EXPLORING THE IMPACTS OF SELF-COMPASSION AND PSYCHOLOGICAL FLEXIBILITY ON BURNOUT AND ENGAGEMENT AMONG ANIMAL SHELTER STAFF: A MODERATOR ANALYSIS OF THE JOB DEMANDS-RESOURCES FRAMEWORK AND A RANDOMIZED CONTROLLED FIELD TRIAL OF A BRIEF SELF-GUIDED ONLINE INTERVENTION

by

Mallory Forman Fiery

A dissertation submitted to the faculty of
The University of North Carolina at Charlotte
in partial fulfillment of the requirements
for the degree of Doctor of Philosophy in
Health Psychology

Charlotte, NC

2016

Approved by:

_____
Dr. Jennifer B. Webb

_____
Dr. Steven G. Rogelberg

_____
Dr. Susan K. Johnson

_____
Dr. Eric D. Heggestad

_____
Dr. Jaime Bochantin

ABSTRACT

MALLORY FORMAN FIERY. Exploring the impacts of self-compassion and psychological flexibility on burnout and engagement among animal shelter staff: A moderator analysis of the job demands-resources framework and a randomized controlled field trial of a brief self-guided online intervention (Under the direction of DR. JENNIFER B. WEBB).

Compassion fatigue is a serious concern among individuals in the helping professions, including animal welfare, and current interventions are time-consuming and expensive. Similarly, the role of personal resources in popular models of occupational stress and health are not well understood. The present study investigated three novel positive psychology mechanisms (self-compassion, psychological flexibility, and work-related psychological flexibility) independently as moderators in the job demands-resources framework of occupational stress and health. Subsequently, a pilot randomized controlled field trial explored whether an intervention aimed at increasing self-compassion led to decreased compassion fatigue, increased job engagement, and more psychologically flexible among staff in animal sheltering. While cross-sectional findings failed to support significant moderator effects, psychological flexibility and work-related psychological flexibility emerged as incremental predictors of emotional exhaustion and engagement, respectively. Though high levels of attrition from the treatment group limited power to detect significant time by treatment effects, intent-to-treat analyses suggested significant sample-level gains in self-compassion and psychological flexibility. Analyses also revealed that psychological flexibility increased via increases in self-compassion.

DEDICATION

This work is dedicated to the thousands of men and women who toil endlessly caring for our nation's companion animals. This work is the smallest piece of acknowledgement for their tireless care, compassionate efforts, and huge hearts. It is my hope that in some small way, these individuals and the animals they serve are helped through the present endeavor.

ACKNOWLEDGMENTS

There are many people without whom this work would not have been possible. I would like to first acknowledge my chair and advisor Dr. Jennifer B. Webb, who has mentored and shepherded me throughout nearly my entire academic career. I am forever indebted to her for the guidance, support, and direction she has offered over the past decade – but mostly, for recognizing and fostering the budding scholar within me. I would also like to thank Dr. Steven Rogelberg, Director of the Organizational Science PhD program at UNC Charlotte, for serving as a close mentor throughout my doctoral training. Dr. Rogelberg welcomed my interest and enthusiasm for occupational health and well-being with open arms and did all he could to support growing this area of expertise, allowing me to take coursework, including me on research and applied projects, and serving formally as a member of my committee. He also introduced me to the wonderful world of work and people in animal sheltering, on large part whom this dissertation is based. Furthermore, I am grateful to Dr. Rogelberg and the Organizational Science PhD program for providing a considerable amount of funding to cover the expenses of my doctoral training.

I would like to thank Dr. Virginia Gil-Rivas and the Health Psychology PhD program for providing partial funding for this work. I would like to thank Drs. Jennifer Webb and Charlie Reeve for sharing faculty research grant monies as well. I would like to acknowledge Thura (Peter) Han, my undergraduate research assistant, for his invaluable assistance in data collection and management. I would also like to acknowledge a few of my many friends in animal sheltering, including Natalie DiGiacomo and Hilary Hager, both of The Humane Society of the United States; Shelly

Moore and Jorge Ortega of Humane Society Charlotte; Jim Tedford of the Society of Animal Welfare Administrators; and all of the former clients of the Shelter Employee Engagement and Development Survey (SeeDS) who agreed to distribute my study materials to their dedicated staff. Finally, I would like to thank Dr. Kristin Neff for granting the use of her beautifully recorded guided self-compassion meditations for the current study.

TABLE OF CONTENTS

LIST OF TABLES ix

LIST OF FIGURES x

CHAPTER 1: INTRODUCTION 1

CHAPTER 2: LITERATURE REVIEW 7

Compassion Fatigue Among Animal Shelter Staff 7

Job Demands-Resources Framework 11

Self-Compassion 17

Psychological Flexibility 29

CHAPTER 3: THE PRESENT STUDY 40

Research Questions and Hypotheses 44

CHAPTER 4: METHODOLOGY 47

Participants 47

Procedure 49

Measurement 51

Intervention 61

CHAPTER 5: RESULTS 64

Preliminary Results 64

Moderator Analyses 64

Intervention Results 67

Preliminary Analyses 67

Attrition Analyses and Missing Data 68

Hypothesis Testing 77

Exploratory Analyses 81

Content Analysis of Open-Ended Data 90

CHAPTER 6: DISCUSSION 94

Positive Psychological Mechanisms as Moderators in the JD-R Framework 95

Enhancing Self-Compassion to Treat Compassion Fatigue 107

Intervention Effectiveness: Hypothesis Evaluation 109

Methodological Considerations 113

Limitations and Future Directions 122

Conclusions 127

REFERENCES 130

APPENDIX A: POSITIVE PSYCHOLOGICAL MECHANISMS IN THE JD-R FRAMEWORK 144

APPENDIX B: MEASURES AND TIME OF ASSESSMENT FOR EACH STUDY VARIABLE 145

APPENDIX C: MEASURES ADMINISTERED 146

APPENDIX D: MEDITATION PRIMER FOR TREATMENT GROUP 158

LIST OF TABLES

TABLE 1: Baseline sample characteristics 49

TABLE 2: Correlations among and descriptive statistics for key study variables at baseline 71

TABLE 3: Hierarchical multiple regression analyses predicting emotional exhaustion at baseline 72

TABLE 4: Hierarchical multiple regression analyses predicting emotional exhaustion at baseline (with controls) 73

TABLE 5: Hierarchical multiple regression analyses predicting engagement at baseline 74

TABLE 6: Hierarchical multiple regression analyses predicting engagement at baseline (with controls 75

TABLE 7: Weekly mean scores by group and treatment effects analyzed with a series of RM-ANOVAs for Intent-to-Treat sample 89

TABLE 8: Weekly mean scores by group and treatment effects analyzed with a series of RM-ANOVAs for Per-Protocol sample 89

TABLE A1: Measures and time of assessment for each study variable 145

LIST OF FIGURES

FIGURE 1: Job Demands-Resources Framework 14

FIGURE 2: Attrition flow diagram 76

FIGURE 3: Plots by time and treatment group of key outcome variables for Intent-to-Treat sample 83

FIGURE 4: Plots by time and treatment group of key outcome variables for Per-Protocol sample 86

FIGURE A1: Positive psychological mechanisms as buffers of stress and enhancers of engagement in the Job Demands-Resources framework 144

CHAPTER 1: INTRODUCTION

Compassion fatigue is the experience of emotional exhaustion caused by caring for traumatized or suffering others (Figley & Roop, 2006), and it is a serious concern among workers in the animal sheltering industry. While the phenomenon of compassion fatigue, conceptually comprised of (a) emotional exhaustion – the core and primary stage of *burnout* (a psychological syndrome in response to chronic interpersonal stressors on the job; Maslach, Schaufeli, & Leiter, 2001) and (b) *secondary traumatic stress* (stress resulting from indirect exposure to trauma and causing emotional, cognitive, and/or behavioral changes in the care provider; Stamm, 2010), was first studied among mental health professionals, it also occurs among other occupational groups in the helping professions, including physicians and clergy. Compassion fatigue has been associated with decreased job satisfaction, substance abuse, difficulty sleeping, somatic complaints, and even suicide (Rank, Zaparanick, & Gentry, 2009; Reeve, Rogelberg, Spitzmüller, & DiGiacomo, 2005; Tiesman et al., 2015). A recent study published in the *American Journal of Preventive Medicine* revealed that animal rescue workers have a suicide rate of 5.3 per million, the highest among all American workers at five times the national average, and a rate shared only by firefighters and police officers (Tiesman et al., 2015).

Indeed, the jobs of animal shelter workers are unique in many ways. Not only are emotional demands and workload high (e.g., constant stream of animals often made seasonally worse by breeding patterns – "kitten season"), but resources – including pay,

organizational support (e.g., hiring additional staff; communication), and coping skills are often low (Rank et al., 2009), further increasing the risk of burnout (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) and compassion fatigue (Rank et al., 2009). Moreover, shelter work is characterized by what has been termed the "caring-killing paradox" (Arluke, 1994), in that employees are frequently required to kill the often healthy yet unwanted animals entrusted to their care. To make matters worse, this association with animal detritus and death contributes to the public's view of shelter work as "dirty work" – work that is physically, socially, and morally tainted, and whose characteristics are often wrongly attributed personally to the workers themselves (Ashforth & Kreiner, 1999; Bickmeier, 2015).

Despite acknowledgement and awareness of the causes and consequences of compassion fatigue, many shelter administrators do not truly know how to prevent or treat it. Prior interventions to reduce compassion fatigue and promote health, well-being, and adjustment among shelter workers have focused on reducing organizational demands and increasing organizational resources (e.g., providing job rotations and increasing employee voice surrounding euthanasia; improving organizational communication; Rogelberg et al., 2007); fostering personal coping via the use of emotionally-expressive writing techniques (Unsworth, Rogelberg, & Bonilla, 2010); and for staff lucky enough to be employed by shelters who can afford it, "Certified Compassion Fatigue Specialist Training" (Gentry, Baggerly, & Baranowsky, 2004), a two-day program that is the current "gold-standard" in the industry, yet whose mechanisms of efficacy and long-term effectiveness are not well understood. Furthermore, many individuals and institutions other than Gentry and colleagues (2004) appear to offer "compassion fatigue training,"

yet there is lack of knowledge and consensus within the industry as to what these trainings entail and how effective they are at reducing compassion fatigue and its untoward effects on employee stress and engagement.

Situated within the larger positive psychology movement focusing on the scientific study and cultivation of strengths and inner resources allowing individuals and communities to thrive (Seligman & Csikszentmihalyi, 2000), self-compassion (Neff, 2003a) has emerged as a robust predictor of well-being associated with decreased anxiety, depression, and burnout (Barnard & Curry, 2012; Neff, Kirkpatrick, & Rude, 2007). Grounded in more general definitions of compassion, *self-compassion* involves extending kindness and understanding toward oneself, especially in times of grief or failure, by assuming the role of the compassionate other toward oneself (cf. Neff & Tirch, 2013) while maintaining full awareness of present-moment experiences and recognizing that shortcomings are part of the larger human experience (Neff, 2003a). At the same time, also situated within the positive psychology movement, a growing interest in the role of psychological flexibility in the workplace has been unfolding among organizational scholars (Bond & Bunce, 2000; Bond, Flaxman, & Bunce, 2008; Bond, Lloyd, & Guenole, 2013; Lloyd, Bond, & Flaxman, 2013). *Psychological flexibility* refers to a person's "ability to mindfully contact the present moment and the thoughts and feelings it contains without needless defense, and, depending upon what the situation affords, persist in or change behavior in the pursuit of goals and values" (Bond et al., 2011, p. 678; Hayes, Luoma, Bond, Masuda, & Lillis, 2006). Like self-compassion, psychological flexibility finds its roots in mindful awareness, and interventions to promote it (e.g., Acceptance and Commitment Therapy or ACT; Hayes, Strosahl, &

Wilson, 1999) focus on increasing awareness and acceptance of negative psychological experiences while engaging in values-driven goals. A newly developed measure of *work-related psychological flexibility*, reflecting the extent to which employees are consistently able to engage in work-related, goal-directed actions, even (or especially) in the presence of difficult or unwanted internal experiences (e.g., personal worries; Bond et al., 2013), attempts to contextualize psychologically-flexible responding within the workplace.

Given the high-demand, low-resource nature of work in animal sheltering, the present study is situated theoretically within the job demands-resources framework (JD-R; Demerouti et al., 2001), the dominant model of occupational health and well-being in the literature today (Searle & Lee, 2015). The JD-R model accounts for contextual factors (i.e., job demands and resources) affecting burnout and engagement through the parallel processes of health impairment and motivation, providing a holistic vantage point from which to view employee functionality. JD-R scholars recently called for an expansion of the model to examine the role of personal resources as buffers or facilitators in each of the model's processes (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007), work that has only just begun (Ângelo & Chambel, 2014; Searle & Lee, 2015), and has yet to consider factors grounded within the rapidly evolving positive psychology literature, such as self-compassion and psychological flexibility.

Accordingly, the present study has two primary aims. The first is to extend JD-R research by a cross-sectional evaluation of the potential moderating roles, each independently, of self-compassion, psychological flexibility, and work-related psychological flexibility in the JD-R model[1] of employee burnout and engagement. A

[1] See Figure 1 in Appendix A. Note that while each moderator will be tested separately, moderators are presented together in one figure for parsimony.

second primary aim is to then investigate whether a 4-week, online, self-guided self-compassion meditation intervention results in increases in self-compassion and employee engagement, and decreases in emotional exhaustion and secondary traumatic stress among animal shelter staff, using a randomized controlled field-trial design. Prior research indicates that increases in self-compassion lead not only to increased personal well-being, but also to increases in compassion toward others (Neff & Germer, 2013), suggesting that the cultivation of self-compassion may be a powerful and practical tool for replenishing one's own inner empathic resources. Given its associations with reduced burnout (Barnard & Curry, 2012) and improved well-being (Barnard & Curry, 2011; Zessin, Dickhäuser, & Garbade, 2015), combined with its focus on cultivating acceptance and compassion toward oneself, especially in times of perceived shortcomings or failure (e.g., viewing one's work as "dirty" or tainted), a self-compassion intervention might prove especially fruitful as a means of reducing compassion fatigue among staff in the animal sheltering industry. Additionally, given the time, distance, and financial constraints surrounding current interventions for compassion fatigue, the ability of a self-compassion intervention to be delivered entirely online, and at a time and place of the participants' choosing, is likely to widely increase its availability and accessibility to a population desperately in need.

