=yes)		-0.084**	0.027
LR		575.781***	
RMSEA		0.056	
CFI		0.924	

Notes 1: b=unstandardized beta coefficients, SE=standard error, N=number of observations, clusters=number of clusters on family identification variable used to compute robust standard errors, LR=likelihood ratio chi-square test of significance, RMSEA=root mean squared error of approximation, CFI=comparative fit index

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Note 2: Too many parameters caused difficulty with convergence in multi-group models, so these variables were dropped from the final model in Chapter 5: two or more changes in employment status in the last 10 years, hours worked per week, demands, control, effort, and effort X control. Fit comparable with only the inequality variable.

Table 6.3 Unstandardized Direct, Indict, and Total Effects of Relationship Between Perceived Job Insecurity and Quality of Life, Mediated by Negative Work to Family Spillover of Stress, Net of Controls, MIDUS 1&2, 1995-2005 (N=5,113)

		Direct effects		Indirect effects		Total effects	
Variable		**b**	**SE**	**b**	**SE**	**b**	**SE**
Structural							
Negative work to family spillover ←							
Perceived job security (Ref: Excellent)							
	Very good	0.267**	0.096	0	(no path)	0.267**	0.096
	Good	0.724***	0.140	0	(no path)	0.724***	0.140
	Fair	1.092***	0.217	0	(no path)	1.092***	0.217
	Poor	0.930**	0.294	0	(no path)	0.930**	0.294
Wave 1 (Ref: Wave 2)		0.091	0.092	0	(no path)	0.091	0.092
Age (Years, 25-74)		-0.030***	0.004	0	(no path)	-0.030***	0.004
Women (Ref: Men)		-0.019	0.083	0	(no path)	-0.019	0.083
Married or cohabiting (Ref: Living alone)		-0.100	0.103	0	(no path)	-0.100	0.103
Non-Hispanic white (Ref: Person of color)		0.689***	0.132	0	(no path)	0.689***	0.132
Education (Years, 0-24)		0.146***	0.018	0	(no path)	0.146***	0.018
Household income (log)		0.467***	0.064	0	(no path)	0.467***	0.064
Has children (0=no/1=yes)		0.218*	0.086	0	(no path)	0.218*	0.086
Inequality (1-4)		1.063***	0.082	0	(no path)	1.063***	0.082
Has a mental health condition (0=no/1=yes)		1.108***	0.111	0	(no path)	1.108***	0.111
Has a chronic condition (0=no/1=yes)		0.527***	0.089	0	(no path)	0.527***	0.089
Constant		2.294***	0.719				
Quality of life (0-10) ←							
Negative work to family spillover		-0.056***	0.005	0	(no path)	-0.056***	0.005
Perceived job security (Ref: Excellent)							
	Very good	-0.031	0.031	-0.015**	0.006	-0.046	0.031
	Good	-0.094*	0.044	-0.041***	0.009	-0.135**	0.045
	Fair	-0.181*	0.077	-0.061***	0.014	-0.243**	0.079
	Poor	-0.134	0.089	-0.052**	0.017	-0.186*	0.089
Wave 1 (Ref: Wave 2)		0.012	0.039	-0.005	0.005	0.007	0.039
Age (Years, 25-74)		-0.004**	0.001	0.002***	0.000	-0.002	0.001
Women (Ref: Men)		0.031	0.024	0.001	0.005	0.032	0.024
Married or cohabiting (Ref: Living alone)		0.203***	0.033	0.006	0.006	0.209***	0.033
Non-Hispanic white (Ref: Person of color)		0.012	0.038	-0.039***	0.008	-0.026	0.039
Education (Years, 0-24)		0.037***	0.005	-0.008***	0.001	0.028***	0.005
Household income (log)		0.061***	0.018	-0.026***	0.004	0.034	0.018
Has children (0=no/1=yes)		-0.080**	0.026	-0.012*	0.005	-0.092***	0.027
Inequality (1-4)		-0.571***	0.029	-0.060***	0.007	-0.631***	0.030
Has a mental health condition (0=no/1=yes)		-0.373***	0.038	-0.062***	0.009	-0.435***	0.039
Has a chronic condition (0=no/1=yes)		-0.084**	0.027	-0.030***	0.006	-0.114***	0.027
LR		575.781***					
RMSEA		0.056					
CFI		0.924					

Notes: b=unstandardized beta coefficients, SE=standard error, N=number of observations, clusters=number of clusters on family identification variable used to compute robust standard errors, LR=likelihood ratio chi-square test of significance, RMSEA=root mean squared error of approximation, CFI=comparative fit index

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Table 6.4 Conditional Relationship Between Perceived Job Insecurity and Quality of Life, Mediated by Negative Work to Family Spillover of Stress, Grouped by Education (Three Group Categorical and Dichotomous), MIDUS 1&2, 1995-2005 (N=5,104)

	Model 1 - Education (three groups)			Model 2 – Education (two groups)			
Variable	**b**	**SE**	**χ^2, df(2)[a]**		**b**	**SE**	**χ^2, df(1)[a]**
Structural							
Negative work to family spillover (4-20) ←							
Perceived job security (Ref: Excellent)							
Very good			0.875	**Very good**			0.000
Less than high school	0.120	0.460					
High school diploma or GED	0.561***	0.134		No bachelor's degree	0.496***	0.125	
Bachelor's degree	0.493**	0.168		Bachelor's degree	0.493**	0.174	
Good			1.796	**Good**			0.403
Less than high school	1.792**	0.595					
High school diploma or GED	1.092***	0.192		No bachelor's degree	1.139***	0.184	
Bachelor's degree	0.937***	0.238		Bachelor's degree	0.937***	0.261	
Fair			0.255	**Fair**			0.025
Less than high school	2.055*	0.906					
High school diploma or GED	1.616***	0.288		No bachelor's degree	1.636***	0.292	
Bachelor's degree	1.567***	0.339		Bachelor's degree	1.567***	0.325	
Poor			2.238	**Poor**			1.382
Less than high school	0.176	2.134					
High school diploma or GED	1.540***	0.343		No bachelor's degree	1.528***	0.430	
Bachelor's degree	0.796*	0.399		Bachelor's degree	0.796*	0.451	
Constant							
Less than high school	9.380***	0.273					
High school diploma or GED	9.927***	0.067		No bachelor's degree	9.895***	0.070	
Bachelor's degree	10.628***	0.076		Bachelor's degree	10.628***	0.082	
Quality of life (0-10) ←							
Negative work to family spillover			0.049				
Less than high school	-0.070***	0.020					0.002
High school diploma or GED	-0.080**	0.027		No bachelor's degree	-0.084***	0.007	
Bachelor's degree	-0.086***	0.006		Bachelor's degree	-0.085***	0.009	
Perceived job security (Ref: Excellent)	-0.085***	0.008					
Very good			3.052	**Very good**			1.297
Less than high school	0.037	0.164					
High school diploma or GED	-0.201***	0.042		No bachelor's degree	-0.191***	0.041	
Bachelor's degree	-0.115*	0.055		Bachelor's degree	-0.115*	0.052	
Good			0.744	**Good**			0.327
Less than high school	-0.190	0.219					
High school diploma or GED	-0.349***	0.061		No bachelor's degree	-0.345***	0.059	
Bachelor's degree	-0.288***	0.078		Bachelor's degree	-0.288***	0.080	
Fair			0.274	**Fair**			0.165

	Less than high school	-0.566	0.332					
	High school diploma or GED	-0.454***	0.092		No bachelor's degree	-0.474***	0.101	
	Bachelor's degree	-0.404***	0.111		Bachelor's degree	-0.404***	0.141	
	Poor			1.764	**Poor**			0.316
	Less than high school	0.537	0.769					
	High school diploma or GED	-0.378***	0.108		No bachelor's degree	-0.350***	0.118	
	Bachelor's degree	-0.464***	0.131		Bachelor's degree	-0.464***	0.165	
χ^2, df(18)[b]	11.400			**χ^2, df(9)[b]**	3.544			
LR	179.068***			**LR**	126.854***			
RMSEA	0.038			**RMSEA**	0.046			
CFI	0.981			**CFI**	0.978			

Notes: b=unstandardized beta coefficients, SE=standard error, χ^2=chi-squared value, df=degrees of freedom, N=number of observations, clusters=number of clusters on family identification variable used to compute robust standard errors, LR=likelihood ratio chi-square test of significance, RMSEA=root mean squared error of approximation, CFI=comparative fit index

[a] Test for group invariance of parameters (Wald test)

[b] Joints test of invariance for parameter class of structural coefficients (Wald test)

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Three-category model would not converge with all covariates in the model. Only the preliminary analysis with the independent variable, dependent variable, and mediator is displayed. The preliminary models with limited number of variables removed suggest that the results of the multi-group analysis on the paths of interest (IV→ M, M→DV) would still not be significant.

Clusters: 3240

Table 6.5 Conditional Relationship Between Perceived Job Insecurity and Quality of Life, Mediated by Negative Work to Family Spillover of Stress, Grouped by Log of Household Income Split at Median of $55,500, MIDUS 1&2, 1995-2005 (N=4,999)

		Model 1		Wald
Variable		**b**	**SE**	**χ^2, df(1)[a]**
Structural				
Negative work to family spillover (4-20) ←				
Perceived job security (Ref: Excellent)				
Very good				0.805
	Low income	0.201	0.145	
	High income	0.377**	0.131	
Good				0.895
	Low income	0.628**	0.204	
	High income	0.895***	0.196	
Fair				0.631
	Low income	0.922**	0.346	
	High income	1.271***	0.278	
Poor				1.811
	Low income	1.158**	0.444	
	High income	0.382	0.370	
Wave 1				0.979
(Ref: Wave 2)	Low income	0.266	0.167	
	High income	0.059	0.118	
Age				4.027*
(Years, 25-74)	Low income	-0.039***	0.006	
	High income	-0.022***	0.006	
Women				1.265
(Ref: Men)	Low income	0.083	0.128	
	High income	-0.097	0.104	
Cohabitation				0.032
(Ref: Living alone)	Low income	0.028	0.130	
	High income	-0.008	0.155	
Non-Hispanic white				2.033
(Ref: Person of color)	Low income	0.928***	0.183	
	High income	0.557**	0.189	
Education				2.435
(Years, 0-24)	Low income	0.121***	0.030	
	High income	0.177***	0.021	
Has children				0.247
(0=no/1=yes)	Low income	0.238	0.136	
	High income	0.153	0.109	
Inequality				6.471*
(1-4)	Low income	1.251***	0.127	
	High income	0.838***	0.105	
Has a mental health condition				0.020
(0=no/1=yes)	Low income	1.128***	0.161	
	High income	1.096***	0.154	
Has a chronic health condition				0.624
(0=no/1=yes)	Low income	0.431**	0.147	
	High income	0.576***	0.112	
Constant				
	Low income	6.81***	0.481	
	High income	7.569***	0.444	
Quality of life (0-10) ←				
Negative work to family spillover				0.176
(4-20)	Low income	-0.052***	0.008	
	High income	-0.057***	0.006	
Perceived job security (Ref: Excellent)				
Very good				0.117
	Low income	-0.011	0.050	
	High income	-0.032	0.037	
Good				1.514