A secondary aim of the present study is to investigate whether a brief self-compassion meditation intervention leads to increases in psychological flexibility, or work-related psychological flexibility, and if so, how these changes differentially effect levels of emotional exhaustion, secondary traumatic stress, and engagement. Given conceptual similarities between self-compassion and psychological flexibility (e.g., both

are grounded in mindful awareness and acceptance of negative psychological states while engaging in positive action, Neff & Tirch, 2013), and recent evidence suggesting high levels of shared variance between measures of each (Wendling, 2012; Woodruff et al., 2014), it is likely that both will increase in tandem, yet no study to date has explored this assumption. In fact, to the author's knowledge, this will be the first study to examine whether any intervention – other than ACT – is able to effectively promote psychological flexibility.

Accordingly, ensuing sections provide a targeted review of the literature, beginning with compassion fatigue among workers in the animal sheltering industry, followed by a brief overview of the historical development of the job demands-resources framework concluding with present-day endeavors. Then, self-compassion and psychological flexibility, their relevant correlates, interventions, and outcomes are introduced in turn, while limitations and future directions for research and practice are outlined within each section. Chapter 3 presents an integrated discussion of the present study, followed by Methods in Chapter 4. Finally, Chapters 5 and 6 present the results and a thorough discussion of the present study findings.

CHAPTER 2: LITERATURE REVIEW

Compassion Fatigue Among Animal Shelter Staff

Animal shelter workers perform tireless work, often under suboptimal conditions and for suboptimal pay, with little thanks from the public which tasks them with performing euthanasia on its unwanted companion animals (Reeve et al., 2004). Not only is animal shelter work considered "dirty work," or physically and morally tainted via its associations with animal detritus and death – shelter workers must daily confront a powerful contradiction between their values and ideal professional roles and the reality of having to kill the healthy yet unwanted animals entrusted to their care (Bickmeier, 2015; Reeve et al., 2004, Reeve, Rogelberg, Spitzmüller, & DiGiacomo, 2005; Rogelberg et al., 2007). This "caring-killing" paradox contributes to a qualitatively unique form of stress among these workers, termed euthanasia-related strain, that has been associated with a variety of untoward outcomes, including work-family conflict, somatic complaints, substance abuse, lower job satisfaction, and lowered feelings of happiness and self-worth (Reeve et al., 2005).

Indeed, high levels of burnout and secondary traumatic stress, together comprising *compassion fatigue* (Stamm, 2010), are common among workers in this industry (Rank et al., 2009). Initially referring to mental health professionals, Figley (1995) defined *secondary traumatic stress* as "the natural and consequent behaviors and emotions resulting from knowing about a traumatizing event experienced by a significant

other – the stress resulting from helping or wanting to help a traumatized or suffering person" (p. 7). Figley believed that indirect exposure to trauma involved an inherent risk of emotional, cognitive, and behavioral changes in the care provider, and thus viewed thE resulting stress as an occupational hazard of the helping professions (Bride, Radey, & Figley, 2007).

Although it has been suggested that compassion fatigue is simply a more "user friendly" term to refer to secondary traumatic stress (Bride et al., 2007), more recently it has been argued that compassion fatigue is indeed a two-component phenomenon, comprised of *both* burnout and secondary traumatic stress (Stamm, 2010). Importantly, not everyone who engages in emotionally draining work experiences compassion fatigue (Bride et al., 2007). Some derive a great deal of satisfaction and nourishment from their professional roles as helpers, an experience labeled *compassion satisfaction* (Stamm, 2002). Although the relationship between compassion fatigue and compassion satisfaction is not yet clear, it is believed that the two can co-exist, but that high levels of compassion fatigue may limit or eventually preclude one's ability to derive satisfaction from one's work (cf. Bride et al., 2007).

Among animal care workers specifically, a review of the literature reveals three common themes associated with increased compassion fatigue: (a) stress related to euthanasia; (b) a lack of training in coping with the emotional factors of such work; and (c) poor organizational communication (Rank et al., 2009). On a more personal level, shelter workers report using various means to cope, including venting feelings, attempting to alter levels of emotional attachment, and directing anger and frustration toward the public's lack of responsibility (Baran et al., 2009; Rank et al., 2009; Reeve et

al., 2004). Paradoxically, however, the use of these latter two strategies is likely to result in increased risk of burnout given their conceptual ties to the depersonalization component of burnout (Maslach et al., 2001). From an intervention standpoint, a variety of strategies have been implemented, including increased euthanasia technical training (cf. Rogelberg et al., 2007), the use of emotionally expressive writing, and, most broadly, "compassion fatigue training," which is perhaps as varied as the individuals and organizations purporting to provide it. While there is very little research surrounding the efficacy of these trainings, they appear to be at least somewhat effective in reducing compassion fatigue (Gentry et al., 2004; Rank et al., 2009). Yet, the trainings available are costly and time-intensive, generally requiring a minimum of two full business days.

Based on the two-day "Certified Compassion Fatigue Specialist Training" offered by Gentry and colleagues (2004), Rank and colleagues (2009) developed the "Accelerated Recovery Program," a two-day, 16-hour workshop comprised of didactic and experiential techniques drawing from "narrative therapy, cognitive-behavioral therapy, trauma therapy, and burnout interventions" among many others (Gentry, n.d.). Investigating the effectiveness of the program among a sample of 57 individuals from the animal care industry, most of whom were shelter workers, they found significant increases in compassion satisfaction and significant decreases in burnout and anxiety post-treatment. The authors claim that gains were maintained at 6-month follow-up, but provide no data. Similarly, they note that the training has been consolidated into a 1-day format, but fail to provide a reference for further information.

Compassion fatigue workshops of varying length and intensity continue to be offered throughout the U.S. by various individuals and organizations, including The

Humane Society of the United States, who favor the approach outlined in Laura van Dernoot Lipsky's book, *Trauma Stewardship* (H. Hager, personal communication). Grounded in daily self-centering practices such as mindfulness, van Dernoot Lipsky's approach (2009) encourages individuals to (a) create space for inquiry, (b) choose their focus, (c) find balance, and (d) build compassion and community, by respectively (a) reminding oneself of why one does the work they do and asking whether it is working for them; (b) asking where one is placing their focus and expanding the range of possibilities by considering a "Plan B;" (c) engaging with life outside of work and intentionally cultivating gratitude; and (d) creating a "microculture" of social support and practicing compassion for self and others. While on its face this approach appears holistic and promising, no data surrounding its efficacy, effectiveness, or associated outcomes are available.

In sum, employees engaged in animal sheltering work are plagued with high levels of stress, strain, burnout, and compassion fatigue that are only compounded by limited organizational resources, such as low pay, organizational financial strain, and high job demands. These levels of burnout are at times associated with severely reduced well-being, maladaptive coping behaviors, and job dissatisfaction (Baran et al., 2009; Reeve et al., 2005), and while scholars and clinicians across disciplines have attempted to develop accessible intervention programs, the content, scope, and delivery of these interventions are neither well-documented nor well-understood. Furthermore, what appear to be the most robust interventions are inaccessible to many given their cost, time, and geographical limitations (e.g., national conferences; cf. Unsworth et al., 2010). Thus, work is needed to identify simpler and more accessible mechanisms of decreasing

compassion fatigue and burnout while increasing well-being among this population of individuals who continue to perform such needed and meaningful yet emotionally draining work.

The following sections outline a well-researched theoretical framework for addressing stress and well-being in the workplace, followed by the introduction and integration of two personal factors/resources grounded in the positive psychology movement that may serve to mitigate burnout while facilitating engagement among this population.

The Job Demands-Resources Framework

The Job Demands-Resources (JD-R) framework is considered the dominant model of work stress in the literature today, and is increasingly used to explain how and why individuals may differ in their well-being in the face of similar job demands and resources (Searle & Lee, 2015; cf. Bakker & Demerouti, 2014). The JD-R model (Demerouti et al., 2001; refer to Figure 1, p. 14) attributes employee well-being and engagement to the characteristics of the work environment, which can be divided into two broad domains – job demands and job resources – which are specified depending on the context under investigation (i.e., demands and/or resources may be emotional, physical, social, organizational, etc.). *Job demands* are those aspects of the job that require sustained physical and/or psychological effort, and are therefore associated with physiological and/or psychological costs, especially over time, while *job resources* are those aspects of the job that a) are functional in achieving work-related goals; b) reduce job demands and their associated physiological and psychological costs; and c) stimulate personal growth and development (Demerouti et al., 2001).

Each of these two broad domains of work characteristics evokes two fairly independent psychological processes: a health impairment process and a motivational process. The *health impairment process* occurs when high job demands, requiring sustained effort, exhaust employee resources, leading to energy depletion and burnout. As mentioned previously, burnout refers to "a psychological syndrome in response to chronic interpersonal stressors on the job" (Maslach et al., 2001; p. 399), and was initially conceptualized by Maslach and Jackson (1981) to include three dimensions: emotional exhaustion, or feelings of being overextended and depleted of one's emotional and physical resources; cynicism/depersonalization, or having negative, calloused, or excessively detached responses to various aspects of the job; and finally, reduced professional efficacy, comprised of feelings of incompetence and a lack of achievement and productivity at work.

Emotional job demands, or work-related tasks requiring emotional effort, such as counseling distressed clients or performing euthanasia on companion animals (Van de Ven, van den Tooren, & Vlerick, 2013), in addition to a heavy workload specifically have been repeatedly found to positively predict emotional exhaustion and to negatively predict job performance among various occupational groups (Bakker, Demerouti, & Euwema, 2005; Bakker, Demerouti, & Verbeke, 2004). It is not surprising that emotional job demands in particular predict high levels of emotional exhaustion, as theoretical refinements to the JD-R model suggest that the strongest relationships between predictors and outcomes are observed when dimensions are qualitatively matched (e.g., cognitive, emotional, or physical dimensions; de Jonge & Dormann, 2006).

The *motivational process* within the JD-R model occurs when job resources (e.g., coaching or supervisor/coworker support), due to their motivational potential, enhance employees' ability to meet their goals, leading to engagement – a positive job attitude characterized by perceptions of vigor (high levels of energy), dedication (strong identification with work), and absorption (being happily engrossed and fully concentrated in one's work; Schaufeli & Bakker, 2004). While definitions and conceptualizations vary (Bailey, Madden, Alfes, & Fletcher, 2015), *engagement* is considered the positive antithesis of burnout, characterized by a fulfilling, energizing state of mind including experiences of happiness, joy, and enthusiasm (Bakker & Demerouti, 2007), and has been found to be most strongly predicted by job resources, while itself predicting commitment to the job (Xanthopoulou et al., 2007) and in-role job performance (Halbesleben & Wheeler, 2008). Research has also demonstrated interactive effects between job demands and resources, such that job resources moderate the relationship between job demands and outcomes such as emotional exhaustion (cf. Van de Ven et al., 2013). This importantly suggests that employee productivity and well-being may be able to be maintained or even facilitated in the face of difficult or persistent demands (Bakker et al., 2005).

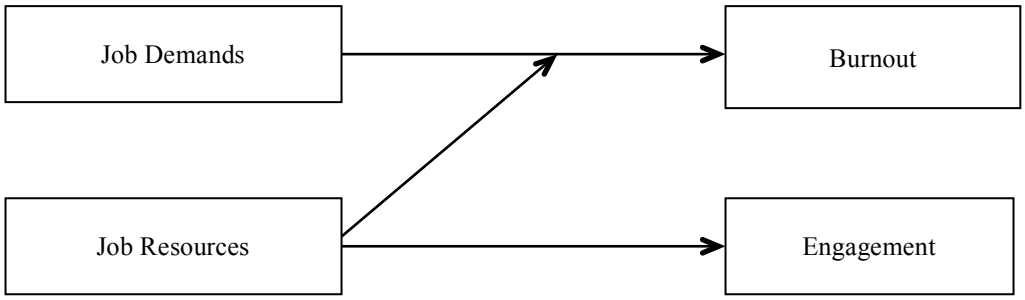


Figure 1. Job Demands-Resources Framework (Bakker et al., 2005; Demerouti et al., 2001). Note that the top panel represents the "health impairment process," while the bottom panel represents the "motivational process."

Personal Resources in the JD-R Framework

Since the model's inception in 2001, most work has focused exclusively on examining the impact of organizational-level job resources (e.g., job redesign) on engagement and burnout. In response, the model developers called (Bakker & Demerouti, 2007) for an expansion of the model to include personal resources, or aspects of the self related to resiliency (Hobfoll, Johnson, Ennis, & Jackson, 2003), that may help to explain why individuals in the same work situation experience different outcomes (Searle & Lee, 2015). Since that time, investigators have attempted to discover which personal resources may serve to buffer stress while facilitating engagement, and have variously examined self-efficacy (Xanthopoulou et al., 2007), optimism (Garrosa, Moreno-Jiménez, Rodríguez-Muñoz, & Rodríguez-Carvajal, 2011; Xanthopoulou et al., 2007), two forms of proactive coping (Ângelo & Chambel, 2014; Searle & Lee, 2015), and emotional support-seeking (Van de Ven et al., 2013). In general, and consistent with initial predictions by Bakker and colleagues (2005), as well as Conservation of Resources theory (i.e., those with limited resources to begin with find resource gain more

challenging and resource loss more devastating; Hobfoll, 1989), most of this work has considered personal resources as buffers or moderators in the health impairment process (Searle & Lee, 2015; Van de Ven et al., 2013; Xanthopoulou et al., 2007), while simultaneously considering the same as mediators in the motivational process (Ângelo & Chambel, 2014; Xanthopoulou et al., 2007; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009). However, some studies have examined personal resources as either mediators (Ângelo & Chambel, 2014) or moderators (Searle & Lee, 2015) on both sides of the model.