	Low income	-0.149*	0.071	
	High income	-0.039	0.055	
Fair				0.611
	Low income	-0.238*	0.113	
	High income	-0.119	0.101	
Poor				0.019
	Low income	-0.174	0.128	
	High income	-0.149	0.124	
Wave 1				15.919***
(Ref: Wave 2)	Low income	0.237***	0.070	
	High income	-0.095*	0.045	
Age				1.264
(Years, 25-74)	Low income	-0.005*	0.002	
	High income	-0.002	0.002	
Women				0.417
(Ref: Men)	Low income	0.001	0.041	
	High income	0.034	0.028	
Cohabitation				1.264
(Ref: Living alone)	Low income	0.248***	0.045	
	High income	0.172***	0.049	
Non-Hispanic white				2.686
(Ref: Person of color)	Low income	0.072	0.059	
	High income	-0.052	0.048	
Education				0.075
(Years, 0-24)	Low income	0.037***	0.009	
	High income	0.034***	0.006	
Has children				7.404**
(0=no/1=yes)	Low income	-0.17***	0.044	
	High income	-0.022	0.032	
Inequality				4.936*
(1-4)	Low income	-0.635***	0.047	
	High income	-0.503***	0.036	
Has a mental health condition				2.399
(0=no/1=yes)	Low income	-0.427***	0.057	
	High income	-0.311***	0.048	
Has a chronic health condition				2.325
(0=no/1=yes)	Low income	-0.142**	0.046	
	High income	-0.058	0.031	
χ^2, df(29)[b]	62.243***			
LR	537.500***			
RMSEA	0.056			
CFI	0.929			

Notes: b=unstandardized beta coefficients, SE=standard error, χ^2=chi-squared value, df=degrees of freedom, N=number of observations, clusters=number of clusters on family identification variable used to compute robust standard errors, LR=likelihood ratio chi-square test of significance, RMSEA=root mean squared error of approximation, CFI=comparative fit index

[a] Test for group invariance of parameters (Wald test)

[b] Joints test of invariance for parameter class of structural coefficients (Wald test)

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Clusters: 3183

Table 6.6 Conditional Relationship Between Perceived Job Insecurity and Quality of Life, Mediated by Negative Work to Family Spillover of Stress, Grouped by Social Support at Work Split at Median of 10, MIDUS 1&2, 1995-2005 (N=4,755)

		Model 1		Wald
Variable		**b**	**SE**	**χ^2, df(1)[a]**
Structural				
Negative work to family spillover (4-20) ←				
Perceived job security (Ref: Excellent)				
Very good				0.042
	Low support	0.275	0.156	
	High support	0.235*	0.120	
Good				3.123
	Low support	0.384	0.215	
	High support	0.896***	0.190	
Fair				0.115
	Low support	0.949**	0.315	
	High support	1.094***	0.292	
Poor				0.463
	Low support	0.955*	0.384	
	High support	0.556	0.445	
Wave 1				1.629
(Ref: Wave 2)	Low support	-0.049	0.137	
	High support	-0.357	0.198	
Age				2.636
(Years, 25-74)	Low support	-0.039***	0.007	
	High support	-0.026***	0.005	
Women				0.190
(Ref: Men)	Low support	0.041	0.132	
	High support	-0.028	0.099	
Cohabitation				0.674
(Ref: Living alone)	Low support	-0.196	0.171	
	High support	-0.021	0.127	
Non-Hispanic white				0.165
(Ref: Person of color)	Low support	0.639**	0.218	
	High support	0.746***	0.159	
Education				1.756
(Years, 0-24)	Low support	0.171***	0.026	
	High support	0.127***	0.023	
Household income (log)				0.046
(0-$300,000)	Low support	0.433***	0.105	
	High support	0.461***	0.078	
Has children				0.454
(0=no/1=yes)	Low support	0.293*	0.145	
	High support	0.176	0.102	
Inequality				1.304
(1-4)	Low support	1.054***	0.126	
	High support	0.868***	0.109	
Has a mental health condition				1.134
(0=no/1=yes)	Low support	1.21***	0.171	
	High support	0.973***	0.145	
Has a chronic health condition				0.371
(0=no/1=yes)	Low support	0.586***	0.145	
	High support	0.475***	0.113	
Constant				
	Low support	3.377**	1.180	
	High support	2.874**	0.907	
Quality of life (0-10) ←				
Negative work to family spillover (4-20)				0.260
	Low support	-0.054***	0.009	
	High support	-0.060***	0.006	
Perceived job security (Ref: Excellent)				
Very good				0.788
	Low support	-0.000	0.054	

	High support	-0.057	0.035	
Good				0.064
	Low support	-0.084	0.074	
	High support	-0.107*	0.052	
Fair				0.523
	Low support	-0.244*	0.116	
	High support	-0.140	0.091	
Poor				0.046
	Low support	-0.150	0.137	
	High support	-0.188	0.108	
Wave 1				
(Ref: Wave 2)	Low support			
	High support			
Age				4.335
(Years, 25-74)	Low support	0.002	0.002	
	High support	-0.004**	0.001	
Women				1.630
(Ref: Men)	Low support	-0.016	0.045	
	High support	0.052	0.027	
Cohabitation				2.628
(Ref: Living alone)	Low support	0.292***	0.061	
	High support	0.175***	0.038	
Non-Hispanic white				1.100
(Ref: Person of color)	Low support	-0.051	0.069	
	High support	0.036	0.045	
Education				1.107
(Years, 0-24)	Low support	0.033***	0.009	
	High support	0.045***	0.006	
Household income (log)				3.747
(0-$300,000)	Low support	0.013	0.032	
	High support	0.088***	0.022	
Has children				2.450
(0=no/1=yes)	Low support	-0.018	0.050	
	High support	-0.110***	0.030	
Inequality				11.387**
(1-4)	Low support	-0.443***	0.047	
	High support	-0.647***	0.037	
Has a mental health condition				3.293
(0=no/1=yes)	Low support	-0.292***	0.065	
	High support	-0.439***	0.047	
Has a chronic health condition				3.698
(0=no/1=yes)	Low support	-0.023	0.050	
	High support	-0.135***	0.030	
χ^2, df(29)[b]	75.051***			
LR	607.470***			
RMSEA	0.060			
CFI	0.920			

Notes: b=unstandardized beta coefficients, SE=standard error, χ^2=chi-squared value, df=degrees of freedom, N=number of observations, clusters=number of clusters on family identification variable used to compute robust standard errors, LR=likelihood ratio chi-square test of significance, RMSEA=root mean squared error of approximation, CFI=comparative fit index

[a] Test for group invariance of parameters (Wald test)

[b] Joints test of invariance for parameter class of structural coefficients (Wald test)

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Clusters: 3066

Table 6.7 Conditional Relationship Between Perceived Job Insecurity and Quality of Life, Mediated by Negative Work to Family Spillover of Stress, Grouped by Social Support Outside of Work Split at Median of 3.25, MIDUS 1&2, 1995-2005 (N=3,786)

		Model 1		Wald
Variable		**b**	**SE**	**χ^2, df(1)[a]**
Structural				
Negative work to family spillover (4-20) ←				
Perceived job security (Ref: Excellent)				
Very good				0.587
	Low support	0.111	0.145	
	High support	0.280	0.163	
Good				0.461
	Low support	0.545**	0.194	
	High support	0.772**	0.273	
Fair				0.314
	Low support	1.058***	0.304	
	High support	0.780*	0.395	
Poor				0.852
	Low support	1.086*	0.434	
	High support	0.450	0.534	
Wave 1				0.117
(Ref: Wave 2)	Low support	0.066	0.140	
	High support	0.143	0.166	
Age				0.001
(Years, 25-74)	Low support	-0.022***	0.007	
	High support	-0.023***	0.007	
Women				2.675
(Ref: Men)	Low support	-0.315**	0.120	
	High support	-0.032	0.131	
Cohabitation				1.362
(Ref: Living alone)	Low support	0.261	0.364	
	High support	-0.400	0.432	
Non-Hispanic white				0.104
(Ref: Person of color)	Low support	0.815***	0.214	
	High support	0.916***	0.227	
Education				0.590
(Years, 0-24)	Low support	0.134***	0.025	
	High support	0.164***	0.029	
Household income (log)				0.211
(0-$300,000)	Low support	0.307**	0.097	
	High support	0.374***	0.111	
Has children				2.776
(0=no/1=yes)	Low support	0.340*	0.134	
	High support	0.009	0.146	
Inequality				0.409
(1-4)	Low support	0.750***	0.113	
	High support	0.877***	0.165	
Has a mental health condition				0.102
(0=no/1=yes)	Low support	1.028***	0.158	
	High support	1.116***	0.232	
Has a chronic health condition				0.891
(0=no/1=yes)	Low support	0.408**	0.131	
	High support	0.596***	0.147	
Constant				
	Low support	4.520***	1.164	
	High support	2.787*	1.337	
Quality of life (0-10) ←				
Negative work to family spillover (4-20)				1.721
	Low support	-0.052***	0.008	
	High support	-0.039***	0.007	
Perceived job security (Ref: Excellent)				
Very good				1.193

	Low support	0.018	0.043	
	High support	-0.049	0.043	
Good				1.410
	Low support	-0.003	0.060	
	High support	-0.106	0.062	
Fair				3.886
	Low support	-0.131	0.099	
	High support	0.150	0.102	
Poor				0.252
	Low support	-0.047	0.125	
	High support	-0.137	0.127	
Wave 1				56.087***
(Ref: Wave 2)	Low support	0.232***	0.056	
	High support	-0.392***	0.063	
Age				0.022
(Years, 25-74)	Low support	-0.002	0.002	
	High support	-0.002	0.002	
Women				0.542
(Ref: Men)	Low support	-0.053	0.034	
	High support	-0.019	0.031	
Cohabitation				0.569
(Ref: Living alone)	Low support	0.264**	0.098	
	High support	0.159	0.099	
Non-Hispanic white				0.674
(Ref: Person of color)	Low support	0.013	0.060	
	High support	-0.054	0.056	
Education				0.625
(Years, 0-24)	Low support	0.038***	0.007	
	High support	0.030***	0.007	
Household income (log)				0.260
(0-$300,000)	Low support	0.038	0.028	
	High support	0.057*	0.024	
Has children				0.049
(0=no/1=yes)	Low support	-0.002	0.039	
	High support	-0.014	0.035	
Inequality				3.203
(1-4)	Low support	-0.486***	0.041	
	High support	-0.371***	0.049	
Has a mental health condition				0.994*
(0=no/1=yes)	Low support	-0.363***	0.054	
	High support	-0.168**	0.060	
Has a chronic health condition				0.500
(0=no/1=yes)	Low support	-0.096*	0.039	
	High support	-0.044	0.035	
χ^2, df(29)[b]	117.384***			
LR	479.209***			
RMSEA	0.059			
CFI	0.905			