Xanthopoulou and colleagues (2007) created an index of personal resources comprised of self-efficacy, organizational-based self-esteem, and optimism, and predicted that they would mediate the relationship between job resources and engagement, while moderating the relationship between job demands and exhaustion. They indeed found support for the former – suggesting that job resources may "activate" personal resources, which then enable individuals to better perform on the job – but failed to find support for the latter, attributing the lack of effect to the specific nature of the personal resources examined and their potential incongruency with the demands and resources under investigation (cf. de Jonge & Doormann, 2006). In a subsequent longitudinal study, the same group demonstrated that job resources in fact predicted personal resources and work engagement across time (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009). Similarly, cross-sectional data from over 500 nurses demonstrated that optimism, hardy personality, and emotional competence – defined as managing one's emotions with adaptive coping strategies to facilitate a sense of subjective well-being and rapid recovery from adverse situations (Saarni, 1999; in Garrosa, Moreno-Jiménez,

Rodríguez-Muñoz, & Rodríguez-Carvajal, 2011) – were related to burnout and engagement, and furthermore that optimism specifically demonstrated a moderator effect between role stress and both exhaustion and engagement (Garrosa et al., 2011).

Two recent studies investigated the role of proactive coping, one as a mediator (Ângelo & Chambel, 2014), and the other as a moderator (Searle & Lee, 2015). Among a group of Portuguese firefighters, Ângelo and Chambel (2014) found proactive coping, defined as a multidimensional process of cognitive and behavioral strategies based on resourcefulness, responsibility, and vision (Greenglass, Schwarzer, & Taubert, 1999), to partially mediate the relationship between job demands and burnout, and between job resources and engagement. Searle and Lee (2015) also examined proactive coping as a personal resource within the JD-R model, but explored two types of demands (challenges and hindrances), and developed a measure of work-specific proactive coping behavior based on existing measures of proactive work behavior (e.g., taking charge, using voice, problem prevention, job change negotiation). They found work-specific proactive coping to moderate the relations between challenge stressors and engagement, as well as between challenge stressors and burnout, suggesting that employees who take a more proactive (vs. reactive) approach to managing demands are more engaged with their work and experience less burnout.

Limitations and Future Directions for JD-R Research

In sum, while researchers have attempted to answer the call to investigate the role of personal resources in the JD-R model, important limitations remain. First, and aligned with recommendations from leading scholars (cf. de Jonge & Dormann, 2006), future models must carefully specify demands, resources, outcomes, and intervening variables

that are closely aligned with the domain of interest, be they affective, cognitive, social, or otherwise. Second, both sides of the JD-R model must be examined in tandem, as many studies have investigated *either* the health-impairment process or the motivational process, but rarely both operating in parallel. Investigating both processes of the model simultaneously will allow for a more integrated and holistic understanding of health and well-being in the workplace (cf. Ângelo & Chambel, 2014). Finally, research on personal resources, acting as buffers in the health impairment process and potentially as facilitators in the motivational process, is in its infancy, and continued work is needed to identify and investigate novel person-level factors influencing the JD-R process and outcomes. Aligned with recent advances in clinical and health psychology suggesting the robust effects of positive psychological mechanisms for lowering stress and promoting overall health and well-being (e.g., Woodruff et al., 2014), self-compassion and psychological flexibility may be particularly fruitful avenues for future inquiry surrounding JD-R research. This is especially true among employees such as animal shelter staff that typify the drained resources and heightened demands outlined by the JD-R model, which has yet to be investigated within this population.

Self-Compassion

Existing in Eastern philosophical traditions for years, the concept of self-compassion is closely related to the more general definition of compassion, which entails being touched by the suffering of others, opening one's awareness to their pain, and adopting a non-judgmental stance toward their wrongdoings, recognizing that their actions fall within the larger realm of human fallibility (Neff, 2003a). Self-compassion was brought under Western empirical scrutiny with the pioneering work of Kristin Neff

(2003a), who conceptualized self-compassion as possessing "three faces" which mutually enhance and engender one another: (a) self-kindness, or the extension of kindness and understanding to oneself rather than self-judgment or harsh criticism; (b) common humanity, or seeing one's experiences as part of the larger human experience rather than seeing them as separate and isolating; and (c) mindfulness, or holding one's painful thoughts and feelings in balanced awareness rather than overidentifying with them or allowing them to define oneself. In contrast to related constructs such as self-esteem (Rosenberg, 1965), true self-esteem (Deci & Ryan, 1995), self-efficacy (Bandura, 1990), and self-respect (Seligman, 1995), self-compassion is a *non-evaluative* form of self-to-self relating that can serve as a positive emotional-approach coping strategy, facilitating mindful awareness of one's own emotions that are approached with kindness, understanding, and a sense of shared humanity (Neff, 2003a). Like other emotional approach coping strategies, which entail effortful attempts to maintain awareness of, explore, and understand emotions (e.g., expressive writing; Pennebaker, 1989; 1993), self-compassion is robustly related to positive psychological adjustment and well-being (see Barnard & Curry, 2011 for a review; see Zessin et al., 2015 for a meta-analysis).

Nearly all research surrounding self-compassion to date has focused on its applications in clinical contexts. However, self-compassion holds promise for incorporation into existing models of health, stress, and well-being in the workplace for several reasons. It is predictively and longitudinally associated with decreased stress and anxiety (Neff et al., 2007); it negatively predicts emotional exhaustion and positively predicts job satisfaction in preliminary cross-sectional studies among clergy and first-year pediatric residents (Barnard & Curry, 2012; Olson, Kemper, & Mahan, 2015); it has been

shown to predict much more variance in multiple markers of psychological health versus multifactor and single-factor measures of mindfulness (Woodruff et al., 2014) that are commonly used in the organizational literature (Allen & Kiburz, 2012; Dane & Brummel, 2013; Hülsheger et al., 2014; Leroy, Anseel, Dimitrova, & Sels, 2013); and finally, promising cross-sectional evidence suggests it is a powerful predictor of psychological flexibility (Wendling, 2012), itself correlated with reduced stress and burnout (Biron & Van Veldhoven, 2012; Brinkborg, Michanek, Hesser, & Berglund, 2011; Flaxman & Bond, 2010a, 2010b; Hayes et al., 2006; Lloyd et al., 2013), increased engagement, and a variety of other job-related outcomes including performance (Bond et al., 2013).

The following sections briefly explore the definition, conceptualization, and measurement of self-compassion while distinguishing it from related constructs such as mindfulness and self-esteem; review the literature on correlates of self-compassion and promising results from a brief intervention to promote it; and conclude by offering a brief critique with suggested future directions.

Conceptualization and Distinction from Mindfulness

Self-compassion is not self-esteem: The two are correlated, but not sufficiently so to say they are the same construct (Leary, Tate, Adams, Batts Allen, & Hancock, 2007; Neff & Vonk, 2009); they have different correlates – for example, self-esteem is significantly and positively related to narcissism, while self-compassion exhibits no such relationship (Neff, 2003a; Neff & Vonk, 2009); and self-compassion is significantly negatively related to anger, while self-esteem is not (Neff & Vonk, 2009). Finally, self-compassion predicts variance in psychological variables such as positive and negative affect, anxiety and depression, and general well-being over and above self-esteem (Leary

et al., 2007; Neff & Vonk, 2009; cf. Barnard & Curry, 2011). Self-compassion is also not self-pity, as self-pity entails an overfocusing on one's experiences to the extent that one feels separate and disconnected from others, in direct contradiction to the "common humanity" component of self-compassion (Neff, 2003a). While self-compassion does require that one refrain from harsh self-criticism for failure to meet ideal standards, it does not suggest that failings go unnoticed or unrectified. Rather, self-compassion encourages one to actively monitor emotions while skillfully using this information to guide thinking and future behavior, a notion aligned with conceptions of emotional intelligence (Neff, 2003a; Salovey & Mayer, 1990).

Self-compassion versus mindfulness. Because self-compassion requires individuals to not avoid or repress their feelings in order to extend care and loving kindness toward themselves, at its core it requires adoption of a mental perspective reflecting mindful equanimity (Hanh, 1976; Kabat-Zinn, 1994; in Neff, 2003a). While mindfulness is only one of three components comprising the broader construct of self-compassion, questions remain regarding the extent of its conceptual and predictive overlap with self-compassion – questions that are only compounded by the variety of definitions, conceptualizations, and measurements of mindfulness across various literatures (cf. Bergomi, Tschacher, & Kupper, 2013; Woodruff et al., 2014). For example, in the past decade, at least eight self-report measures of mindfulness have been developed and employed in psychological research. Some of these instruments conceptualize and measure mindfulness as a single, attention-based factor assessed as a trait (e.g., Mindful Attention and Awareness Scale [MAAS], Brown & Ryan, 2003), while others assess it multi-dimensionally, comprised of anywhere from two to five

factors such as nonreactivity, observation, acting with awareness, describing, and nonjudging of experience (Five-Factor Mindfulness Questionnaire [FFMQ]; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006).

Woodruff and colleagues (2014) compared the predictive strengths of self-compassion to both single- and multi-factor measures of mindfulness among a large, non-clinical sample of college students, and found self-compassion to be a stronger predictor of multifaceted psychological health (anxious and depressive symptomatology, satisfaction with life, quality of life, happiness, and positive and negative affect) than either single-factor (as measured by the MAAS; Brown & Ryan, 2003) or multifactor mindfulness (as measured by the FFMQ; Baer et al., 2006). For single-factor mindfulness and self-compassion, across all measures of psychological health, 34% of the predicted variance was common to both predictors, 10% was unique to single-factor mindfulness, and 56% was unique to self-compassion.

For multi-factor mindfulness and self-compassion, across all measures of psychological health, 44% of the predicted variance was common to both predictors, 10% was unique to multifaceted mindfulness, and 47% was unique to self-compassion. Furthermore, single-factor mindfulness failed to predict any unique variance in positive psychological functioning, controlling for self-compassion, and, despite the added breadth of the FFMQ, self-compassion still predicted two to seven times as much unique variance for measures of negative psychological health than did the FFMQ. These findings, though cross-sectional, provide rather convincing evidence for the more fully developed and encompassing ties between self-compassion and various positive and

negative indicators of psychological health and well-being over and above *both* prevailing understandings of mindfulness.

Correlates of Self-Compassion

To date, most literature investigating self-compassion has focused on documenting cross-sectional relationships almost exclusively among college students. Nevertheless, a multitude of evidence suggests that self-compassion is robustly and positively related to well-being and positive psychological functioning (Woodruff et al., 2014), with an average correlation of .47 (Zessin et al., 2015), and negatively related to negative psychological functioning, including anxiety, depression, guilt, and shame (cf. Barnard & Curry, 2011). Further, a subsample of studies from a recent meta-analysis suggests a causal effect of self-compassion on well-being (Zessin et al., 2015). More preliminary evidence points to the significant role of self-compassion in accuracy of self-appraisals of task performance among college students (Leary et al., 2007), and in predicting the emotional exhaustion component of burnout and job satisfaction among clergy (Barnard & Curry, 2012) and first-year pediatric residents (Olson et al., 2015). It is important to note that the following is not meant to be an exhaustive review of all documented correlates of self-compassion; rather, a targeted overview of constructs documented as theoretically related to the present study's framework and/or other variables under investigation is provided.

Positive and negative affect. Self-compassion is positively related to positive affect (.18; Neff & Vonk, 2009) and negatively related to negative affect (-.34; Leary et al., 2007). It remains positively correlated to overall positive affect when self-esteem is controlled for, suggesting that self-compassion plays a significant and unique role in

helping people to feel connected, worthy, and acceptable (Neff & Vonk, 2009). In a series of experiments designed to examine the relation of self-compassion to emotions across a variety of conditions, Leary and colleagues (2007) found that low self-compassion is associated with greater negative affect and less positive affect in the face of real, imagined, and remembered events (Barnard & Curry, 2011).

Anxiety and depression. Self-compassion demonstrates strong and significant negative relations to anxiety (*r*s ranging from -.21 to -.75; Neff, 2003b; Neff, Hsieh, & Dejitterat, 2005; Neff et al., 2007a, 2007b; Raes, 2010; in Barnard & Curry, 2011) and depression (*r*s ranging from -.21 to -.61; Mills, Gilbert, Bellew, McEwan, & Gale, 2007; Neff, 2003a; Neff et al., 2007a, 2007b; Neff, Pisitsungkagarn, & Hsieh, 2008, Raes, 2010; Ying, 2009; in Barnard & Curry, 2011). Using a therapeutic Gestalt two-chair technique to raise self-compassion, Neff and colleagues (2007) found increases in self-compassion to be associated with decreases in anxiety and depression among undergraduate college students with subclinical levels of anxiety and depression.

Well-being, life satisfaction, and happiness. Self-compassion predicts variation in well-being above and beyond that predicted by goal regulation, stress, and the degree and availability of social support ($r = .67$; Neely, Schallert, Mohammed, Roberts, & Chen, 2009). It is positively associated with self-reported life satisfaction among college students in the U.S., Taiwan, and Thailand (cf. Barnard & Curry, 2011), and predicts variation in happiness ($r = .57$) and optimism ($r = .62$) over and above what self-esteem, age, and gender jointly predict (Neff & Vonk, 2009).

Biomarkers of stress. Among a group of 100 college student women, a 45-minute self-administered self-compassion meditation training led to significantly

diminished sympathetic (salivary α-amylase; "sAA") and cardiac parasympathetic (heart rate variability) nervous system responses compared to placebo (attention) and no-training control conditions in response to a social evaluative threat (Arch et al., 2014). Social evaluative threats – including job performance reviews or negative judgments by peers – can elicit marked biological responses in the form of the flight-or-flight response (i.e., sympathetic nervous system activation), and in chronic forms (e.g. job stress or burnout), can lead to mental and physical health problems and speed biological aging (cf. Arch et al., 2014). Findings from this study demonstrate that women receiving self-compassion training exhibit a biological stress response profile marked by lower defensiveness, active acceptance, and greater easefulness, rather than efforts to exert control.

Similarly, among a group of 33 healthy young adults, Breines, Toole, Tu, and Chen (2014) found dispositional self-compassion to be a significant negative predictor of sAA in response to a laboratory stressor, with the relationship remaining significant after controlling for self-esteem, subjective distress, age, gender, ethnicity, and body mass index. Taken together, findings from both studies provide preliminary evidence of self-compassion's role in both modulating and protecting against stress-induced physiological responses, thus having multiple salutary implications for mental and physical health.