Notes: b=unstandardized beta coefficients, SE=standard error, χ^2=chi-squared value, df=degrees of freedom, N=number of observations, clusters=number of clusters on family identification variable used to compute robust standard errors, LR=likelihood ratio chi-square test of significance, RMSEA=root mean squared error of approximation, CFI=comparative fit index

[a] Test for group invariance of parameters (Wald test)

[b] Joints test of invariance for parameter class of structural coefficients (Wald test)

* p≤ 0.05, **p ≤ 0.01, ***p ≤ 0.001

Clusters: 2511

Table 6.8 Conditional Relationship Between Perceived Job Insecurity and Quality of Life, Mediated by Negative Work to Family Spillover of Stress, Grouped by Gender, MIDUS 1&2, 1995-2005 (N=5,113)

Variable		Model 1 b	SE	Wald χ^2, df(1)[a]
Structural				
Negative work to family spillover (4-20) ←				
Perceived job security (Ref: Excellent)				
Very good				0.053
	Men	0.238	0.140	
	Women	0.283*	0.131	
Good				0.786
	Men	0.569**	0.189	
	Women	0.823***	0.211	
Fair				0.199
	Men	1.188***	0.311	
	Women	0.994***	0.305	
Poor				0.039
	Men	0.842*	0.420	
	Women	0.960*	0.418	
Wave 1				0.458
(Ref: Wave 2)	Men	0.052	0.128	
	Women	0.179	0.135	
Age				1.932
(Years, 25-74)	Men	-0.036***	0.006	
	Women	-0.025***	0.006	
Cohabitation				11.204***
(Ref: Living alone)	Men	0.317*	0.154	
	Women	-0.382**	0.140	
Non-Hispanic white				0.075
(Ref: Person of color)	Men	0.708***	0.187	
	Women	0.634***	0.191	
Education				7.050**
(Years, 0-24)	Men	0.100***	0.024	
	Women	0.194***	0.026	
Household income (log)				0.062
(0-$300,000)	Men	0.472***	0.089	
	Women	0.503***	0.089	
Has children				3.369
(0=no/1=yes)	Men	0.346**	0.120	
	Women	0.030	0.124	
Inequality				0.020
(1-4)	Men	1.084***	0.117	
	Women	1.060***	0.116	
Has a mental health condition				0.227
(0=no/1=yes)	Men	1.181***	0.178	
	Women	1.071***	0.142	
Has a chronic health condition				0.004
(0=no/1=yes)	Men	0.529***	0.120	
	Women	0.518***	0.132	
Constant				
	Men	2.447*	1.012	
	Women	1.509	0.990	
Quality of life (0-10) ←				
Negative work to family spillover (4-20)				1.860
	Men	-0.084***	0.007	
	Women	-0.064***	0.007	

Perceived job security (Ref: Excellent)				
Very good				0.469
	Men	-0.010	0.046	
	Women	-0.052	0.040	
Good				1.362
	Men	-0.051	0.063	
	Women	-0.156*	0.064	
Fair				0.659
	Men	-0.246*	0.118	
	Women	-0.119	0.100	
Poor				3.438
	Men	-0.339*	0.138	
	Women	-0.008	0.113	
Wave 1				1.432
(Ref: Wave 2)	Men	0.064	0.056	
	Women	-0.029	0.054	
Age				2.309
(Years, 25-74)	Men	-0.005**	0.002	
	Women	-0.001	0.002	
Cohabitation				8.427**
(Ref: Living alone)	Men	0.305***	0.050	
	Women	0.116**	0.042	
Non-Hispanic white				12.344***
(Ref: Person of color)	Men	-0.135**	0.051	
	Women	0.121*	0.053	
Education				1.581
(Years, 0-24)	Men	0.030***	0.007	
	Women	0.043***	0.008	
Household income (log)				1.838
(0-$300,000)	Men	0.039	0.028	
	Women	0.090***	0.025	
Has children				4.360*
(0=no/1=yes)	Men	-0.020	0.037	
	Women	-0.130***	0.038	
Inequality				3.117
(1-4)	Men	-0.620***	0.041	
	Women	-0.520***	0.040	
Has a mental health condition				4.178*
(0=no/1=yes)	Men	-0.468***	0.062	
	Women	-0.311***	0.047	
Has a chronic health condition				0.657
(0=no/1=yes)	Men	-0.061	0.036	
	Women	-0.104**	0.039	
χ^2, df(29)[b]	90.549***			
LR	584.298***			
RMSEA	0.058			
CFI	0.927			

Notes: b=unstandardized beta coefficients, SE=standard error, χ^2=chi-squared value, df=degrees of freedom, N=number of observations, clusters=number of clusters on family identification variable used to compute robust standard errors, LR=likelihood ratio chi-square test of significance, RMSEA=root mean squared error of approximation, CFI=comparative fit index

[a] Test for group invariance of parameters (Wald test)

[b] Joints test of invariance for parameter class of structural coefficients (Wald test)

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Clusters: 3242

Table 6.9 Conditional Relationship Between Perceived Job Insecurity and Quality of Life, Mediated by Negative Work to Family Spillover of Stress, Grouped by Age Split at Median of 44 Years Old, MIDUS 1&2, 1995-2005 (N=5,113)

		Model 1		Wald
Variable		**b**	**SE**	**χ^2, df(1)[a]**
Structural				
Negative work to family spillover (4-20) ←				
Perceived job security (Ref: Excellent)				
Very good				0.238
	Younger	0.281*	0.116	
	Older	0.179	0.172	
Good				1.317
	Younger	0.808***	0.171	
	Older	0.462	0.246	
Fair				0.623
	Younger	0.923***	0.261	
	Older	1.285***	0.375	
Poor				0.910
	Younger	0.719*	0.365	
	Older	1.304**	0.495	
Wave 1				0.381
(Ref: Wave 2)	Younger	-0.017	0.112	
	Older	0.123	0.196	
Women				5.923*
(Ref: Men)	Younger	-0.149	0.101	
	Older	0.257	0.137	
Cohabitation				0.005
(Ref: Living alone)	Younger	-0.084	0.128	
	Older	-0.099	0.176	
Non-Hispanic white				0.346
(Ref: Person of color)	Younger	0.624***	0.162	
	Older	0.791***	0.232	
Education				0.065
(Years, 0-24)	Younger	0.149***	0.022	
	Older	0.140***	0.028	
Household income (log)				9.333**
(0-$300,000)	Younger	0.336***	0.078	
	Older	0.741***	0.108	
Has children				0.000
(0=no/1=yes)	Younger	0.179	0.103	
	Older	0.181	0.194	
Inequality				5.513*
(1-4)	Younger	0.969***	0.095	
	Older	1.385***	0.151	
Has a mental health condition				0.023
(0=no/1=yes)	Younger	1.103***	0.138	
	Older	1.139***	0.189	
Has a chronic health condition				2.324
(0=no/1=yes)	Younger	0.418***	0.103	
	Older	0.719***	0.168	
Constant				
	Younger	3.070***	0.848	
	Older	-3.386**	1.183	
Quality of life (0-10) ←				
Negative work to family spillover (4-20)				4.797*
	Younger	-0.063***	0.006	
	Older	-0.040***	0.009	
Perceived job security (Ref: Excellent)				
Very good				1.557
	Younger	-0.005	0.036	
	Older	-0.087	0.055	
Good				0.181
	Younger	-0.087	0.054	

	Older	-0.127	0.076	
Fair				3.226
	Younger	-0.096	0.083	
	Older	-0.399**	0.148	
Poor				0.006
	Younger	-0.148	0.095	
	Older	-0.162	0.164	
Wave 1				0.042
(Ref: Wave 2)	Younger	0.014	0.052	
	Older	-0.004	0.070	
Women				0.042
(Ref: Men)	Younger	0.016	0.028	
	Older	0.005	0.042	
Cohabitation				8.024**
(Ref: Living alone)	Younger	0.265***	0.039	
	Older	0.071	0.056	
Non-Hispanic white				0.05
(Ref: Person of color)	Younger	-0.002	0.043	
	Older	0.016	0.070	
Education				4.185*
(Years, 0-24)	Younger	0.043***	0.006	
	Older	0.021*	0.009	
Household income (log)				0.036
(0-$300,000)	Younger	0.063**	0.022	
	Older	0.071*	0.033	
Has children				0.062
(0=no/1=yes)	Younger	-0.063*	0.030	
	Older	-0.081	0.064	
Inequality				6.571*
(1-4)	Younger	-0.611***	0.034	
	Older	-0.450***	0.052	
Has a mental health condition				2.585
(0=no/1=yes)	Younger	-0.407***	0.047	
	Older	-0.281***	0.061	
Has a chronic health condition				0.79
(0=no/1=yes)	Younger	-0.105*	0.031	
	Older	-0.052	0.051	
χ^2, df(29)[b]	65.336***			
LR	487.714***			
RMSEA	0.053			
CFI	0.939			

Notes: b=unstandardized beta coefficients, SE=standard error, χ^2=chi-squared value, df=degrees of freedom, N=number of observations, clusters=number of clusters on family identification variable used to compute robust standard errors, LR=likelihood ratio chi-square test of significance, RMSEA=root mean squared error of approximation, CFI=comparative fit index

[a] Test for group invariance of parameters (Wald test)

[b] Joints test of invariance for parameter class of structural coefficients (Wald test)

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Clusters: 3242

Table 6.10 Conditional Relationship Between Perceived Job Insecurity and Quality of Life, Mediated by Negative Work to Family Spillover of Stress, Grouped by Wave, MIDUS 1&2, 1995-2005 (N=5,113)

Variable		Model 1 b	SE	Wald χ^2, df(1)[a]
Structural				
Negative work to family spillover (4-20) ←				
Perceived job security (Ref: Excellent)				
Very good				0.367
	Wave 1: 1995	0.292**	0.108	
	Wave 2: 2005	0.155	0.200	
Good				2.196
	Wave 1: 1995	0.637***	0.153	
	Wave 2: 2005	1.172***	0.330	
Fair				0.663
	Wave 1: 1995	1.189***	0.254	
	Wave 2: 2005	0.818*	0.380	
Poor				0.119
	Wave 1: 1995	0.854*	0.335	
	Wave 2: 2005	1.093	0.607	
Age				2.464
(Years, 25-74)	Wave 1: 1995	-0.026***	0.004	
	Wave 2: 2005	-0.041***	0.009	
Women				0.513
(Ref: Men)	Wave 1: 1995	-0.047	0.088	
	Wave 2: 2005	0.073	0.159	
Cohabitation				0.198
(Ref: Living alone)	Wave 1: 1995	-0.091	0.114	
	Wave 2: 2005	-0.196	0.214	
Non-Hispanic white				0.200
(Ref: Person of color)	Wave 1: 1995	0.718***	0.146	
	Wave 2: 2005	0.585*	0.269	
Education				12.329***
(Years, 0-24)	Wave 1: 1995	0.174***	0.019	
	Wave 2: 2005	0.049	0.032	
Household income (log)				1.424
(0-$300,000)	Wave 1: 1995	0.433***	0.070	
	Wave 2: 2005	0.613***	0.135	
Has children				0.033
(0=no/1=yes)	Wave 1: 1995	0.246**	0.093	
	Wave 2: 2005	0.203	0.223	
Inequality				0.022
(1-4)	Wave 1: 1995	1.071***	0.089	
	Wave 2: 2005	1.044***	0.170	
Has a mental health condition				0.000
(0=no/1=yes)	Wave 1: 1995	1.081***	0.127	
	Wave 2: 2005	1.076***	0.211	
Has a chronic health condition				0.057
(0=no/1=yes)	Wave 1: 1995	0.546***	0.100	
	Wave 2: 2005	0.497**	0.181	
Constant				
	Wave 1: 1995	2.314**	0.794	
	Wave 2: 2005	2.282	1.566	
Quality of life (0-10) ←				
Negative work to family spillover (4-20)				42.086***
	Wave 1: 1995	-0.082***	0.006	
	Wave 2: 2005	0.005	0.012	
Perceived job security (Ref: Excellent)				
Very good				2.039
	Wave 1: 1995	-0.080*	0.031	

	Wave 2: 2005	0.032	0.073	
Good				4.859*
	Wave 1: 1995	-0.189***	0.045	
	Wave 2: 2005	0.077	0.111	
Fair				0.010
	Wave 1: 1995	-0.210**	0.077	
	Wave 2: 2005	-0.229	0.179	
Poor				0.191
	Wave 1: 1995	-0.275***	0.080	
	Wave 2: 2005	-0.168	0.232	
Age				1.942
(Years, 25-74)	Wave 1: 1995	-0.004**	0.001	
	Wave 2: 2005	0.001	0.003	
Women				9.145**
(Ref: Men)	Wave 1: 1995	0.078**	0.025	
	Wave 2: 2005	-0.108	0.056	
Cohabitation				7.306**
(Ref: Living alone)	Wave 1: 1995	0.267***	0.034	
	Wave 2: 2005	0.032	0.080	
Non-Hispanic white				1.745
(Ref: Person of color)	Wave 1: 1995	-0.013	0.038	
	Wave 2: 2005	0.125	0.098	
Education				16.074***
(Years, 0-24)	Wave 1: 1995	0.048***	0.005	
	Wave 2: 2005	-0.005	0.012	
Household income (log)				5.063*
(0-$300,000)	Wave 1: 1995	0.094***	0.019	
	Wave 2: 2005	-0.021	0.047	
Has children				0.468
(0=no/1=yes)	Wave 1: 1995	-0.077**	0.027	
	Wave 2: 2005	-0.018	0.082	
Inequality				134.36***
(1-4)	Wave 1: 1995	-0.781***	0.030	
	Wave 2: 2005	-0.007	0.059	
Has a mental health condition				23.055***
(0=no/1=yes)	Wave 1: 1995	-0.488***	0.041	
	Wave 2: 2005	-0.044	0.082	
Has a chronic health condition				5.857*
(0=no/1=yes)	Wave 1: 1995	-0.149***	0.027	
	Wave 2: 2005	0.019	0.064	
χ^2, df(29)[b]	419.624			
LR	738.743***			
RMSEA	0.067			
CFI	0.917			

Notes: b=unstandardized beta coefficients, SE=standard error, χ^2=chi-squared value, df=degrees of freedom, N=number of observations, clusters=number of clusters on family identification variable used to compute robust standard errors, LR=likelihood ratio chi-square test of significance, RMSEA=root mean squared error of approximation, CFI=comparative fit index

[a] Test for group invariance of parameters (Wald test)

[b] Joints test of invariance for parameter class of structural coefficients (Wald test)

* p≤ 0.05, **p ≤ 0.01, ***p ≤ 0.001

Clusters: 3242

Figure 6.1 Distribution of Responses for Social Support at Work Scale, MIDUS 1&2, 1995-2005 (N=5,113)

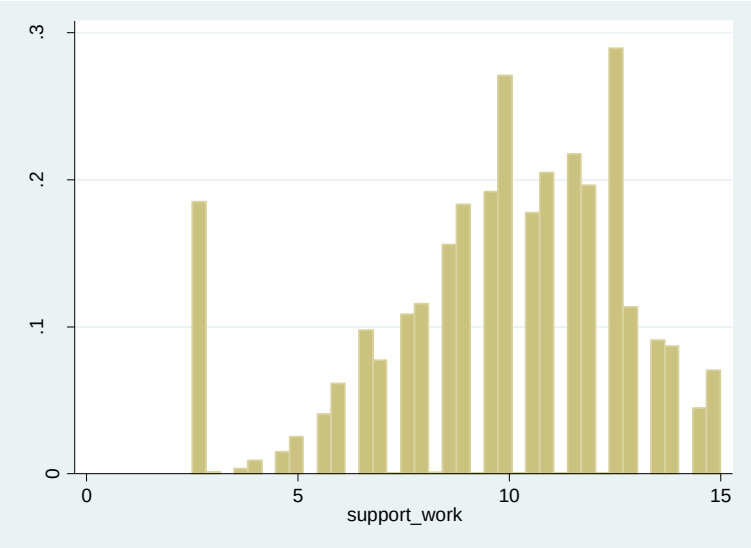


Figure 6.2a Distribution of Responses for Social Support from Coworkers, MIDUS 1&2, 1995-2005 (N=5,113)

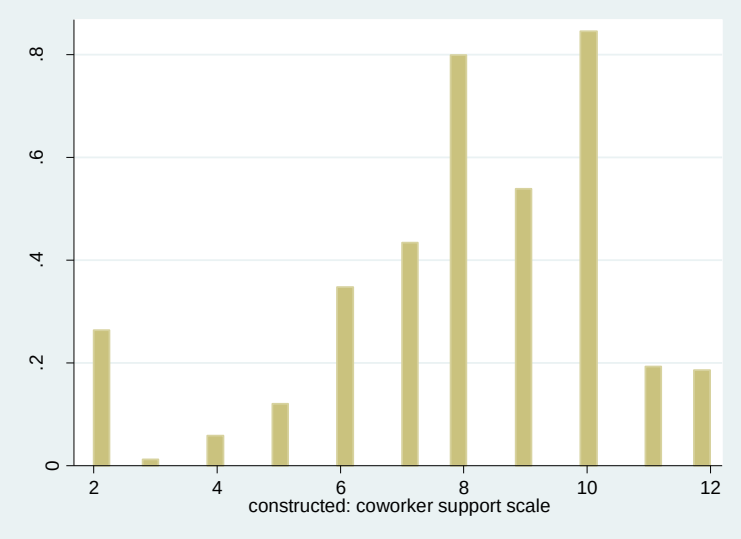
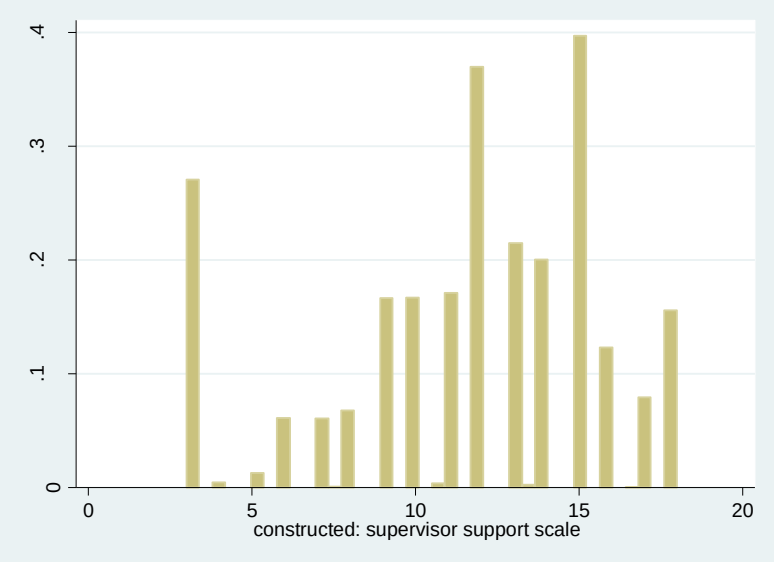


Figure 6.2b Distribution of Responses for Social Support from Supervisors, MIDUS 1&2, 1995-2005 (N=5,113)



REFERENCES

Acock, A. C. (2013). *Discovering structural equation modeling using Stata*. Stata Press books.

Acker, J. (2006). Inequality regimes gender, class, and race in organizations. *Gender & Society*, 20(4), 441-464.

Ahmed, P. I. (Ed.). (2012). Toward a new definition of health: psychosocial dimensions. *Springer Science & Business Media*.

Althaus, V., Kop, J.-L., & Grosjean, V. (2013). Critical review of theoretical models linking work environment, stress and health: towards a meta-model. *Le travail humain*, 76, 81-103.

American Psychological Association. (2007). Stress in America 2007. Retrieved from www.apa.org/pubs/info/reports/2007-stress.doc

American Psychological Association. (2009). Stress in America 2009. Retrieved from http://www.apa.org/news/press/releases/stress-exec-summary.pdf

Andrews, F. M., & Withey, S. B. (2012). Social indicators of well-being: Americans' perceptions of life quality. *Springer Science & Business Media*.

Aneshensel, C. S. (2015). Sociological Inquiry into Mental Health The Legacy of Leonard I. Pearlin. *Journal of health and social behavior*, 0022146515583992.

Aneshensel, C. S. (1992). Social stress: Theory and research. *Annual review of sociology*, 15-38.

Aneshensel, C. S., & Avison, W. R. (2015). The Stress Process An Appreciation of Leonard I. Pearlin. *Society and Mental Health*, 5(2), 67-85.

Aneshensel, C. S., & Mitchell, U. A. (2014). The stress process: its origins, evolution, and future. In *Sociology of Mental Health* (pp. 53-74). Springer International Publishing.

Aneshensel, C.S. (1992). Social stress: Theory and research. Annual review of sociology, 15-38.

Aneshensel, C.S. (2009). Toward explaining mental health disparities. *Journal of Health and Social Behavior,* 50, 377-394.

Aneshensel, C.S., Phelan, J.C., & Bierman, A. (2013). *Handbook of the sociology of mental health*: Springer.

Aneshensel, C.S., Rutter, C.M., & Lachenbruch, P.A. (1991). Social structure, stress, and mental health: Competing conceptual and analytic models. *American sociological review,* 166-178.

Ashford, S.J., Lee, C., & Bobko, P. (1989). Content, cause, and consequences of job insecurity: A theory-based measure and substantive test. *Academy of Management Journal,* 32, 803-829.