Performance, achievement, burnout, and job satisfaction. Self-compassion appears to be related to the ways in which people approach their work, including goals, motivation, and procrastination (Neff, Hsieh, & Dejitterat, 2005; Williams, Stark, & Foster, 2008), and to self-perceptions of competence and performance surrounding their work (Leary et al., 2007). Among college students, self-compassion is positively related

to mastery goals, goals associated with curiosity and accepting mistakes as part of learning, and intrinsic motivation, marked by greater persistence in tasks, willingness to seek help, and enjoyment (Neff et al., 2005). Again among college students, self-compassion is negatively associated with procrastination (Williams et al., 2008) and maladaptive perfectionism (Neff, 2003b). Moreover, students high in self-compassion tended to most accurately assess their performance (correlated with others' ratings) on an "awkward and mildly embarrassing task" (Leary et al., 2007, p. 897), relative to students low in self-compassion, who tended to underestimate their own performance. Though preliminary, these findings have clear organizational implications as they suggest that individuals low in self-compassion may underrate their abilities and tend to take failures as indicative of a lack of competence, while those higher in self-compassion may tend to more adequately rate their abilities and possess more resilient self-appraisals.

Self-compassion has also been linked with burnout and job satisfaction, being negatively associated with the former and positively associated with the latter, among both clergy members (Barnard & Curry, 2012) and first-year pediatric residents (Olson et al., 2015). Though cross-sectional, these preliminary findings are promising, as they suggest that those who are more self-compassionate are less likely to experience burnout and furthermore, that efforts to enhance self-compassion may potentially have a preventive effect on the development of burnout.

Psychological flexibility. An online study (Wendling, 2012) of ~250 self-identified Buddhists living in the U.S. or Canada was among the first to document significant, positive relationships between self-compassion and psychological flexibility, defined as an individual's ability to be flexible in relating and responding to their

experiences while engaging in actions that are consistent with their deeply held values (Bond et al., 2011). Non-attachment and self-compassion appear to be associated with many of the core processes of psychological flexibility within the ACT hexaflex model (Hayes et al., 1999), including viewing the processes of attachment and avoidance as the underlying cause of suffering. Given this, Wendling (2012) was interested in whether central aspects of Buddhist practice, including non-attachment, self-compassion, and meditation, led Buddhist practitioners to be more flexible psychologically. The author used multiple regression to test the relative contributions of each of these practices, and found self-compassion to be the strongest predictor of psychological flexibility, such that for every one point increase in self-compassion, a 3.52 point increase in psychological flexibility was predicted.

Interventions to Promote Self-Compassion

Neff and Germer (2013) recently developed an 8-week "Mindful Self-Compassion" (MSC) training program designed specifically to increase self-compassion. The intervention consists of 8 weekly meetings, each two hours in duration, covering topics such as self-compassion, foundational knowledge of mindfulness, application of self-compassion to various aspects of life, developing a compassionate inner voice, the importance of living in accordance with core values, and dealing with difficult emotions and interpersonal relationships. The intervention also includes a half-day retreat where four hours are spent in silence doing various meditations, restorative yoga, and mindful eating and home meditation practices (such as the loving-kindness meditation, an ancient Buddhist practice designed to increase good will for self and others; Grossman, Niemann, Schmidt, & Walach, 2004; in Neff & Germer, 2013) of at least 40 minutes per day. The

developers tested the intervention in two pilot studies, the second of which was a randomized controlled trial, and found intervention group participants to demonstrate significantly greater gains versus a waitlist control group in self-compassion (d = 1.67), mindfulness (.60), compassion for others (.68), and life satisfaction (.51), all of which were maintained at both 6-month and 1-year follow-ups. Intervention group participants also evidenced significantly larger decreases in depression (d = .86), anxiety (.76), stress (.37), and avoidance (.50), also maintained at both follow-up periods.

It is encouraging to note that recent evidence suggests that large increases in self-compassion can occur within a much shorter timeframe of 3 weeks. One randomized controlled trial among ~50 college women found a 3-week, once per week group-based self-compassion training intervention to result in significant increases in self-compassion (d = 1.19), two facets of mindfulness (accepting without judgment, d = .70; and non-reactivity to inner experience, d = 1.20), trait optimism (d = .66), and self-efficacy (d = .52) among women in the intervention group (Smeets, Neff, Alberts, & Peters, 2014). Another study found increases in self-compassion (d = .82) across 3 weeks simply by recommending daily practice of the online guided self-compassion meditation component of the MSC intervention (Albertson, Neff, & Dill-Shackleford, 2015), suggesting that measurable increases in self-compassion can be fostered within the comfort of one's own home and timeframe, without professional intervention – representing substantial time and cost savings relative to traditional intervention approaches. Improvements were evidenced in all six facets of self-compassion, and all were maintained at 12-week follow-up. These substantive gains were witnessed even though participants only listened to the meditations, on average, 3.6 days per week (though they were instructed to listen

every day). Moreover, participants reported overwhelmingly positive experiences with the meditations, making comments such as “they were very relaxing,” “I was pleasantly surprised at how aware and connected it made me feel to my body, mind, and spirit,” “[they] were a wonderful experience, which I strongly recommend to all women.” While these findings are robust and encouraging, they are in need of replication and extension to other samples, and in the future, should include manipulation checks rather than relying on self-report to determine the frequency and duration of listens to the podcast meditations.

Limitations and Future Directions

The present review has identified a number of limitations and promising avenues for future lines of inquiry surrounding self-compassion, including several implications for theory, research, and practice. From a theory and measurement perspective, a better understanding of how self-compassion functions, whether at state- or trait-like levels, and whether these levels are differentially associated with important outcomes across time, will greatly enhance understanding of how to best position future intervention work. Despite a few studies examining community samples of women (Neff & Germer, 2013), clergy (Barnard & Curry, 2012), and medical residents (Olson et al., 2015), nearly all research on self-compassion has been conducted among college students. Research on self-compassion would greatly benefit from an examination of its relationship with a variety of outcomes in other populations, such as working adult community samples. Furthermore, intervention research in this area is nascent and would benefit from extension, replication, and streamlined manipulation checks, techniques more widely available today via sophisticated web-based software (e.g., Qualtrics) than in very recent

years. Relatedly, given recent advances demonstrating the feasibility and effectiveness of brief online meditation trainings for increasing mindfulness (Cavanagh, Strauss, Forder, & Jones, 2014) and self-compassion (Albertson et al., 2015), an important avenue for future intervention work will be to further investigate the efficacy of this online training for briefly yet substantially enhancing self-compassion and its associated salutary effects.

Given preliminary cross-sectional evidence documenting strong relationships between self-compassion and psychological flexibility (Wendling, 2012; Woodruff et al., 2014), as well as between self-compassion and job burnout (Barnard & Curry, 2012; Olson et al., 2015), future work might also investigate whether interventions designed to enhance self-compassion lead to increases in psychological flexibility, and whether either is a more powerful predictor of either positive and/or negative psychological and occupational health-related outcomes, such as engagement and burnout. Accordingly, the discussion will now turn to a brief review of the literature surrounding psychological flexibility, including its theoretical and conceptual roots in clinical psychology and more recent applications within the workplace context.

Psychological Flexibility

Initially introduced within clinical psychology as a promotable personal resource for reducing psychopathology and increasing overall psychological health and functioning (Hayes et al., 1999), psychological flexibility has been shown to predict a wide-range of work-related outcomes in over 20 studies, from mental health and work attitudes, to job performance and absence rates (cf. Bond et al., 2013). Much like emotional intelligence, psychological flexibility is a meta-cognitive construct emphasizing the extent to which individuals are able to perceive their thoughts and

feelings; yet, the two constructs differ as to *how* this ability is used to promote well-being and performance outcomes (Biron & van Veldhoven, 2012). While theories of emotional intelligence suggest that emotions should be identified, assessed, and ultimately regulated, the theory of psychological flexibility suggests that emotions are to be accepted rather than regulated, thus freeing valuable cognitive resources to pursue valued goals from moment to moment. Over the past 15 years, results from workplace intervention studies across multiple sectors (e.g., social workers; government and non-profit workers) have shown increased psychological flexibility to improve employee's mental health (Bond & Bunce, 2000; Brinkborg et al., 2011; Flaxman & Bond, 2010a, 2010b), enhance their ability to be innovative (Bond & Bunce, 2000), and reduce stress (Brinkborg, et al., 2011; Flaxman & Bond, 2010a, 2010b) and burnout (Biron & Van Veldhoven, 2012; Hayes et al., 2006; Lloyd et al., 2013). Indeed, explorations of the impact of psychological flexibility within the workplace have been so fruitful that a new measure of work-related psychological flexibility was recently developed (Bond et al., 2013).

While psychological flexibility is certainly not unique in its focus on goal-directed behavior (cf. goal setting, Locke & Latham, 1990; control, Klein, 1989; social-cognitive theories; Bandura, 1986), it is unique in that it "emphasizes people's goal-directed action *in* [direct] *relation to how mindful they are*" (Bond et al., 2013, p. 333; emphasis in the original). So while a focus on goals is important, individuals must also maintain a mindful awareness of their internal experiences, if such experiences are not to thwart their goal-directed behaviors, especially in times of stress or doubt (Bond et al., 2013). Indeed, Bond and Hayes (2002) hypothesize that it is this goal-related context

sensitivity that enables individuals to contact the present moment and respond more effectively to the contingencies of reinforcement at work, which then lead to higher levels of performance, job satisfaction, and engagement. Below, a theoretical and conceptual overview of psychological flexibility and interventions designed to enhance it are briefly discussed, followed by a more thorough review of the role and measurement of psychological flexibility within the workplace, including interventions and outcomes, correlates, and indirect effects. Finally, a summary, critique, and directions for future research are offered.

Psychological Flexibility: Theoretical and Conceptual Overview

As a construct, psychological flexibility was born out of Acceptance and Commitment Theory (ACT), which presumes low levels of psychological flexibility, sometimes termed psychological *in*flexibility or *experiential avoidance*, to underlie all maladaptive functioning (Hayes, 1987; Hayes et al., 1999). Low levels of psychological flexibility are manifested when internal language (i.e. self-talk) and cognition interact with direct behavioral contingencies to produce an inability to persist in or change behavior in the service of long-term valued ends. Low levels of psychological flexibility are further perpetuated and continually reinforced by social demands for reason-giving (Hayes, 2002), drawing individuals into attempts to understand and explain psychological events, even though doing so is often unnecessary, unhelpful, or counterproductive. Individuals thus come to live continuously "in their heads" as the conceptualized self, past, and future gain ever-increasing regulatory power over thoughts, feelings, and behaviors (Hayes et al., 2006), leading to cognitive fusion, or an overidentification with and attachment to rigid beliefs, evaluations, or judgments – especially those related to the

self – and usually, failed attempts to alter the form, frequency, or situational sensitivity of these private events. Ultimately, through this process of psychological inflexibility or experiential avoidance, individuals come to lose sight of both their values and their ability to engage in values-directed action in the service of immediate avoidance of continued psychological discomfort (Hayes et al., 2006).

Enhancing psychological flexibility: Acceptance and Commitment Therapy (ACT). The promotion of psychological flexibility, or *acceptance*, is considered the core mechanism of change within ACT (Hayes et al., 1999), a third-wave cognitive-behavioral theory and therapeutic (CBT) approach emphasizing contextual and experiential change strategies (e.g., mindfulness and acceptance) designed to alter both the *function* of internal psychological phenomena (e.g., thoughts, feelings) and an individual's relationship to them (Hayes et al., 2006). Perhaps the cornerstone of all third-wave CBT techniques is their focus on changing the way individuals relate to their thoughts while providing them with the ability to respond more adaptively in a wider range of contexts, and ACT is no exception. ACT increases psychological flexibility in multifaceted ways by fostering 1) *acceptance*, defined as a willingness to experience thoughts, feelings, and sensations, especially negative ones, without controlling, avoiding, or letting them determine one's actions; and 2) *commitment*, or the process of persisting in behavioral change that is consistent with one's personally espoused valued goals, regardless of how one may feel in the present moment (Hayes, 1987; Hayes et al., 2006; Onwezen, van Veldhoven, & Biron, 2014).

Psychological Flexibility in the Workplace

Conceptualization and measurement. Psychological flexibility is considered to be an "adaptive behavioral pattern with some stability and generalizability" (Onwezen et al., 2014; p. 169) that is also, to some extent, malleable and receptive to development through training and intervention (Bond et al., 2008; Bond et al., 2013). Nearly all work-related studies of psychological flexibility to date have used the Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004) or the Acceptance and Action Questionnaire II (AAQ-II; Bond et al., 2011), developed to address the psychometric limitations of the first version. Both of these measures were designed to assess general levels of the construct among clinical and community samples across different aspects of their lives (e.g., "Emotions cause problems in my life"), yet have also been demonstrated as important predictors of mental health and behavioral effectiveness in the workplace (cf. Bond et al., 2013). However, consistent with ACT theory positing contextual fluctuations in psychological flexibility, Bond and colleagues (2013) recently developed a work-context specific measure of psychological flexibility, the Work Acceptance and Action Questionnaire (WAAQ), which they found to more strongly predict work-related outcome variables.

AAQ. The initial AAQ (Hayes et al., 2004) is a 17-item measure designed to assess a person's willingness to experience undesirable feelings and thoughts (e.g., "I rarely worry about getting my anxieties, worries, and feelings under control"), as well as their ability to take action in the presence of those difficult feelings and thoughts (e.g., "When I feel depressed or anxious, I am unable to take care of my responsibilities"). While the AAQ has proven broadly useful in predicting a variety of outcomes including

anxiety, depression, general mental health, job satisfaction, future work absence, and future job performance (with an average effect size of r = .42; Hayes et al., 2006; Chawla & Ostafin, 2007; in Bond et al. 2011), it has been plagued by problems of low comprehension and reliability (internal consistency and test-retest) resulting from both unnecessary item complexity and the subtlety of the concepts addressed (Bond et al., 2011).