Auer, P. (2007). *Security in labour markets: Combining flexibility with security for decent work*. Internat. Labour Office.

Bakker, A. B., Killmer, C. H., Siegrist, J., & Schaufeli, W. B. (2000). Effort–reward imbalance and burnout among nurses. *Journal of advanced nursing*, 31(4), 884-891.

Bakker, A.B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of managerial psychology*, 22, 309-328.

Baughman, R., DiNardi, D., & Holtz-Eakin, D. (2003). Productivity and wage effects of "family-friendly" fringe benefits. *International Journal of Manpower*, 24(3), 247-259.

Benach, J., & Muntaner, C. (2007). Precarious employment and health: developing a research agenda. *Journal of epidemiology and community health,* 61, 276-277.

Benach, J., Muntaner, C., & Santana, V. (2007). Employment conditions and health inequalities: Final report to the WHO Commission on Social Determinants of Health. Employment

Conditions Knowledge Network (EMCONET). Accessed 9/15/2013 from: http://www.who.int/social_determinants/resources/articles/emconet_who_report.pdf

Berntson, E., Bernhard-Oettel, C., & De Cuyper, N. (2007). The moderating role of employability in the relationship between organizational changes and job insecurity. In The XIIIth European Congress of Work, Stockholm, May 9-12, 2007.

Berntson, E., Sverke, M., & Marklund, S. (2006). Predicting perceived employability: human capital or labour market opportunities?. *Economic and Industrial Democracy*, 27(2), 223-244.

Bertram, E. (2013). Doors, Floors, Ladders, and Nets Social Provision in the New American Labor Market. *Politics & Society*, 41(1), 29-72.

Bhui, K.S., Dinos, S., Stansfeld, S.A., & White, P.D. (2012). A synthesis of the evidence for managing stress at work: a review of the reviews reporting on anxiety, depression, and absenteeism. *Journal of environmental and public health*, 2012.

Blanchflower, D. G., & Oswald, A. J. (1999). Well-being, insecurity and the decline of American job satisfaction. *NBER working paper*, 7487.

Bohle, P., Quinlan, M., & Mayhew, C. (2001). The health and safety effects of job insecurity: An evaluation of the evidence. *The Economic and Labour Relations Review*, 12, 32-60.

Bohle, P., Quinlan, M., Kennedy, D., & Williamson, A. (2004). Working hours, work-life conflict and health in precarious and" permanent" employment. *Revista de saúde pública*, 38, 19-25.

Bollen, K. A. (2014). *Structural equations with latent variables*. John Wiley & Sons.

Borg, I., & Elizur, D. (1992). Job insecurity: Correlates, moderators and measurement. *International Journal of Manpower*, 13, 13-26.

Bowling, A. (1991). *Measuring health: a review of quality of life measurement scales*: Open University Press Buckingham Philadelphia.

Brand, J. E. (2004). Enduring Effects of Job Displacement on Career Outcomes (Doctoral dissertation, University of Wisconsin--Madison).

Brand, J. E. (2006). The effects of job displacement on job quality: Findings from the Wisconsin Longitudinal Study. *Research in Social Stratification and Mobility*, 24(3), 275-298.

Braveman, P. (2006). Health disparities and health equity: Concepts and measurement. *Annual Review of Public Health*, 27(1), 167-194.

Brim, O. G., Baltes, P. B., Bumpass, L. L., Cleary, P. D., Featherman, D. L., Hazzard, W. R., & Shweder, R. A. (2010). *National survey of midlife development in the united states (MIDUS), 1995–1996*. Inter-university Consortium for Political and Social Research. Ann Arbor, MI.

Brim, O. G., Baltes, P. B., Bumpass, L. L., Ryff, C. D., Cleary, P. D., Kessler, R. C., ... & Marmot, M. G. (1996). *National survey of midlife development in the United States (MIDUS), 1995–1996 [MRDF]*. Cambridge, MA: Harvard Medical School, Dept. of Health Care Policy [producer]. Ann Arbor, MI: Inter-University Consortium [distributor].

Brim, O. G., Ryff, C. D., & Kessler, R. C. (2004). *The MIDUS National Survey: An Overview*. University of Chicago Press.

Burchell, B. (2011). A temporal comparison of the effects of unemployment and job insecurity on wellbeing. *Sociological Research Online*, 16, 9.

Burgard, S. A., Brand, J. E., & House, J. S. (2009). Perceived job insecurity and worker health in the United States. Social science & medicine, 69(5), 777-785.

Burgard, S.A., Brand, J.E., & House, J.S. (2009). Perceived job insecurity and worker health in the United States. *Social Science & Medicine*, 69, 777-785.

Burgard, S.A., Kalousova, L., & Seefeldt, K.S. (2012). Perceived Job Insecurity and Health: The Michigan Recession and Recovery Study. *Journal of occupational and environmental medicine*, 54, 1101-1106.

Burkholder, G. J., & Harlow, L. L. (2003). An illustration of a longitudinal cross-lagged design for larger structural equation models. *Structural Equation Modeling*, 10(3), 465-486.

Burnham, K. P., & Anderson, D. R. (2004). Multimodel inference understanding AIC and BIC in model selection. *Sociological methods & research*, 33(2), 261-304.

Bussing, A. (1999). Can control at work and social support moderate psychological consequences of job insecurity? Results from a quasi-experimental study in the steel industry. *European Journal of Work and Organizational Psychology*, 8(2), 219-242.

Byrne, B. M. (2006). *Structural equation modeling with EQS: Basic concepts, applications, and programming.* Mahwah, NJ: Lawrence Erlbaum Associates.

Caplan, R.D. (1987). Person-environment fit theory and organizations: Commensurate dimensions, time perspectives, and mechanisms. *Journal of Vocational Behavior*, 31, 248-267.

Caroli, E., & Godard, M. (2014). Does job insecurity deteriorate health? A causal approach for Europe.

Cella, D. F. (1994). Quality of life: concepts and definition. *Journal of pain and symptom management*, 9(3), 186-192.

Centers for Disease Control and Prevention (2011). Health-Related Quality of Life. Accessed from: http://www.cdc.gov/hrqol/concept.htm

Chen, Q., Gelman, A., Tracy, M., Norris, F. H., & Galea, S. (2015). Incorporating the sampling design in weighting adjustments for panel attrition. *Statistics in medicine*, 34(28), 3637-3647.

Clark, A., & Postel-Vinay, F. (2009). Job security and job protection. Oxford Economic Papers, 61(2), 207-239.

Clark, S. C. (2000). Work/family border theory: A new theory of work/family balance. *Human relations*, 53(6), 747-770.

Clay-Warner, J., Hegtvedt, K.A., & Roman, P. (2005). Procedural justice, distributive justice: How experiences with downsizing condition their impact on organizational commitment. *Social Psychology Quarterly*, 68, 89-102.

Clays, E., De Bacquer, D., Leynen, F., Kornitzer, M., Kittel, F., & De Backer, G. (2007). Job stress and depression symptoms in middle-aged workers—prospective results from the Belstress study. *Scandinavian Journal of Work, Environment & Health*, 252-259.

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological bulletin*, 98(2), 310.

Cooper, C., Dewe, P., & O'Driscoll, M. (2013). *Theories of psychological stress at work*.

Cooper, C.L., Dewe, P.J., & O'Driscoll, M.P. (2001). *Organizational stress: A review and critique of theory, research, and applications:* Sage.

Curtis, S., & Lucas, R. (2001). A coincidence of needs? Employers and full-time students. *Employee relations*, 23(1), 38-54.

D'Souza, R.M., Strazdins, L., Broom, D.H., Rodgers, B., & Berry, H.L. (2006). Work demands, job insecurity and sickness absence from work. how productive is the new, flexible labour force? *Australian and New Zealand journal of public health*, 30, 205-212.

Danna, K. (1999). Health and Well-Being in the Workplace: A Review and Synthesis of the Literature. *Journal of management*, 25, 357-384.

De Cuyper, N., & De Witte, H. (2007). Job insecurity in temporary versus permanent workers: Associations with attitudes, well-being, and behaviour. *Work & stres*s, 21, 65-84.

De Cuyper, N., & De Witte, H. (2008). Job insecurity and employability among temporary workers: A theoretical approach based on the psychological contract. The individual in the changing working life, 88-107.

de Jonge, J., Bosma, H., Peter, R., & Siegrist, J. (2000). Job strain, effort-reward imbalance and employee well-being: a large-scale cross-sectional study. *Social science & medicine*, 50(9), 1317-1327.

De Jonge, J., van der Linden, S., Schaufeli, W., Peter, R., & Siegrist, J. (2008). Factorial invariance and stability of the effort-reward imbalance scales: A longitudinal analysis of two samples with different time lags. *International Journal of Behavioral Medicine*, 15, 62-72.

De Witte, H. (2005). Job insecurity: Review of the international literature on definitions, prevalence, antecedents and consequences. *SA Journal of Industrial Psychology*, 31.

De Witte, H., & Näswall, K. (2003). Objective vs 'Subjective' Job Insecurity: Consequences of Temporary Work for Job Satisfaction and Organizational Commitment in Four European Countries. *Economic and Industrial Democracy*, 24, 149-188.

DeFrank, R.S., & Ivancevich, J.M. (1998). Stress on the job: An executive update. *The Academy of Management Executive*, 12, 55-66.

del Río, C., & Alonso-Villar, O. (2015). The Evolution of Occupational Segregation in the United States, 1940–2010: Gains and Losses of Gender–Race/Ethnicity Groups. *Demography*, 52, 967-988.

Demerouti, E., Bakker, A.B., Nachreiner, F., & Schaufeli, W.B. (2000). A model of burnout and life satisfaction amongst nurses. *Journal of advanced nursing*, 32, 454-464.

Demerouti, E., Bakker, A.B., Nachreiner, F., & Schaufeli, W.B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, 86, 499.

Dewe, P.J., & O'Driscoll, M.P. (2012). Theories of Psychological Stress at Work. *Handbook of Occupational Health and Wellness* pp. 23-38): Springer.

Diener, E. D., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of personality assessment*, 49(1), 71-75.

Diener, E., Inglehart, R., & Tay, L. (2013). Theory and validity of life satisfaction scales. *Social Indicators Research*, 112(3), 497-527.

Dobrow Riza, S., Ganzach, Y., & Liu, Y. (2015). Time and job satisfaction: a longitudinal study of the differential roles of age and tenure. Journal of Management.

Donnelly, P.G. (1982). The origins of the Occupational Safety and Health Act of 1970. *Social Problems*, 13-25.

Drobnič, S., Beham, B., & Präg, P. (2010). Good job, good life? Working conditions and quality of life in Europe. *Social Indicators Research*, 99, 205-225.

Drotar, D. (2014). Measuring health-related quality of life in children and adolescents: implications for research and practice. Psychology Press.