AAQ-II. To address the limitations of the AAQ, Bond and colleagues (2011) developed the 7-item AAQ-II, a unidimensional measure of psychological inflexibility or experiential avoidance that, like the AAQ-I, is often reverse-scored to reflect psychological flexibility. Like the AAQ, scores on the AAQ-II concurrently, longitudinally, and incrementally predict a range of outcomes from mental health to work absence rates, but with better internal consistency (mean α = .84) and test-retest reliability (3- and 12-month at .81 and .79, respectively) without sacrificing validity, as it demonstrates a correlation of .97 with the AAQ-I (cf. Bond et al., 2011).

WAAQ. Consistent with ACT theory (Hayes et al., 1999) positing that psychological flexibility can fluctuate across situations – for example, a person may be highly flexible as a father, but less so as an employee given fears of failure which may rigidly control his behavior in the work context – Bond and colleagues (2013) developed the 7-item Work Acceptance and Action Questionnaire (WAAQ) to measure the extent to which employees are able to take work-related, goal-directed actions in the presence of difficult internal experiences (e.g., “I am able to work effectively in spite of any personal worries that I have”). Findings from nearly 750 participants across three studies

document the structure, validity, and reliability of the WAAQ for assessing work-related psychological flexibility.

Consistent with hypotheses, the authors found that variables related to the specific, discrete context of workplace functioning correlated more highly with scores on the WAAQ (e.g., engagement, job satisfaction, objective task performance), while variables reflecting more stability and invariance across contexts (e.g., general mental health, personality traits) related more strongly with scores on the AAQ-II. Furthermore, the WAAQ predicted unique variance in engagement and each of its subscales of vigor, dedication, and absorption (as measured by the UWES; Schaufeli, Bakker, & Salanova, 2006) over and above the AAQ-II, and predicted incremental variance in vigor and dedication after accounting for all five "Big 5" personality factors as specified by Costa and McCrae (1992).

Interventions and outcomes. Most research to date has focused on ACT as a means of increasing psychological flexibility to reduce general levels of stress among employees. These interventions are time-intensive and delivered by trained professionals in an in-person, group training format consisting of three, 3-hour sessions (e.g., Bond & Hayes, 2002; Flaxman & Bond, 2010a, 2010b; Lloyd et al., 2013), sometimes across several weeks, using a variety of techniques including (a) the questioning and challenging of popular coping strategies, and the teaching of mindfulness- and acceptance-based coping strategies as alternatives; (b) an exploration of how lack of awareness and automatic thinking can cause internal struggles; and (c) the identification and recording of personally espoused values and value-consistent goals, as well as a discussion of barriers to achieving those goals. These randomized controlled-trial designs have found

ACT to be as effective as stress inoculation training (Flaxman & Bond, 2010a), and better than waitlist control (Brinkborg et al., 2011; Flaxman & Bond, 2010a, 2010b; Lloyd et al., 2013) in achieving clinically significant levels of reduced stress among employees (see Öst, 2014, for a meta-analysis).

More recently, studies have begun to document ACT as an effective treatment for reducing employee burnout and/or emotional exhaustion (Brinkborg et al., 2011; Hayes et al., 2006; Lloyd et al., 2013). Brinkborg and colleagues (2011) found a brief two-session, 6-hour total, ACT-based intervention to significantly reduce total burnout scores, as well as each subscale score of burnout (emotional exhaustion, depersonalization, and personal accomplishment) on the Maslach Burnout Inventory (MBI; Maslach & Jackson, 1981). Among those with high stress at baseline, 42% reached criteria for clinically significant change post-intervention. Indeed, baseline levels of stress do appear to impact the efficacy of ACT interventions in the workplace, with those that present the highest levels of stress benefiting most (Flaxman & Bond, 2010a).

Indirect effects. In response to a call from Xanthopoulou and colleagues (2007) to examine the impact of personal resources within the job demands-resources framework of burnout and engagement (Demerouti et al., 2001), research has begun to examine the impact of psychological flexibility as a moderator in the relationship between job demands and burnout, and job resources and engagement. Biron and van Veldhoven (2012) investigated psychological flexibility in the relationship between day level emotional demands and exhaustion across three consecutive workdays among a group of not-for-profit service workers, and found person-level psychological flexibility to be associated with lower levels of daily emotional exhaustion. Further, they found the

demands-exhaustion association to be attenuated as a function of psychological flexibility, suggesting that, like other personal resources (e.g., proactive coping; Ângelo & Chambel, 2014; Searle & Lee, 2015), psychological flexibility may indeed act as a buffer between job demands and this core and primary stage of burnout. In a similar study among the same sample, psychological flexibility was again found to attenuate the negative effects of emotional job demands on emotional exhaustion in addition to self-reported job performance (Onwezen et al., 2014), consistent with JD-R theory (Xanthopoulou et al., 2007). However, this attenuating role was reduced among employees reporting high levels of emotional exhaustion at baseline, suggesting the importance of early intervention.

Aligned with this notion, in an RCT design, Lloyd and colleagues (2013) found significant increases in psychological flexibility from a workplace ACT intervention to mediate subsequent decreases in emotional exhaustion, which then appeared to prevent the significant increases in depersonalization that were observed among a control group. It was confirmed through an additional mediation procedure that psychological flexibility was not exerting its influence on emotional exhaustion via reduced strain, and furthermore, that depersonalization had its basis in emotional exhaustion and strain, which in turn had their basis in psychological flexibility. Consistent with theoretical conceptualizations of the process of burnout (i.e., that emotional exhaustion develops first, leads to depersonalization, and then to reduced professional efficacy; cf. Maslach et al., 2001), these findings provide support for the fascinating idea that the core component and first stage of burnout (emotional exhaustion) may in fact be rooted in low levels of

psychological flexibility, and that increases in psychological flexibility may thus act as an initiating mechanism in burnout reduction.

Summary, Critique, and Future Directions

Psychological flexibility is a buildable personal resource (Bond et al., 2008) and a powerful indicator not only of overall psychological health, functioning, and well-being (cf. Öst, 2014), but of work-related functioning as well, including direct and indirect ties to performance and engagement, thus holding important implications for management. It is positively correlated with self-rated (Onwezen et al., 2014) and objective (Bond et al., 2013) task performance, engagement (Bond et al., 2013), job satisfaction (Bond et al., 2013), and innovation (Bond & Bunce, 2000), and negatively associated with stress and burnout (Biron & van Veldhoven, 2012; Bond et al., 2013; Bond & Bunce, 2000; Brinkborg et al., 2011; Lloyd et al., 2013; Onwezen et al., 2014). Very recently, a work-specific measure was developed and has yet to be tested other than in the initial validation paper (Bond et al., 2013).

There are several important avenues for future research on psychological flexibility in the workplace to address. First, traditional interventions to promote psychological flexibility (i.e. ACT), while efficacious, are time-consuming, complex, and must be professionally delivered. Given recent advances suggesting that self-compassion is a strong predictor of psychological flexibility (Wendling, 2012), both constructs predict similar outcomes (Woodruff et al., 2014), and that self-compassion is able to be increased by nearly a full standard deviation with a short, home-based intervention (Albertson et al., 2015), it is likely that increases in self-compassion will result in increases in psychological flexibility. Such a discovery would hold important

implications across multiple fields. Second, longitudinal work is needed to examine how work-related psychological flexibility may fluctuate with and impact various work-related outcomes to which it has been linked, including engagement and burnout. Further, additional construct refinement may be achieved by studies examining whether work-related psychological flexibility fluctuates across time and which factors may influence this (e.g., job demands and/or resources). Relatedly, work-related psychological flexibility is a timely and valuable construct to examine as a personal resource within the JD-R framework (Xanthopoulou et al., 2007), given that general psychological flexibility has been shown to buffer the impact of job demands on emotional exhaustion, yet no work to date has examined whether it facilitates the effects of job resources on engagement, or the performance of work-related psychological flexibility specifically within this model.

CHAPTER 3: THE PRESENT STUDY

Aligned with state of the art advances in clinical and positive psychology for promoting optimal health and functioning across a variety of contexts while simultaneously answering the call for an improved understanding of person-level variables and robust interventions affecting burnout and engagement within the job demands-resources framework (Bakker & Demerouti, 2007; Demerouti & Bakker, 2011), the present study aimed to (a) identify and increase functional understanding of personal psychological resources (self-compassion, psychological flexibility, and work-related psychological flexibility) as indirect effects that may mitigate the development of burnout and secondary traumatic stress while simultaneously facilitating engagement; and (b) investigate the impact of a brief online, self-guided self-compassion meditation intervention as a means of increasing self-compassion and engagement while decreasing emotional exhaustion and secondary traumatic stress among staff in the animal sheltering industry. As a secondary exploratory aim, the present study sought to determine whether the online self-compassion meditation intervention led to increases in psychological flexibility and/or work-related psychological flexibility, and whether and how potential changes in either were related to work-related outcomes of emotional exhaustion, secondary traumatic stress, and engagement.

In determining whether the proposed indirect effects are best conceptualized as mediators (within-person process variables) or moderators (between-person risk or

resiliency factors), prior research suggests that either approach is viable. Much like mindfulness, self-compassion and psychological flexibility can both be effectively conceptualized as both a *practice* (i.e. process), suggesting a mediating effect, and as a more trait-like *propensity to engage in* that practice, suggesting a moderating effect. Situated within the JD-R framework, the present study sought to shed light on why individuals in the same occupational context experience different outcomes. Self-compassion, psychological flexibility, and work-related psychological flexibility all represent adaptive approaches to coping with stress and are thus likely to buffer (Searle & Lee, 2015; Van de Ven et al., 2013; Xanthopoulou et al., 2007) the effects of emotional demands (e.g., dealing with animals or people whose problems touch an employee emotionally) on emotional exhaustion.

Specifically, the general tendency to extend kindness and compassion toward the self, as well as to respond in more psychologically flexible ways to difficult internal experiences (e.g., accepting and committing to valued goals and actions regardless of one's current emotional state), should enable employees to cope more adaptively with emotional job demands, thus offsetting their impact on the development of emotional exhaustion. For example, if an employee has a particularly difficult day at work due to having to euthanize a well-liked animal, a self-compassionate response to that particular emotional job demand might be to say to oneself, "Wow, I notice that I'm feeling really upset about having to euthanize this animal (mindfulness), yet this is not because I am weak or bad at my job (self-kindness), but because most people in my situation would also feel sad (common humanity) at having to euthanize this animal. I should take it easy on myself for the rest of the day given how hard this has been for me today (self-

kindness).” Likewise, a psychologically flexible response might be, “Wow, I realize that I am very upset about having to euthanize this animal (mindfulness), and I acknowledge and accept that this a very difficult part of my work that unfortunately I must experience from time to time (acceptance). However, I know that these feelings, though painful, need not detract from my ultimate goal(s) of helping companion animals, so I am going to continue to do the best I can today on all other fronts to help the other animals here find a home (commitment).”

Each of the these three variables were again proposed as moderators or facilitators in the motivational side of the model (e.g., Searle & Lee, 2015), given that these positive approaches to coping are likely to further enhance the influence of emotional job resources (e.g., emotional support at work from others) on engagement. For example, an employee who is higher in self-compassion is likely to be more mindful and thus more aware that they are experiencing work-related suffering (e.g., despondency from having to euthanize a well-liked animal) in the first place. Then, they might also be more likely to seek out emotional resources (e.g., talking to a supportive supervisor or coworker), given that this is a way of extending kindness and understanding toward the self (i.e., by seeking support), and a recognition that others would be likely to experience the same reaction as they in a given situation (common humanity). Finally, having effectively mobilized both job and personal resources, the employee is able to return to their work with renewed dedication and enthusiasm (engagement). Similarly, because of their mindfulness, acceptance of difficult internal experiences, and commitment to continued engagement in valued, goal-directed action, an employee who possesses the tendency to respond in more psychologically flexible ways is more likely to take advantage of

opportunities to express emotions at work when a threatening situation occurs (emotional job resource), such that these emotional resources are further enhanced by their psychological flexibility and vice versa, thus positively impacting job engagement.

Because all three proposed moderators are grounded in mindfulness, and because each outcome has been associated both cross-sectionally and experimentally with mindfulness, one set of moderator analyses will include mindfulness as a control variable in an attempt to establish incremental predictive validity for each of the aforementioned moderators, serving to establish the additional meaningfulness of these person-level variables over and above multifaceted understandings of mindfulness. Finally, given strong predictive associations between trait affect and each outcome, positive and negative affect will be included as controls in those models as well, again for the purposes of establishing incremental validity given the novelty of these variables in this particular domain.

With regard to the second primary aim, while most research to date investigating interventions in the areas of self-compassion and mindfulness has focused on in-person trainings, recent work provides evidence for the feasibility and effectiveness of brief online trainings. Cavanagh and colleagues (2013) employed a 2-week online mindfulness meditation training among 104 college students, whereby students were asked to listen to a 10-minute guided mindfulness meditation once per day. They found significant increases in multi-factor trait mindfulness (d = .42), in addition to significant decreases in perceived stress (d = .62), and anxiety and depression (d = .41) among the intervention group, but not among the waitlist control group. Similarly, a recent meta-analysis of 10 studies (Cavanagh et al., 2014) found significant, medium-sized increases (g = .49; 95%

CI = 0.23 to 0.76) in mindfulness and/or acceptance resulting from various self-help approaches 1) that required either reduced or no practitioner input and 2) whose materials (audio recordings, etc.) aimed to provide instruction in addition to guiding and encouraging the user to develop their skills, manage their difficulties, and make changes, rather than just simply providing information. Despite differing intervention approaches and measurements across these 10 studies, effect sizes were not significantly heterogeneous, suggesting that, across populations, measures, and specific modalities, brief self-help trainings grounded in the third-wave cognitive-behavioral tradition, such as the present study, are effective in increasing the outcomes of interest.

Research Questions and Hypotheses

The present study attempted to investigate the following research questions. The first question was addressed using data from the baseline survey only, while the second and third questions were addressed using the full longitudinal data set. Refer to Figure 1 in Appendix A for a model depicting the first set of hypotheses.

1. Do self-compassion, psychological flexibility, and/or work-related psychological flexibility moderate the relationship between emotional job demands and emotional exhaustion, and/or between emotional job resources and engagement?
    a. H1a: Self-compassion, psychological flexibility, and work-related psychological flexibility will each moderate the relationship between emotional job demands and emotional exhaustion, such that those who possess more of each characteristic will better cope with emotional job demands, thus offsetting their impact on the development of emotional exhaustion.

b. H1b: Controlling for relevant confounds (five-factor mindfulness, trait positive and negative affect), each will moderate the relationship between emotional job demands and emotional exhaustion, such that individuals possessing more of each characteristic are better able to cope with emotional job demands, thus lessening their impact on the development of emotional exhaustion.

c. H1c: Self-compassion, psychological flexibility, and work-related psychological flexibility will each moderate the relationship between emotional job resources and engagement, as those higher on each characteristic are more likely to make better use of emotional job resources, thus further enhancing engagement.

d. H1d: Controlling for relevant confounds (five-factor mindfulness, trait positive and negative affect), self-compassion, psychological flexibility, and work-related psychological flexibility will each moderate the relationship between emotional job resources and engagement, as those higher on each characteristic are more likely to make better use of emotional job resources, thus further enhancing engagement.

2. Does a 4-week self-compassion meditation intervention lead to a) increases in self-compassion and engagement and b) decreases in emotional exhaustion and secondary traumatic stress while controlling for job demands and resources? If so, c) are significant changes sustained at 6-week follow-up?

   a. H2a: Participants in the intervention group will evidence significant increases in self-compassion and engagement relative to participants in the wait-list control group.
   b. H2b: Participants in the intervention group will evidence significant decreases in emotional exhaustion and secondary traumatic stress relative to participants in the wait-list control group.
   c. H2c: Significant increases in self-compassion and engagement and significant decreases in emotional exhaustion and secondary traumatic stress will be maintained at 6-week follow-up among individuals in the intervention group only.

3. Does a 4-week self-compassion meditation intervention lead to a) increases in psychological flexibility and/or work-related psychological flexibility? If so, b) are significant changes sustained at 6-week follow-up?
   a. H3a: Participants in the intervention group will evidence significant increases in psychological flexibility and work-related psychological flexibility relative to participants in the wait-list control group.
   b. H3b: Significant increases in psychological flexibility and work-related psychological flexibility will be maintained at 6-week follow-up among individuals in the intervention group only.

CHAPTER 4: METHODOLOGY

Participants

Two hundred and forty-three adults over age 18 and working a minimum of 30 hours per week at an animal shelter in the U.S. or Canada were recruited between February 23rd and March 28th, 2016. Emails containing a short description of the study and an attached flier were sent to leadership staff (e.g., Executive Directors, HR Managers, Chief Operating Officers) at approximately 30 shelters with 1600 employees, asking that the opportunity be shared with staff. Additionally, the Society of Animal Welfare Administrators (SAWA) included a very brief announcement about the study with a link to the baseline survey in their monthly newsletter that was distributed mid-March, 2016. The baseline survey was closed after 5 weeks due to stagnating response rates and in order to minimize loss of interest from early enrollees.

Of the 243 responses to the baseline survey, 30 (12%) were excluded due to reported concurrent receipt of psychotherapeutic or coaching services; 9 (4%) were excluded due to working less than 30 hours per week; and 6 (2%) were excluded for reporting to reside outside of the U.S. or Canada. Of the 198 remaining eligible respondents, 79 (40%) were excluded due to survey nonresponse (<75% completion of total baseline survey), leaving 119 eligible, completed responses for randomization to treatment and control groups (refer to Figure 2 below for an attrition flow chart). Prior research surrounding online RCTs suggests considerable risk of attrition above 50%

(Christensen, Griffiths, & Farrer, 2009), with additional risks of increased survey nonresponse due to measures not administered by a researcher. To address this issue, some scholars have responded by only allowing those with complete baseline data to access the intervention (Todd, Solis-Trapala, Jones, & Lobban, 2012). For this reason, participants in the current study were randomized to condition only after completing at least 75% of the baseline survey in its entirety. Sixty and fifty-nine participants respectively, were randomized to treatment and control conditions using the "Random Sample" function in SPSS. Please refer to Table 1 below for additional descriptives regarding sample characteristics.

Table 1
Baseline Sample Characteristics

	N	%*		*N*	%*
Gender			Education		
Male	10	8.4	H.S. Diploma	5	4.2
Female	108	90.8	Some College	26	21.8
			Trade/Associate's	20	16.8
			Bachelor's Degree	40	33.6
			Master's Degree	14	11.8
			Doctoral Degree	13	10.9
Age			Tenure		
18-30 years old	23	19.3	< 6 months	8	6.7
31-40 years old	43	36.1	< 1 year	7	5.9
41-50 years old	23	19.3	< 5 years	52	43.7
51-60 years old	25	21.0	< 10 years	24	20.2
Over 60	4	3.4	> 10 years	27	22.7
Marital Status			Region		
Single	33	27.7	Pacific Southwest	20	16.8
Married	61	51.3	Pacific Northwest	30	25.2
Partnered	13	10.9	Mountain States	26	21.8
Divorced	7	5.9	Midwest	16	13.4
Widowed	3	2.5	Southeast	11	9.2
			Mid-Atlantic	4	3.4
			Northeast	5	4.2
			Canada	5	4.2
Race			Meditation Experience		
White	103	86.6	None	42	35.3
Black	1	.8	Do not practice regularly	67	56.3
Asian	2	1.7	Practice a few times/month	7	5.9
Other	10	8.4	Practice (almost) daily	2	1.7
Income					
<$35K	34	28.6			
$35-50K	17	14.3			
$50-75K	21	17.6			
$75-100K	20	16.8			
$100-150K	12	10.1			
>$150K	9	7.6			
Prefer not to disclose	3	2.5			

**Note*. Percentages may not add to 100 due to rounding.

Procedure

Participants self-enrolled in the study by completing a baseline survey in Qualtrics. Following the 5-week recruitment period and randomization, the Thursday before the first weekly meditation was to begin the following Monday, participants in the treatment group were sent a one-page "meditation primer" (see Appendix D) welcome e-mail containing a brief introduction to meditation, what to expect, and how to get the

most out of the meditations each week. They were also provided with information regarding when to expect the weekly meditation link to arrive and when to expect a request for first weekly survey completion. Participants in the control condition were e-mailed the same day, welcoming them to the study and explaining when to expect their first weekly survey. The following Monday, participants in the treatment condition received an e-mail containing a link to the first weekly meditation. That Friday, participants in both groups received a link to the first weekly survey, which took participants an average of approximately 3 minutes to complete. The weekly surveys contained shortened, 2-3 item measures of the primary dependent variables based on factor analytic findings where available (refer to Measures section below). Non-responders were sent reminder e-mails the following Monday morning, and participants were allowed to complete the weekly survey until 11:59pm the next day (Tuesday). This process was repeated each week until the end of the 4th week. Six weeks following the completion of the 4th weekly survey, participants in both groups were sent an e-mail link to a brief follow-up survey. Participants were given one week to complete this survey, with one reminder e-mail sent after 3 days.

Prior to study initiation, participants in the control condition were each offered a $20 gift card to their choice of Target or Amazon as an incentive to complete all six study time points (baseline, 4 weekly surveys, and 6-week follow-up survey). Initially, the intervention group was not offered any incentive other than the intervention itself. However, due to extremely high rates of attrition within the first week of treatment, IRB approval was sought and obtained to offer the $20 gift card incentive to all participants in the treatment group completing the remainder of the weekly meditations (minimum of 4

per week) and weekly surveys. At the end of the 6-week follow-up period, participants in the control group were offered the series of meditations. University Institutional Review Board (IRB) approval was obtained for all study procedures on February 3rd, 2016.

Measurement[1]

Informed Consent

Each participant was presented with an IRB-approved informed consent document on university letterhead prior to completion of the baseline measures. The document was the first screen participants saw when they attempted to access the survey through Qualtrics after the eligibility screen. The informed consent explained in detail the nature of the study (i.e. randomization), compensation, time commitments, potential risks and benefits of participation, and confidentiality and privacy protections. Participants read and agreed to the informed consent document by clicking "I agree," before they were allowed to access the baseline survey.

Demographics

Participants completed a basic demographic questionnaire consisting of age, gender, marital status, race/ethnicity, annual household income, time at current job, place of employment, highest level of education completed, and region of U.S. or Canadian residence. Participants were also asked to report whether they had any prior meditation experience (cf. Albertson et al., 2015).

Adherence

Per prior research (Albertson et al., 2015), adherence was assessed by asking participants to report how many days per week they listened to the meditations each

[1] Please refer to Appendix B, Table 1 for a listing of all measures and time of administration. Please refer to Appendix C for copies of all measures used.

week. Additionally, an embedded timer function within Qualtrics measured how long participants remained on the webpage containing the meditation. However, because most participants failed to "click the red arrow" each time they were finished listening to the meditation(s), this data was used as a crosscheck only with the self-report data.

Manipulation Check

At the last weekly data collection, participants in the control group were asked whether they spoke with anyone in the treatment group throughout the 4-week intervention, and if so, what was said.

Qualitative Measures

At the end of the intervention, as part of the fourth weekly survey, treatment group participants were asked a number of open-ended questions to assess their experiences with the meditations. Specifically, they were asked to 1) Report their overall experiences with the meditations, including any general feedback; 2) Identify and describe barriers, if any, they had to practicing the meditations on a daily basis; and 3) Whether they suggested any improvements for the study.

Self-Compassion

Self-compassion was measured with the 12-item short-form of the Self-Compassion Scale (SCS-SF; Raes, Pommier, Neff, & Van Gucht, 2011). The scale is divided into 6 subscales of self-kindness (e.g., "I try to be understanding and patient towards those aspects of my personality that I don't like"), common humanity, and mindfulness, with opposing scales of self-judgment (e.g., "I'm disapproving and judgmental about my own flaws and inadequacies"), isolation, and over-identification, respectively. Items are rated on a 5-point response scale ranging from 1 (*almost never*) to

5 (*almost always*). A total self-compassion score was computed by reversing the negative subscale items and then averaging all item scores. The scale demonstrated good internal consistency in the present study (α = .87).

Psychological Flexibility

Psychological flexibility was measured with the 7-item Acceptance and Action Questionnaire II (AAQ-II; Bond et al., 2011). Each item was rated on a 7-point scale ranging from 1 (*never true*) to 7 (*always true*). The scale assesses the unidimensional construct of psychological flexibility, including items such as "I'm afraid of my feelings," and "My painful experiences and memories make it difficult for me to live a life that I would value." The instrument reflects good factor structure and 3- and 12-month test-retest reliability (Bond et al., 2011). Scoring was conducted by averaging the seven item scores, with higher scores indicating higher levels of psychological inflexibility, and lower scores indicating lower levels of psychological inflexibility. However, the measure is commonly reverse scored such that higher scores indicate higher levels of psychological flexibility and lower scores indicate lower levels of psychological flexibility (Bond et al., 2011). The reverse scored method was used for the present study and demonstrated excellent reliability (α = .91)

Work-Related Psychological Flexibility

Work-related psychological flexibility was measured with the Work-Related Acceptance and Action Questionnaire (WAAQ; Bond et al., 2013), a 7-item self-report measure designed to measure psychological flexibility as it relates the workplace. Items are designed to test the extent to which people can take goal-directed actions in the presence of difficult internal experiences (e.g., "I am able to work effectively in spite of

any personal problems that I have."). Items were responded to on a 7-point Likert scale ranging from 1 (*never true*) to 7 (*always true*). The scale demonstrates adequate factor structure and validity across three samples (Bond et al., 2013), and reliability was good in the present study (α = .87).

Emotional Job Demands and Resources

Emotional job demands and resources were measured with 11 items from the corresponding subscales of the DISC 2.1 Questionnaire, English Version (de Jonge et al., 2009). The scale asks respondents to imagine that someone else ("Employee X") has the same job and qualifications as they have and have been on the job for one year. Emotional job demands were measured with 6 items, such as "Employee X will have to do a lot of emotionally draining work," while emotional job resources were measured with 5 items such as, "Employee X will get emotional support from others (e.g., clients, colleagues, or supervisors) when a threatening situation at work occurs." Responses were provided on 5-point scale ranging from 1 (*never or very rarely*) to 5 (*very often or always*). Internal consistency scores for each subscale were α = .75 and α = .81, respectively, consistent with prior research (e.g. Van de Ven et al., 2013).

Emotional Exhaustion

Emotional exhaustion was measured via the 5-item emotional exhaustion subscale of the Maslach Burnout Inventory General Survey (MBI-GS; Maslach, Jackson, & Leiter, 1996). A multitude of evidence suggests that emotional exhaustion is the "core" dimension of burnout (cf. Maslach et al., 2001) and the initial phase in a series of symptoms, including depersonalization and reduced professional efficacy. Items such as, "I feel emotionally drained from work" and "I feel fatigued when I get up in the morning

and have to face another day on the job," were answered on a 6-point scale ranging from 1 (*never*) to 6 (*always*). The subscale is well-validated and demonstrated excellent reliability in the current study (α = .94).

Secondary Traumatic Stress

Secondary traumatic stress was assessed with 16 items from the Secondary Traumatic Stress Scale (STSS; Bride, Robinson, Yegidis, & Figley, 2004). The scale measures intrusion, avoidance, and arousal symptoms associated with indirect exposure to traumatic events via one's professional relationships with traumatized clients (in this case, animals). The scale demonstrates convergent (e.g., depression; anxiety), discriminant, and factorial validity and good reliability estimates (α = .80-.93; Bride et al., 2004). An example item is, "I thought about my work with animals when I didn't intend to." Responses are provided on a 5-point frequency scale from 1 (*never*) to 5 (*very often*). Reliability was excellent in the current study (α = .92).

Engagement

Engagement was measured via the 9-item short form of the Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2006), consisting of three dimensions: vigor (3 items), dedication (3 items), and absorption (3 items). Participants were asked to indicate to what extent they agree with the statements in general. A sample item for vigor is, "At work, I feel bursting with energy," for dedication is, "My job inspires me," and for absorption is, "I am immersed in my work." Items were scored on a 7-point scale ranging from 0 (*never*) to 6 (*always*), and averaging the items from each subscale and/or total scale yielded a total score between 0 and 6. The scale exhibits factorial validity, good

internal consistency (α = .72 - .90) and test-retest reliability (Schaufeli et al., 2006). Internal consistency was excellent in the current study (α = .92).