Erlinghagen, M. (2008). Self-perceived job insecurity and social context: A multi-level analysis of 17 European countries. *European Sociological Review*,24(2), 183-197.

Ernst Kossek, E., & Ozeki, C. (1998). Work–family conflict, policies, and the job–life satisfaction relationship: A review and directions for organizational behavior–human resources research. *Journal of Applied Psychology*, 83, 139.

Farber, H. S. (2015). Job Loss in the Great Recession and it Aftermath: US Evidence from the Displaced Workers Survey (No. 589). Working Paper.

Felce, D., & Perry, J. (1995). Quality of life: Its definition and measurement. *Research in developmental disabilities*, 16(1), 51-74.

Ferrie, J. E. (2001). Is job insecurity harmful to health?. *Journal of the royal society of medicine*, 94(2), 71.

Ferrie, J. E., Shipley, M. J., Marmot, M. G., Stansfeld, S., & Smith, G. D. (1995). Health effects of anticipation of job change and non-employment: longitudinal data from the Whitehall II study. *BMJ*, 311(7015), 1264-1269.

Ferrie, J.E. (2001). Is job insecurity harmful to health? *Journal of the Royal Society of Medicine*, 94, 71.

Ferrie, J.E., Shipley, M.J., Newman, K., Stansfeld, S.A., & Marmot, M. (2005). Self-reported job insecurity and health in the Whitehall II study: potential explanations of the relationship. *Social Science & Medicine*, 60, 1593-1602.

Ferrie, J.E., Shipley, M.J., Stansfeld, S.A., & Marmot, M.G. (2002). Effects of chronic job insecurity and change in job security on self reported health, minor psychiatric morbidity, physiological measures, and health related behaviours in British civil servants: the Whitehall II study. *Journal of epidemiology and community health*, 56, 450-454.

Fleeson, W. (2004). The quality of American life at the end of the century. How healthy are we, 252-272.

Gaunt, R., & Benjamin, O. (2007). Job insecurity, stress and gender: The moderating role of gender ideology. *Community, Work and Family*, 10(3), 341-355.

Geishecker, I. (2009). Perceived job insecurity and well-being revisited: Towards conceptual clarity. Available at SSRN 1506004.

Geurts, S. A., & Demerouti, E. (2003). Work/non-work interface: A review of theories and findings. *The handbook of work and health psychology*, 2, 279-312.

Gibson, M. (2014). Here's a Radical Way to End Vacation Email Overload. *TIME Magazine*.

Gill, T.M., & Feinstein, A.R. (1994). A critical appraisal of the quality of quality-of-life measurements. *JAMA: the journal of the American Medical Association*, 272, 619-626.

Glavin, P., & Schieman, S. (2014). Control in the Face of Uncertainty Is Job Insecurity a Challenge to the Mental Health Benefits of Control Beliefs?. *Social Psychology Quarterly*, 0190272514546698.

Glavin, P., Schieman, S., & Reid, S. (2011). Boundary-spanning work demands and their consequences for guilt and psychological distress. *Journal of Health and Social Behavior*, 52(1), 43-57.

Grandley, A. A. (2001). Family friendly policies: Organizational justice perceptions of need-based allocations. *Justice in the workplace: From theory to practice*, 2, 145.

Green, F. (2011). Unpacking the misery multiplier: How employability modifies the impacts of unemployment and job insecurity on life satisfaction and mental health. *Journal of health economics*, 30, 265-276.

Greenhalgh, L., & Rosenblatt, Z. (1984). Job insecurity: Toward conceptual clarity. *Academy of Management review*, 9(3), 438-448.

Greenhalgh, L., & Rosenblatt, Z. (2010). Evolution of research on job insecurity. *International Studies of Management & Organization*, 40(1), 6-19.

Greenhaus, J. H., & Powell, G. N. (2006). When work and family are allies: A theory of work-family enrichment. *Academy of management review*, 31(1), 72-92.

Greenhaus, J. H., Allen, T. D., & Spector, P. E. (2006). Health consequences of work-family conflict: The dark side of the work-family interface. *Research in occupational stress and well-being*, 5, 61-98.

Gregg, P. (1996). It takes two: employment polarisation in the OECD (No. dp0304). Centre for Economic Performance, LSE.

Gregson, T., & Wendell, J. (2011). Role Conflict, Role Ambiguity, Job Satisfaction And The Moderating Effect Of Job-Related Self-Esteem: A Latent Variable. *Journal of Applied Business Research (JABR)*, 10, 106-113.

Grusky, D. B., Ku, M. C., & Szelényi, S. (Eds.). (2001). Social stratification: Class, race, and gender in sociological perspective. Boulder, CO: Westview Press.

Grzywacz, J. G., & Marks, N. F. (2000). Reconceptualizing the work–family interface: An ecological perspective on the correlates of positive and negative spillover between work and family. *Journal of occupational health psychology*, 5(1), 111.

Grzywacz, J.G., & Bass, B.L. (2003). Work, Family, and Mental Health: Testing Different Models of Work-Family Fit. *Journal of Marriage and Family*, 65, 248-261.

Guillemin, F., Bombardier, C., & Beaton, D. (1993). Cross-cultural adaptation of health-related quality of life measures: literature review and proposed guidelines. *Journal of clinical epidemiology*, 46, 1417-1432.

Guyatt, G.H., Feeny, D.H., & Patrick, D.L. (1993). Measuring health-related quality of life. *Annals of internal medicine*, 118, 622-629.

Hackman, J.R., & Oldham, G.R. (1976). Motivation through the design of work: Test of a theory. *Organizational behavior and human performance*, 16, 250-279.

Hammen, C. (2005). Stress and depression. *Annu. Rev. Clin. Psychol*., 1, 293-319.

Hanratty, M., & Trzcinski, E. (2009). Who benefits from paid family leave? Impact of expansions in Canadian paid family leave on maternal employment and transfer income. *Journal of Population Economics*, 22(3), 693-711.

Härmä, M., Kompier, M.A., & Vahtera, J. (2006). Work-related stress and health—risks, mechanisms and countermeasures. *Scandinavian Journal of Work, Environment & Health*, 413-419.

Harrell, F. (2015). *Regression modeling strategies: with applications to linear models, logistic and ordinal regression, and survival analysis*. Springer.

Hauser, R. M., & Warren, J. R. (1996). A socioeconomic index for occupations in the 1990 Census. University of Wisconsin at Madison, Center for Demography and Ecology, Working paper, 96-01.

Häusser, J. A., Mojzisch, A., Niesel, M., & Schulz-Hardt, S. (2010). Ten years on: A review of recent research on the Job Demand–Control (-Support) model and psychological well-being. *Work & Stress*, 24(1), 1-35.

Hawe, P., & Shiell, A. (2000). Social capital and health promotion: a review. *Social science & medicine*, 51(6), 871-885.

Heaney, C.A., Israel, B.A., & House, J.S. (1994). Chronic job insecurity among automobile workers: Effects on job satisfaction and health. *Social Science & Medicine*, 38, 1431-1437.

Hershey, D. A., & Henkens, K. (2013). Impact of different types of retirement transitions on perceived satisfaction with life. *The Gerontologist*, gnt006.

Hillygus, D. S., & Snell, S. A. (2015). Longitudinal Surveys: Issues and Opportunities.

James, S. A., Hartnett, S. A., & Kalsbeek, W. D. (1983). John Henryism and blood pressure differences among black men. *Journal of behavioral medicine*, 6(3), 259-278.

Kalleberg, A. L. (1977). Work values and job rewards: A theory of job satisfaction. *American sociological review*, 124-143.

Kalleberg, A. L. (2000). Nonstandard employment relations: Part-time, temporary and contract work. *Annual review of sociology*, 341-365.

Kalleberg, A. L., & Marsden, P. V. (2013). Changing work values in the United States, 1973–2006. *Social science research*, 42(2), 255-270.

Kalleberg, A.L. (2009). Precarious work, insecure workers: employment relations in transition. *American Sociological Review*, 74:1-22.

Karasek Jr, R.A. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative science quarterly*, 285-308.

Karasek, R., & Theorell, T. (1990). Healthy work. Stress, productivity and the reconstruction of working life. New York: Basic Book Inc.

Kausto, J., Elo, A.-L., Lipponen, J., & Elovainio, M. (2005). Moderating effects of job insecurity in the relationships between procedural justice and employee well-being: Gender differences. *European Journal of Work and Organizational Psychology*, 14, 431-452.

Kawachi, I., & Berkman, L. F. (2001). Social ties and mental health. *Journal of Urban health,* 78(3), 458-467.

Kelly, E.L., & Moen, P. (2007). Rethinking the clockwork of work: Why schedule control may pay off at work and at home. *Advances in Developing Human Resources*, 9, 487-506.

Kim, I.-H., Muntaner, C., Vahid Shahidi, F., Vives, A., Vanroelen, C., & Benach, J. (2012). Welfare states, flexible employment, and health: a critical review. *Health policy*, 104, 99-127.

Kim, M.-H., Kim, C.-y., Park, J.-K., & Kawachi, I. (2008). Is precarious employment damaging to self-rated health? Results of propensity score matching methods, using longitudinal data in South Korea. *Social Science & Medicine,* 67, 1982-1994.

Kinnunen, U., Feldt, T., & Mauno, S. (2003). Job insecurity and self-esteem: evidence from cross-lagged relations in a 1-year longitudinal sample. *Personality and Individual Differences,* 35, 617-632.

Kirves, K., De Cuyper, N., Kinnunen, U., & Nätti, J. (2011). Perceived job insecurity and perceived employability in relation to temporary and permanent workers' psychological symptoms: a two samples study. *International archives of occupational and environmental health,* 84, 899-909.

Kivimäki, M., Nyberg, S.T., Batty, G.D., Fransson, E.I., Heikkilä, K., Alfredsson, L., et al. (2012). Job strain as a risk factor for coronary heart disease: a collaborative meta-analysis of individual participant data. *The Lancet*.

Kivimaki, M., Nyberg, S.T., Fransson, E.I., Heikkila, K., Alfredsson, L., Casini, A., et al. (2013). Associations of job strain and lifestyle risk factors with risk of coronary artery disease: a meta-analysis of individual participant data. *CMAJ,* 185, 763-769.

Klugman, J. & Gong, M. Combining Data Files. Indiana University. April 11, 2005.

Kobau, R., Bann, C., Lewis, M., Zack, M. M., Boardman, A. M., Boyd, R., ... & Thompson, W. (2013). Mental, social, and physical well-being in New Hampshire, Oregon, and Washington, 2010 Behavioral Risk Factor Surveillance System: implications for public health research and practice related to Healthy People 2020 foundation health measures on well-being. *Population health metrics*, 11(1), 1.

Kobau, R., Sniezek, J., Zack, M. M., Lucas, R. E., & Burns, A. (2010). Well-being assessment: An evaluation of well-being scales for public health and population estimates of well-being among US adults. *Applied Psychology: Health and Well-Being*, 2(3), 272-297.