Control Variables

Three control variables were included in the second series of baseline moderator models due to documented relationships with study outcomes of emotional exhaustion (burnout) and engagement. Trait positive and negative affect have been associated with burnout (for a meta-analysis, see Alarcon, Eschelman, & Bowling, 2009) and engagement (e.g., Dalal, Baysinger, Brummel, & LeBreton, 2012; Macey & Schneider, 2008). Mindfulness, a component of self-compassion (Neff, 2003a, 2003b) and psychological flexibility (Hayes et al., 2006), is positively related to engagement (Leroy et al., 2013), and negatively related to emotional exhaustion (Hülsheger, Alberts, Feinholdt, & Lang, 2013).

Positive and negative affect. Trait positive (PA) and negative (NA) affectivity was measured with the International Positive and Negative Affect Schedule, Short Form (I-PANAS-SF; Thompson, 2007), a short version of the original PANAS (Watson, Clark, & Tellegen, 1988) that has been well-validated. Participants were provided with a checklist of 10 emotions/affects and then asked to report how often they generally feel that way, with 1 = *never* and 5 = *always*. Example items include "Upset," "Inspired," "Determined," "Afraid." Total scores for trait PA and NA were calculated by averaging subscale scores for each item, with higher scores indicating higher levels of positive affect, and lower scores indicating lower levels of negative affect. Both subscales demonstrated good to adequate internal consistency in the present study (PA, α = .85; NA, α = .79).

Mindfulness. Trait mindfulness was measured via the Five Facet Mindfulness Questionnaire, Short-Form (FFMQ-SF; Bohlmeijer, ten Klooster, Fledderus, Veehof, & Baer, 2011). The FFMQ is currently considered the best available option for measuring multidimensional mindfulness (Bergomi et al., 2013) given that it represents an attempt at integrating conceptualizations and operationalizations of mindfulness across five of seven previously validated measures. The 24-item short form has been cross-validated and demonstrates good reliability and validity in measuring the five factors of mindfulness: observing (e.g., "I pay attention to physical experiences, such as the wind in my hair or the sun on my face"), describing (e.g., "I'm good at finding words to describe my feelings"), acting with awareness (e.g., "I find myself doing things without paying attention"), nonjudgment (e.g., "I tell myself that I shouldn't be thinking the way that I'm thinking"), and nonreactivity (e.g., "When I have distressing thoughts or images, I just notice them and let them go"). Items are answered on a 5-point scale ranging from 1 (*never or very rarely true*) to 5 (*very often or always true*), and only the full-scale score was calculated in the current study, demonstrating good internal consistency ($\alpha = .89$).

Weekly Measures

Each of the study's primary outcome variables were assessed weekly to allow for more sophisticated and robust tracking and analysis of change trajectories throughout the intervention process. Representative items, based on factor analytic findings (e.g., item loadings and variance explained), face validity (Xanthopoulou et al., 2009), and prior research using truncated measures where available, were selected from each scale in order to minimize participant burden and facilitate completion of the weekly surveys.

Self-compassion. Similar to prior research (Breines et al., 2014), weekly fluctuations in self-compassion were measured using a shortened version of the Self-Compassion Scale, Short-Form (Raes et al., 2011). The highest loading item from each of the six subscales was selected and then reworded where necessary to reflect feelings experienced in the past week, rather than in general. A sample item is, [This past week] "When something painful happened, I tried to take a balanced view of the situation." The scale demonstrated adequate internal consistency across time points (α = .68-.82) and a very strong correlation with the longer version of the measure administered at baseline, $r = .82$, $p < .001$. Participants responded on a 5-point scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*).

Psychological flexibility. A 3-item weekly measure was created by selecting the three highest loading items from the unidimensional Acceptance and Action Questionnaire, II (Bond et al., 2011) measuring psychological inflexibility. Items were reworded to reflect measurement at the week level: "This past week, emotions caused problems in my life." Participants responded on a 5-point scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). Like the baseline measure, the scale was reverse-scored to represent psychological flexibility. The scale demonstrated adequate internal consistency across all time points (α = .77 - .87), with one exception (α = .64 at Week 1). The scale correlated strongly with the full version administered at baseline, $r = .78$, $p < .001$

Work-related psychological flexibility. Three items were chosen from the 7-item Work-Related Acceptance and Action Questionnaire (WAAQ; Bond et al., 2013) based on item loadings from factor analytic findings across three samples (Bond et al.,

2013), and wording was updated to reflect the week level: “This past week, my thoughts and feelings did not get in the way of my work.” Participants responded on a 5-point Likert scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*), and the scale presented adequate to good internal consistency across all time points (α = .79 - .86) as well as a relatively strong correlation with the full measure at baseline $r = .63$, $p < .001$

Emotional job demands and resources. Weekly emotional job demands and resources were measured using a modified version of each corresponding subscale from the shortened DISC 2.1 Questionnaire (de Jonge et al., 2009; cf. Bova, De Jonge, & Guglielmi, 2013). Instead of asking respondents to imagine that someone else (“Employee X”) had their job, as in the original version, respondents were asked directly to reflect on the past week and report how often they experienced each demand and resource, per prior research at the day-level (Niks, Gevers, De Jonge, & Houtman, 2016). Weekly emotional job demands were assessed with 3 items such as, “This past week, I had to deal with people or animals whose problems touched me emotionally.” Job resources were assessed with 3 items such as, “This past week, I could count on emotional support from others (clients, colleagues, or supervisors) when a threatening situation at work occurred.” Responses were provided on 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). While the Emotional Job Resources subscale demonstrated good reliability across all time points (α = .81 - .90), the Emotional Job Demands subscale exhibited questionable (α = .62 - .75) to unacceptably low reliability at one time point (α = .48). Both shortened measures evidenced moderately strong correlations with the full measures administered at baseline, $r = .56$, $p < .001$, for emotional demands, and $r = .57$, $p < .001$, for emotional resources.

Emotional exhaustion. Weekly emotional exhaustion was measured with 5 items from the emotional exhaustion subscale of the Maslach Burnout Inventory – General Survey (Maslach & Jackson, 1981). Wording was updated to reflect measurement at the week level: "This past week, I felt emotionally drained from work." Participants responded via a 5-point frequency-oriented format from 1 (*never*) to 5 (*very often*), with excellent reliabilities across all time points (α = .89 - .94).

Secondary traumatic stress. Weekly secondary traumatic stress was assessed with 6 items from the Secondary Traumatic Stress Scale (Bride et al., 2004). Two items from each subscale of intrusion, avoidance, and arousal were selected based on item loadings and variance explained in the original scale validation paper (Bride et al., 2004). A total score was calculated by summing all six items. Wording was updated to reflect the past week: "This past week, reminders of my work with animals upset me" and responses were provided on a 5-point frequency scale ranging from 1 (*never*) to 5 (*very often*). Reliability was acceptable across all time points (α = .75 - .83), and the shortened measure demonstrated a very strong correlation with the full measure administered at baseline, $r = .80$, $p < .001$

Engagement. Engagement was measured with the highest loading item from each of the 3 subscales of the short form of the Utrecht Work Engagement Scale (Schaufeli et al., 2006). Wording was updated to reflect measurement at the week level: "This past week at work, I felt bursting with energy." Items were scored on a 5-point scale ranging from 1 (*never*) to 5 (*very often*). Reliability was acceptable across all time points (α = .7 - .82), and the shortened measure demonstrated a moderately strong relationship with the full measure administered at baseline, $r = .56$, $p < .001$

Intervention

Research on self-compassion and similar mindfulness training interventions suggest that short practice periods such as 4 weeks are efficacious and can indeed result in large and significant improvements in self-compassion and mindfulness (Albertson et al, 2015; Britton et al., 2010; Glück & Maercker, 2011, Richardson & Rothstein, 2008; Tang et al., 2007). Each week, intervention participants received a link via e-mail to a different podcast (mp3 audio file) containing a 20-minute self-compassion meditation with the instructions: "Please try to listen to this meditation once per day for the next week." The three guided self-compassion meditations are taught in the Mindful Self-Compassion program (Neff & Germer, 2013) and are freely available at selfcompassion.org. Each meditation is designed to increase the three facets of self-compassion to varying degrees. For example, the first week's meditation, a compassionate body scan, is designed primarily to facilitate mindfulness by asking the listener to get in touch with and "just notice" bodily sensations, and is very similar to the first in a series of guided meditations implemented in the widely accepted and researched Mindfulness-Based Stress Reduction program by Jon Kabat-Zinn (1982). The body scan implemented here directly incorporates self-compassionate content by asking listeners to place a hand on the heart as a reminder to be kind to themselves, designed to increase the self-kindness component of self-compassion. The second week's meditation is grounded in the breath, again incorporating mindfulness, but also self-kindness and common humanity as listeners are asked to breathe in affection and kindness to themselves while breathing out affection and kindness toward others who are suffering. The third week's meditation is a variant of a "loving-kindness" meditation, an ancient Buddhist practice

designed to increase goodwill toward the self and others (Grossman, Niemann, Schmidt, & Walach, 2004), and focusing specifically on emphasizing compassion for feelings of perceived inadequacy or stress (Neff & Germer, 2013). Mindfulness is cultivated in this meditation by asking the listener to locate the sensations of these feelings in the body while soothing and comforting the self (self-kindness), and being asked to recognize that all people fail, make mistakes, and have serious life challenges (common humanity; Neff & Germer, 2013).

The first week's meditation was a Compassionate Body Scan, designed to help the listener get in touch with bodily sensations, while bringing a sense of compassion, peace, and gratitude to the body. The listener was instructed to lie down and rest a hand on their heart as a reminder to be kind to themselves. The listener was then instructed to "just notice" sensations in various body parts, starting with the feet and working up to the head. The listener was asked to breathe deeply and return to feeling simple sensations in light of judgmental or distracting thoughts that may have arisen.

The second week's meditation, Affectionate Breathing, asks the listener to take deep breaths, letting out any tension, and then allow breathing to return to normal. Next, the listener is asked to notice where the breath is felt most strongly, without trying to control the breath, told to adopt a little half smile, and observe how he or she feels. The listener is then asked to set an intention to breathe in affection and kindness toward oneself with each in-breath, and to breathe out affection and kindness toward others who are suffering with each out-breath.

The third week's meditation is a loving-kindness meditation focused on having self-compassion for a personal experience of suffering. The listener is asked to bring

attention to a trait or behavior that has generated negative emotions, allowing whatever feelings are connected with this perceived inadequacy to arise. The listener is then instructed to locate the physical sensation of these emotions in the body, while placing both hands over the heart, soothing and comforting the self for the difficult thoughts and emotions currently being experienced. The listener is asked to silently repeat the following phrases to themselves: “May I be safe. May I be peaceful. May I be kind to myself. May I accept myself as I am.” For the fourth and final week, participants were provided with access to all 3 prior meditations and asked to choose their favorite to listen to once per day for that week.

CHAPTER 5: RESULTS

Preliminary Results

Descriptive and correlational statistics for the combined sample on baseline variables are presented in Table 2 (pg. 71). An examination of the distributional characteristics of all variables suggested that each met assumptions of normality and thus did not require transformation in accordance with Kline's (2010) criteria (skewness > 3.0; kurtosis > 10.0) for conducting subsequent parametric statistical procedures. As noted in Table 2, all linear relationships were highly significant and in the expected directions.

Moderator Analyses

To answer the first research question and evaluate whether self-compassion, psychological flexibility, and/or work-related psychological flexibility moderated the relationship between emotional job demands and emotional exhaustion (H1a), or emotional job resources and job engagement (H1c), six separate hierarchical regression models were computed. Subsequently, six additional hierarchical regression analyses including control variables of mindfulness and positive and negative affect were computed to test Hypotheses H1b and H1d. Prior to conducting analyses, predictor variables were mean centered to reduce instances of multicollinearity and to enhance interpretability according to Aiken and West (1991). Interaction terms were then computed by multiplying the respective centered predictors.

Emotional Exhaustion

To test Hypothesis 1a and determine whether self-compassion, psychological flexibility, or work-related psychological flexibility moderated the relationship between emotional job demands and emotional exhaustion at baseline, three separate hierarchical linear regression equations were examined. For each analysis, emotional job demands were entered in Block 1; emotional job demands and either self-compassion, psychological flexibility, or work-related psychological flexibility were entered in Block 2, and the interaction term (e.g., emotional job demands*self-compassion) was entered in Block 3. Inclusive of all predictors, each of the three models explained 31-40% of the variance in emotional exhaustion, and in every case, the addition of the novel positive psychology variable in Block 2 resulted in significantly improved model fit. However, the addition of the interaction term in each model at Block 3 was not statistically significant, failing to support Hypothesis 1a. An examination of each predictor's unique contribution presented in Table 3 (pg. 72) reveals that as expected, emotional job demands were the strongest predictor of emotional exhaustion across all models; however, the inclusion of self-compassion, psychological flexibility, and work-related psychological flexibility in Block 2 of each respective model contributed incremental predictive variance ranging from 4% to 13%.

To test Hypothesis 1b and determine whether moderator effects emerged inclusive of the conceptually relevant controls of multifaceted mindfulness and trait positive and negative affect, three hierarchical regression analyses were again conducted, this time with the control variables entered in Block 1, emotional job demands and the novel positive psychology variable in Block 2, and the interaction term in Block 3. Each of the

three models, inclusive of all predictors, explained 47% to 49% of the total variance in emotional exhaustion, and in each case, the addition of emotional job demands and the novel predictor variable again resulted in significant improvement of model fit at Block 2. However, just as above, the addition of the interaction term was not statistically significant, failing to support Hypothesis 1b.

In accordance with expectations, five-factor trait mindfulness emerged as a strong and significant negative predictor of emotional exhaustion, followed by trait negative affect. Finally, results revealed psychological flexibility as a significant negative predictor of emotional exhaustion over and above the predictor variable of emotional job demands and controls of trait negative and positive affect and five-factor mindfulness (refer to Table 4, p. 73).