Kofman, Y. (2015). The Hidden Social Costs of Precarious Employment: Parental Co-Residence, Marriage Timing, and Political Participation During Young Adulthood (Doctoral dissertation, Unviersity of California, Los Angeles).

Kuper, H., Singh-Manoux, A., Siegrist, J., & Marmot, M. (2002). When reciprocity fails: effort–reward imbalance in relation to coronary heart disease and health functioning within the Whitehall II study. *Occupational and Environmental Medicine*, 59, 777-784.

Kuyken, W., Orley, J., Power, M., Herrman, H., Schofield, H., & Murphy, B. (1995). The World Health Organization quality of life assessment (WHOQOL): position paper from the World Health Organization. *Soc Sci Med*, 41, 1403-1409.

Landsbergis, P. A. (1988). Occupational stress among health care workers: A test of the job demands-control model. *Journal of Organizational behavior*, 9(3), 217-239.

Larson, J. H., Wilson, S. M., & Beley, R. (1994). The impact of job insecurity on marital and family relationships. *Family Relations*, 138-143.

László, K. D., Pikhart, H., Kopp, M. S., Bobak, M., Pajak, A., Malyutina, S., Salavecz, G., & Marmot, M. (2010). Job insecurity and health: A study of 16 European countries. *Social science & medicine*, 70(6), 867-874.

László, K.D., Pikhart, H., Kopp, M.S., Bobak, M., Pajak, A., Malyutina, S., et al. (2010). Job insecurity and health: A study of 16 European countries. *Social Science & Medicine*, 70, 867-874.

Lazarus, R.S. (1966). Psychological stress and the coping process.

Lazarus, R.S., & Folkman, S. (1984). Stress, appraisal, and coping: Springer Publishing Company.

Lehr, D., Koch, S., & Hillert, A. (2010). Where is (im) balance? Necessity and construction of evaluated cut-off points for effort-reward imbalance and overcommitment. *Journal of Occupational and Organizational Psychology*, 83(1), 251-261.

Lester, G. (2005). Defense of Paid Family Leave, A. Harv. *JL & Gender*, 28, 1.

Lindeboom, M., & Kerkhofs, M. (2006). Subjective health measures, reporting errors and endogeneity in the relationship between health and work. Rome, University of Rome Tor Vergata, Centre for Economic and International Studies.

Lindner, P., Andersson, G., Öst, L. G., & Carlbring, P. (2013). Validation of the Internet-administered Quality of Life Inventory (QOLI) in different psychiatric conditions. *Cognitive Behaviour Therapy*, 42(4), 315-327.

Little, P. T. D. (2013). Longitudinal structural equation modeling. Guilford Press.

Lovell, V. (2004). No time to be sick: Why everyone suffers when workers don't have paid sick leave (pp. 4-14). Washington, DC: Institute for Women's Policy Research.

Lubke, G. H., Dolan, C. V., Kelderman, H., & Mellenbergh, G. J. (2003). On the relationship between sources of within-and between-group differences and measurement invariance in the common factor model. *Intelligence*, 31(6), 543-566.

Lundberg, U. (2006). Stress, subjective and objective health. *International journal of social welfare*, 15, S41-S48.

Marmot, M., & Wilkinson, R. (2009). Social determinants of health: Oxford University Press.

Marshall, N.L., Barnett, R.C., & Sayer, A. (1997). The changing workforce, job stress, and psychological distress. *Journal of Occupational Health Psychology*, 2, 99.

Mauno, S., & Kinnunen, U. (1999). Job insecurity and well-being: a longitudinal study among male and female employees in Finland. *Community, Work & Family,* 2(2), 147-171.

Mauno, S., & Kinnunen, U. (2002). Perceived job insecurity among dual-earner couples: Do its antecedents vary according to gender, economic sector and the measure used? *Journal of Occupational and Organizational Psychology*, 75, 295-314.

Mauno, S., Leskinen, E., & Kinnunen, U. (2001). Multi-wave, multi-variable models of job insecurity: applying different scales in studying the stability of job insecurity. *Journal of Organizational Behavior*, 22(8), 919-937.

Mauno, S., Ruokolainen, M., & Kinnunen, U. (2013). Does aging make employees more resilient to job stress? Age as a moderator in the job stressor–well-being relationship in three Finnish occupational samples. *Aging & Mental Health,* 17(4), 411-422.

McDonough, P. (2000). Job insecurity and health. *International Journal of Health Services*, 30, 453-476.

McEwen, B. S. (1998). Stress, adaptation, and disease: Allostasis and allostatic load. *Annals of the New York Academy of Sciences,* 840(1), 33-44.

McEwen, B.S., & Tucker, P. (2011). Critical biological pathways for chronic psychosocial stress and research opportunities to advance the consideration of stress in chemical risk assessment. *American Journal of Public Health*, 101(Supplement 1):S131-9.

McGuire, G. M., & Reskin, B. F. (1993). Authority hierarchies at work: The impacts of race and sex. *Gender & Society*, 7(4), 487-506.

McNamara, M., Bohle, P., & Quinlan, M. (2011). Precarious employment, working hours, work-life conflict and health in hotel work. *Applied Ergonomics*, 42, 225-232.

Mennino, S. F., Rubin, B. A., & Brayfield, A. (2005). Home-to-job and job-to-home spillover: The impact of company policies and workplace culture. *The Sociological Quarterly*, 46(1), 107-135.

Milfont, T. L., & Fischer, R. (2015). Testing measurement invariance across groups: Applications in cross-cultural research. *International Journal of psychological research*, 3(1), 111-130.

Mirowsky, J., & Ross, C. E. (2015). Education, Health, and the Default American Lifestyle. *Journal of health and social behavior*, 56(3), 297-306.

Mulatu, M.S., & Schooler, C. (2002). Causal connections between socio-economic status and health: reciprocal effects and mediating mechanisms. *Journal of Health and Social Behavior*, 43, 22-41.

Mutchler, J. E., Burr, J. A., Massagli, M. P., & Pienta, A. (1999). Work transitions and health in later life. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 54(5), S252-S261.

Mutchler, J. E., Burr, J. A., Pienta, A. M., & Massagli, M. P. (1997). Pathways to labor force exit: Work transitions and work instability. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 52(1), S4-S12.

Näswall, K., & De Witte, H. (2003). Who feels insecure in Europe? Predicting job insecurity from background variables. *Economic and Industrial Democracy*, 24(2), 189-215.

Naswall, K., Hellgren, J., & Sverke, M. (2008). The individual in the changing working life.

Näswall, K., Lindfors, P., & Sverke, M. (2012). Job insecurity as a predictor of physiological indicators of health in healthy working women: An extension of previous research. *Stress and Health*, 28, 255-263.

Naswall, K., Richter, A., Hellgren, J., & Sverke, M. (2011). Job Insecurity and Mental Health Complaints over Time: A Growth Curve Modelling Approach. *IOP 2011 Conference Proceedings* pp. 6-10).

National Center for Health Statistics. (2006). Estimates of the July 1, 2000-July 1, 2006, United States resident population from the Vintage 2006 postcensal series by year, county, age, sex, race, and Hispanic origin, prepared under a collaborative arrangement with the US Census Bureau. Available on the Internet from: http://www. cdc. gov/nchs/about/major/dvs/popbridge/popbridge. htm August, 16, 6.

National Institute for Occuptional Health and Safety. (2013). Stress at work. Retrieved from: http://www.cdc.gov/niosh/topics/stress/

Ostry, A. S., Kelly, S., Demers, P. A., Mustard, C., & Hertzman, C. (2003). A comparison between the effort-reward imbalance and demand control models. *BMC Public Health*, 3(1), 1.

Pearlin, L. I., & Bierman, A. (2013). Current issues and future directions in research into the stress process. In *Handbook of the sociology of mental health* (pp. 325-340). Springer Netherlands.

Pearlin, L. I., & Skaff, M. M. (1996). Stress and the life course: A paradigmatic alliance. *The Gerontologist*, 36(2), 239-247.

Pearlin, L. I., & Skaff, M. M. (1996). Stress and the life course: A paradigmatic alliance. *The Gerontologist*, 36(2), 239-247.

Pearlin, L. I., Aneshensel, C. S., & LeBlanc, A. J. (1997). The forms and mechanisms of stress proliferation: The case of AIDS caregivers. *Journal of Health and Social Behavior*, 223-236.

Pearlin, L.I., & Bierman, A. (2013). Current issues and future directions in research into the stress process. Handbook of the sociology of mental health pp. 325-340): Springer.

Pearlin, L.I., Menaghan, E.G., Lieberman, M.A., & Mullan, J.T. (1981). The stress process. *Journal of Health and Social Behavior*, 337-356.

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.

Pelfrene, E., Vlerick, P., Moreau, M., Mak, R.P., Kornitzer, M., & Backer, G. (2003). Perceptions of job insecurity and the impact of world market competition as health risks: results from Belstress. *Journal of Occupational and Organizational Psychology*, 76, 411-425.

Peters, M. L., Godaert, G. L., Ballieux, R. E., van Vliet, M., Willemsen, J. J., Sweep, F. C., & Heijnen, C. J. (1998). Cardiovascular and endocrine responses to experimental stress: effects of mental effort and controllability. *Psychoneuroendocrinology*, 23(1), 1-17.

Pfeffermann, D. (1993). The role of sampling weights when modeling survey data. *International Statistical Review/Revue Internationale de Statistique*, 317-337.

Piccoli, B., & De Witte, H. (2015). Job insecurity and emotional exhaustion: Testing psychological contract breach versus distributive injustice as indicators of lack of reciprocity. *Work & Stress*, 29(3), 246-263.

Price, R. H., & Burgard, S. A. (2008). The new employment contract and worker health in the United States. Making Americans healthier: Social and economic policy as health policy.

Qu, L., & de Vaus, D. (2015). Life satisfaction across life course transitions. *Journal of the Home Economics Institute of Australia*, 22(2), 15.

Quinlan, M., Mayhew, C., & Bohle, P. (2001). The global expansion of precarious employment, work disorganization, and consequences for occupational health: a review of recent research. *International Journal of Health Services*, 31, 335-414.

Quinlan, M., Mayhew, C., & Bohle, P. (2001). The global expansion of precarious employment, work disorganization, and consequences for occupational health: a review of recent research. *International Journal of Health Services*, 31(2), 335-414.

Radler, B. T., & Ryff, C. D. (2010). Who participates? Accounting for longitudinal retention in the MIDUS national study of health and well-being. *Journal of Aging and Health*, 22(3), 307-331.

Rau, R., Morling, K., & Rösler, U. (2010). Is there a relationship between major depression and both objectively assessed and perceived demands and control? *Work & stress*, 24, 88-106.

Reisel, W.D., & Banai, M. (2002). Comparison of a multidimensional and a global measure of job insecurity: Predicting job attitudes and work behaviors. *Psychological reports*, 90, 913-922.

Robbins, D. & Sangalang, C. (2013). Understanding and addressing missing data. Arizona State University Southwest Interdisciplinary Research Center.

Ross, C. E., & Mirowsky, J. (1995). Does employment affect health?. *Journal of Health and social Behavior*, 230-243.

Rydstedt, L. W., Devereux, J., & Sverke, M. (2007). Comparing and combining the demand-control-support model and the effort reward imbalance model to predict long-term mental strain. *European Journal of Work and Organizational Psychology*, 16(3), 261-278.

Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of personality and social psychology*, 57(6), 1069.

Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of personality and social psychology*, 69(4), 719.

Saam, N. J. (2010). Interventions in workplace bullying: A multilevel approach. European *Journal of Work and Organizational Psychology*, 19(1), 51-75.

Sauer, P. L., & Dick, A. (1993). Using Moderator Variables in Structural Equation Models. *Advances in consumer research*, 20(1).

Schieman, S., & Glavin, P. (2016). The Pressure-Status Nexus and Blurred Work–Family Boundaries. *Work and Occupations*, 43(1), 3-37.

Schieman, S., & Reid, S. (2009). Job authority and health: Unraveling the competing suppression and explanatory influences. *Social Science & Medicine*, 69, 1616-1624.

Schieman, S., Milkie, M. A., & Glavin, P. (2009). When work interferes with life: Work-nonwork interference and the influence of work-related demands and resources. *American Sociological Review*, 74(6), 966-988.

Schmidt, S. R. (1999). Long-Run Trends in Workers' Beliefs about Their Own Job Security: Evidence from the General Social Survey. *Journal of Labor Economics*, 17(S4), S127-S141.

Schuster, T. L., Kessler, R. C., & Aseltine Jr, R. H. (1990). Supportive interactions, negative interactions, and depressed mood. *American journal of community psychology*, 18(3), 423-438.

Siegrist, J. (1996). Adverse health effects of high-effort/low-reward conditions. *Journal of Occupational Health Psychology*, 1, 27.

Siegrist, J. (2004). Psychosocial work environment and health: new evidence. *Journal of epidemiology and community health*, 58, 888.

Siegrist, J. (2005). Social reciprocity and health: new scientific evidence and policy implications. *Psychoneuroendocrinology*, 30, 1033-1038.

Siegrist, J., & Marmot, M. (2004). Health inequalities and the psychosocial environment—two scientific challenges. *Social Science & Medicine*, 58, 1463-1473.

Siegrist, J., & Marmot, M. (2004). Health inequalities and the psychosocial environment—two scientific challenges. *Social science & medicine*, 58(8), 1463-1473.

Siegrist, J., & Rödel, A. (2006). Work stress and health risk behavior. *Scandinavian Journal of Work, Environment & Health*, 473-481.

Siegrist, J., & Rödel, A. (2006). Work stress and health risk behavior. *Scandinavian journal of work, environment & health*, 473-481.

Siegrist, J., Starke, D., Chandola, T., Godin, I., Marmot, M., Niedhammer, I., & Peter, R. (2004). The measurement of effort–reward imbalance at work: European comparisons. *Social science & medicine*, 58(8), 1483-1499.

Silla, I., Gracia, F.J., & Peiró, J.M. (2005). Job insecurity and health-related outcomes among different types of temporary workers. *Economic and Industrial Democracy*, 26, 89-117.

Sirgy, J. (2012). The psychology of quality of life: Hedonic well-being, life satisfaction, and eudaimonia (Vol. 50). *Springer Science & Business Media*.

Smith, K. W., Avis, N. E., & Assmann, S. F. (1999). Distinguishing between quality of life and health status in quality of life research: a meta-analysis. *Quality of life research*, 8(5), 447-459.

Standing, G. (2011). The precariat: The new dangerous class: A&C Black.

Stansfeld, S., & Candy, B. (2006). Psychosocial work environment and mental health—a meta-analytic review. *Scandinavian Journal of Work, Environment & Health*, 443-462.

Stansfeld, S.A., Shipley, M.J., Head, J., & Fuhrer, R. (2012). Repeated job strain and the risk of depression: longitudinal analyses from the Whitehall II Study. *American journal of public health*, 102, 2360-2366.

StataCorp. 2013. Stata Statistical Software: Release 13. College Station, TX: StataCorp LP.

Stone, K. V. (2000). New Psychological Contract: Implications of the Changing Workplace for Labor an Employment Law, The. *UCLA L. Rev.*, *48*, 519.

Strazdins, L., D'Souza, R. M., L-Y Lim, L., Broom, D. H., & Rodgers, B. (2004). Job strain, job insecurity, and health: rethinking the relationship. *Journal of occupational health psychology*, 9(4), 296.

Suresh, K., & Chandrashekara, S. (2012). Sample size estimation and power analysis for clinical research studies. *Journal of human reproductive sciences*, 5(1), 7.

Sverke, M., & Hellgren, J. (2002). The nature of job insecurity: Understanding employment uncertainty on the brink of a new millennium. *Applied psychology*, 51, 23-42.

Sverke, M., & Hellgren, J. (2002). The nature of job insecurity: Understanding employment uncertainty on the brink of a new millennium. *Applied Psychology*, 51(1), 23-42.

Sverke, M., Hellgren, J., & Näswall, K. (2002). No security: a meta-analysis and review of job insecurity and its consequences. *Journal of Occupational Health Psychology*, 7, 242.

Sverke, M., Hellgren, J., & Näswall, K. (2002). No security: a meta-analysis and review of job insecurity and its consequences. *Journal of occupational health psychology*, 7(3), 242.

Sverke, M., Hellgren, J., & Näswall, K. (2006). Job insecurity: A literature review.

Tarrant, T., & Sabo, C.E. (2010). Role conflict, role ambiguity, and job satisfaction in nurse executives. *Nursing administration quarterly*, 34, 72-82.

Theorell, T., & Karasek, R. (2000). 3. Stressors at the Workplace: Theoretical Models-The Demand-Control-Support Model and CVD Occup Med 15: 69-106, 2000. *Occupational Medicine-State of the Art Reviews*, 15(1), 69.

Thoits, P. A. (1991). On merging identity theory and stress research. Social psychology quarterly, 101-112.

Thoits, P. A. (1995). Stress, coping, and social support processes: Where are we? What next?. *Journal of health and social behavior*, 53-79.

Thoits, P. A. (2011). Mechanisms linking social ties and support to physical and mental health. *Journal of health and social behavior*, 52(2), 145-161.

Thoits, P.A. (2010). Stress and Health Major Findings and Policy Implications. *Journal of Health and Social Behavior*, 51, S41-S53.

Toossi, M. (2002). Century of change: The US labor force, 1950-2050, *A.Monthly Lab. Rev*., 125, 15.

Tsutsumi, A., & Kawakami, N. (2004). A review of empirical studies on the model of effort–reward imbalance at work: reducing occupational stress by implementing a new theory. *Social science & medicine*, 59(11), 2335-2359.

Turner, R.J., & Roszell, P. (1994). Psychosocial resources and the stress process. Stress and mental health: Contemporary issues and prospects for the future, 179-210.

U.S. Bureau of Labor Statistics. (2016). Current Population Survey Tables: Employment status of civilian noninstitutional population by age, sex, and race. Accessed 4/15/2016 at http://www.bls.gov/cps/tables.htm.

Van der Doef, M., & Maes, S. (1999). The job demand-control (-support) model and psychological well-being: a review of 20 years of empirical research. *Work & stress*, 13, 87-114.

Van Parijs, P. (2004). Basic income: a simple and powerful idea for the twenty-first century. *Politics & Society*, 32(1), 7-39.

van Vegchel, N. (2005). Two models at work: a study of interactions and specificity in relation to the Demand-Control Model and the Effort-Reward Imbalance Model.

Van Vegchel, N., de Jonge, J., Bakker, A., & Schaufeli, W. (2002). Testing global and specific indicators of rewards in the Effort-Reward Imbalance Model: Does it make any difference?. *European Journal of Work and Organizational Psychology*, 11(4), 403-421.

Virtanen, M., Kivimäki, M., Joensuu, M., Virtanen, P., Elovainio, M., & Vahtera, J. (2005). Temporary employment and health: a review. *International Journal of Epidemiology*, 34, 610-622.

Virtanen, M., Nyberg, S.T., Batty, G.D., Jokela, M., Heikkilä, K., Fransson, E.I., et al. (2013). Perceived job insecurity as a risk factor for incident coronary heart disease: systematic review and meta-analysis. *BMJ: British Medical Journal*, 347.

Virtanen, P., Janlert, U., & Hammarström, A. (2011). Exposure to temporary employment and job insecurity: a longitudinal study of the health effects. *Occupational and Environmental Medicine*, 68, 570-574.

Walen, Heather R., and Margie E. Lachman. "Social support and strain from partner, family, and friends: Costs and benefits for men and women in adulthood." *Journal of Social and Personal Relationships* 17.1 (2000): 5-30.

Wall, T. D., Jackson, P. R., Mullarkey, S., & Parker, S. K. (1996). The demands—control model of job strain: A more specific test. *Journal of Occupational and Organizational Psychology*, 69(2), 153-166.

Wheaton, B. (1994). Sampling the stress universe. Stress and mental health: Contemporary issues and prospects for the future, 77-114.

Wheaton, B., Young, M., Montazer, S., & Stuart-Lahman, K. (2013). Social Stress in the Twenty-First Century. *Handbook of the Sociology of Mental Health* pp. 299-323): Springer.

Williams, D. R. (1999). Race, socioeconomic status, and health the added effects of racism and discrimination. *Annals of the New York Academy of Sciences*, 896(1), 173-188.

Williams, D. R., & Mohammed, S. A. (2009). Discrimination and racial disparities in health: evidence and needed research. *Journal of behavioral medicine*, 32(1), 20-47.

World Health Organization (1948). Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948.

World Health Organization. (2014). WHO definition of health. WHO Website.

Wothke, W. (1998). Longitudinal and multi-group modeling with missing data. In T. D. Little, K. U. Schnabel, and J. Baumert [Eds.]. *Modeling longitudinal and multiple group data: Practical issues, applied approaches and specific examples*. Mahwah, NJ: Lawrence Erlbaum Publishers.

Yansaneh, I. S. (2005). Construction and use of sample weights. Designing Household Surveys Samples: Practical Guidelines.

Ylipaavalniemi, J., Kivimäki, M., Elovainio, M., Virtanen, M., Keltikangas-Järvinen, L., & Vahtera, J. (2005). Psychosocial work characteristics and incidence of newly diagnosed depression: a prospective cohort study of three different models. *Social Science & Medicine*, 61, 111-122.

Zeitinoglu, I. U., Zeytinoglu, I. U., Lillevik, W., Seaton, M. B., & Moruz, J. (2004). Part-time and casual work in retail trade: stress and other factors affecting the workplace. *Relations Industrielles/Industrial Relations*, 516-544.