Engagement

To test Hypothesis 1c and determine whether self-compassion, psychological flexibility, or work-related psychological flexibility moderated the relationship between emotional job resources and engagement at baseline, again three separate hierarchical linear regression equations were examined. For each of the three models, emotional job resources were entered in Block 1, emotional job resources and the novel predictor variable in Block 2, and the interaction term in Block 3. Inclusive of all predictors, each model explained 20% to 44% of the total variance in engagement (refer to Table 5, p. 74). Across all three models, the inclusion of the novel predictor variable in Block 2 contributed an additional 6% to 13% predictive variance; yet the addition of the interaction term in Block 3 was not statistically significant, failing to support Hypothesis 1c.

To test Hypothesis 1d and determine whether moderator effects emerged inclusive of conceptually relevant controls, three additional hierarchical regression analyses were conducted. Like above, the control variables of multifaceted mindfulness, trait positive and negative affect were entered in Block 1, emotional job resources and the novel predictor variable in Block 2, and the interaction term in Block 3. Inclusive of all predictors, each of the three models explained 66-67% of the total variance in engagement. Yet, the vast majority of this variance was explained by control variables, as the addition of emotional job resources and each novel predictor variable was not statistically significant in each model except for work-related psychological flexibility, which explained an additional 2% variance in engagement (refer to Table 6, p. 75). The addition of the interaction term was again not statistically significant in any model, failing to provide support for Hypothesis 1d. An examination of Table 6 suggests that trait positive affect was by far the strongest predictor of engagement, followed by five-factor mindfulness, also a significant positive predictor.

Intervention Results

Preliminary Analyses

Prior to conducting intervention analyses, *t*-tests and chi-square tests were conducted to identify any potential between-group differences on demographic, control, and primary outcome variables. While treatment and control groups did not differ significantly on any demographic variables, they did differ significantly on baseline levels of psychological flexibility, $t(117) = 3.21$, $p = .002$, with participants in the treatment group reporting significantly higher levels of this characteristic ($M = 4.98$, $SD = 1.12$) than participants in the control group ($M = 4.29$, $SD = 1.24$), with medium-sized

effects (d = .58). They also differed significantly on baseline weekly levels (i.e., past week) of self-compassion, $t(117) = 2.32$, p = .02, d = .42, and psychological flexibility, $t(117) = 2.85$, p = .005, d = .53, with those in the treatment group more likely to report higher levels of both (M = 3.03, SD = .78; M = 3.52, SD = 1.05) than those in the control group (M = 2.69, SD = .83; M = 2.95, SD = 1.12). Finally, those in the treatment group (M = 3.39, SD = .92) were more likely to report significantly lower levels of past-week emotional job demands, $t(116) = -2.04$, p = .04, than those in the control group (M = 3.74, SD = .92).

Attrition Analyses and Missing Data

Due to the very high rates of attrition in the treatment group (86.7% by week 4), a series of analyses were conducted to identify any potential sources of systematic nonresponse. Attrition was examined between groups at each time point, continuously across the entire study, and dichotomously within the entire sample (i.e., separating those who remained vs. those who left). Note that most attrition/survey nonresponse occurred *between* surveys, rather than *within* surveys; that is, participants who responded to any given weekly survey tended to complete it fully. As noted in Figure 2 on page 76, the majority of attrition (38%) occurred between the baseline survey and week 1 data collection. Despite the introduction of a new financial incentive at week 2 for the treatment group ($20 gift card for completing all remaining portions of the study), an additional 18.3% attrition was observed at week 2, and by the end of week 4, only 8 participants (13.3%) remained in the treatment group, while 45 participants (76%) remained in the control group. At six-week follow-up, 6 completed responses (10%) were received from the treatment group, and 37 completed responses (62.7%) were received

from the control group. An overall summary of missing values indicated that 41 of 119 (34.5%) participants and 17 of 60 variables (28.33%) contained complete data. An analysis of missing value patterns was consistent with attrition analyses, suggesting that the majority of missing data occurred after baseline and then again at week 2.

Given that the overall pattern of missing values was consistent with attrition analyses, a series of ANOVAs and regression models were conducted to determine whether those who dropped out differed significantly from those who stayed on demographics, control variables, and baseline dependent variables. Results revealed that drop-outs did not differ significantly on any control or primary study variables at baseline, both when attrition was examined continuously and dichotomously, across the entire sample and also separately within each respective group. An examination of demographic variables did reveal marital status as a significant predictor of attrition, $F(4, 112) = 2.71$, $p = .03$, with those identifying as single less likely to attrit ($M = .49$, $SD = .76$) versus those identifying as divorced ($M = 1.57$, $SD = 1.40$). Other than this small effect for marital status, data appeared to be missing completely at random – and while certainly impacting power to detect significant effects, should not have led to biased parameter estimates (Newman, 2014).

Unfortunately, randomized controlled trials are all too often plagued by such non-compliance and missing outcomes. Thus, and in accordance with the most current Consolidated Standards of Reporting Trials (CONSORT) guidelines (Schulz, Altman, & Moher, 2010), intention-to-treat (ITT) analyses were conducted in order to maintain the prognostic balance generated from initial random assignment and to provide a pragmatic yet conservative estimate of the treatment effect while accounting for non-compliance

and deviations from treatment protocol that are, in practice, standard rather than exception (Gupta, 2011). The ITT analytical method is often described as the "once randomized, always analyzed" approach and is favored in the reporting of clinical trials because it avoids overoptimistic estimations of treatment effects by the removal of non-compliers while acknowledging that non-compliance, protocol deviations, and withdrawal are all likely to occur in actual practice (cf. Gupta, 2011). Given the sheer amount of missing data in the current study, missing values for non-compliers were estimated using the "Last Observation Carried Forward" (LOCF) technique, which represents a more conservative approach – essentially assuming no change – than that generated by more sophisticated techniques such as multiple imputation (Prakash, Risser, & Mallinckrodt, 2008). While prior research suggests that for drop-out rates lower than 20%, missing values be replaced by the mean of the other group or counted as treatment failures after dichotomization of the endpoint, no adequate recommendations can be provided for handling missing data for larger drop-out rates (see Armijo-Olivo, Warren, & Magee, 2009, for a review). Additionally, in order to isolate, identify, and better explain specific treatment effects, per-protocol (PP) analyses were conducted with the subset of the ITT population who reflected perfect study compliance (i.e., no missing measurement occasions or other major deviations from treatment protocol).

Table 2
Correlations Among and Descriptive Statistics for Key Study Variables at Baseline

Variable	Range	*M* (*SD*)	SC	PF	WPF	EE	STS	Eng.	ED	ER	NA	PA	FFMQ
Self-Compassion	1.25 – 4.75	2.89 (.70)	.87	.73	.52	- .39	- .53	.34	- .32	.33	-.58	.32	.65
Psych Flex	1.57 – 7	4.64 (1.22)		.84	.53	- .57	- .66	.45	- .49	.39	-.62	.32	.61
Work Psych Flex	2.57 – 7	4.86 (.86)			.87	- .39	- .45	.45	- .25	.25	-.50	.39	.52
Emotional Exh.	.4 – 6	3.65 (1.43)				.94	.68	- .54	.52	- .44	.49	-.45	-.52
STS	1 – 4.44	2.60 (.81)					.92	- .50	.55	- .37	.65	-.43	-.60
Engagement	1 – 6	4.14 (1.11)						.92	- .27	.37	-.37	.79	.57
Emo. Demands	2.67 - 5	3.99 (.57)							.75	- .45	.37	-.21*	-.23*
Emo. Resources	1 – 5	3.18 (.81)								.81	-.30	.31	.33
Trait NA	1 – 4.20	2.45 (.67)									.79	-.45	-.61
Trait PA	1.60 – 5.00	3.69 (.67)										.85	.56
FFMQ	1.88 – 4.54	3.19 (.54)											.89

Note. * = $p < .05$; otherwise, all correlations significant at the $p < .001$ level. STS = Secondary Traumatic Stress; FFMQ = Five Factor Mindfulness Questionnaire. Reliability estimates appear in the diagonal. $n = 119$.

Table 3

Hierarchical Multiple Regression Analyses Predicting Emotional Exhaustion at Baseline.

Variable/Block	R^2	ΔR^2	β	*B*	*SE B*	95% CI Lower	95% CI Upper	*t*	*p*
Self-Compassion									
Block 1	.27								
Emotional Job Demands			.52	1.29	.20	.90	1.68	6.53	<.001
Block 2	.31	.04							
Emotional Job Demands			.45	1.12	.20	.72	1.53	5.50	<.001
Self-Compassion			-.21	-.43	.17	-.76	-.10	-2.59	.01
Block 3	.31	.00							
Emotional Demands*Self-Compassion			.06	.22	.27	-.32	.75	.80	.43
Psychological Flexibility									
Block 1	.27								
Emotional Job Demands			.52	1.29	.20	.90	1.68	6.53	<.001
Block 2	.39	.13							
Emotional Job Demands			.31	.79	.21	.37	1.20	3.63	<.001
Psychological Flexibility			-.41	-.48	.10	-.67	-.27	-5.02	<.001
Block 3	.40	.00							
Emotional Demands*Psychol. Flex			.07	.14	.15	-.15	.42	.93	.36
Work-Related Psychological Flexibility									
Block 1	.27								
Emotional Job Demands			.52	1.29	.20	.90	1.68	6.53	<.001
Block 2	.34	.08							
Emotional Job Demands			.45	1.12	.19	.73	1.50	5.75	<.001
Work-Related Psychological Flexibility			-.28	-.47	.13	-.72	-.22	-3.66	<.001
Block 3	.34	.00							
Emotional Demands*Work Psych Flex			.00	.01	.21	-.41	.43	.06	.95

Table 4

Hierarchical Multiple Regression Analyses Predicting Emotional Exhaustion at Baseline (with controls).

Variable/Block	R^2	ΔR^2	β	*B*	*SE B*	95% CI		*t*	*p*
						Lower	Upper		
Self-Compassion									
Block 1	.34								
Negative Affect			.24	.51	.21	.10	.91	2.46	.02
Positive Affect			-.19	-.40	.20	-.78	-.01	-2.02	.05
Five Factor Mindfulness			-.27	-.72	.28	-1.27	-.18	-2.62	.01
Block 2	.47	.13							
Emotional Job Demands			.39	.99	.19	.62	1.36	5.29	<.001
Self-Compassion			.12	.25	.20	-.14	.64	1.26	.21
Block 3	.48	.01							
Emotional Demands*Self-Compassion			.12	.29	.24	-.18	.76	1.22	.23
Psychological Flexibility									
Block 1	.34								
Negative Affect			.24	.51	.21	.10	.91	2.46	.02
Positive Affect			-.19	-.40	.20	-.78	-.01	-2.02	.05
Five Factor Mindfulness			-.27	-.72	.28	-1.27	-.18	-2.62	.01
Block 2	.49	.14							
Emotional Job Demands			.32	.79	.20	.40	1.18	3.98	<.001
Psychological Flexibility			-.21	-.24	.12	-.47	-.01	-2.05	.04
Block 3	.49	.01							
Emotional Demands*Psychol. Flex			.08	.15	.14	-.12	.42	1.09	.28
Work-Related Psychological Flexibility									
Block 1	.34								
Negative Affect			.24	.51	.21	.10	.91	2.46	.02
Positive Affect			-.19	-.40	.20	-.78	-.01	2.02	.05
Five Factor Mindfulness			-.27	-.72	.28	-1.27	-.18	-2.62	.01
Block 2	.47	.13							
Emotional Job Demands			.38	.94	.19	.57	1.31	5.06	<.001
Work-Related Psychological Flexibility			-.06	-.10	.14	-.37	.18	-.70	.49
Block 3	.47	.01							
Emotional Demands*Work Psych Flex			.01	.01	.20	-.38	.40	.05	.96

Table 5

Hierarchical Multiple Regression Analyses Predicting Engagement at Baseline.

Variable/Block	R^2	ΔR^2	β	*B*	*SE B*	95% CI Lower	95% CI Upper	*t*	*p*
Self-Compassion									
Block 1	.37								
Emotional Job Resources			.37	.51	.12	.27	.74	4.23	<.001
Block 2	.44	.06							
Emotional Job Resources			.29	.39	.12	.15	.64	3.22	<.01
Self-Compassion			.25	.39	.14	.12	.67	2.81	<.01
Block 3	.44	.00							
Emotional Resources*Self-Compassion			-.01	-.03	.15	-.32	.27	-.17	.87
Psychological Flexibility									
Block 1	.14								
Emotional Job Resources			.37	.51	.12	.27	.74	4.23	<.001
Block 2	.20	.06							
Emotional Job Resources			.26	.36	.13	.12	.61	2.91	<.01
Psychological Flexibility			.27	.24	.08	.08	.41	2.94	<.01
Block 3	.20	.00							
Emotional Resources*Psychol. Flex			-.03	-.03	.09	-.22	.15	-.36	.72
Work-Related Psychological Flexibility									
Block 1	.14								
Emotional Job Resources			.37	.51	.12	.27	.74	4.28	<.001
Block 2	.27	.13							
Emotional Job Resources			.27	.38	.11	.15	.60	3.34	<.01
Work-Related Psychological Flexibility			.38	.49	.11	.28	.70	4.61	<.001
Block 3	.27	.00							
Emotional Resources*Work Psych Flex			.03	.05	.14	-.22	.32	.38	.71

Table 6
Hierarchical Multiple Regression Analyses Predicting Engagement at Baseline (with controls).

Variable/Block	R^2	ΔR^2	β	*B*	*SE B*	95% CI Lower	95% CI Upper	*t*	*p*
Self-Compassion									
Block 1	.65								
Negative Affect			.08	.14	.12	-.09	.37	1.19	.24
Positive Affect			.69	1.15	.11	.77	1.29	10.24	<.001
Five Factor Mindfulness			.23	.48	.16	.16	.79	3.02	.003
Block 2	.66	.01							
Emotional Job Resources			.12	.16	.08	-.01	.38	1.97	.05
Self-Compassion			.02	.03	.12	-.21	.28	.26	.79
Block 3	.66	.001							
Emotional Resources*Self-Compassion			.04	.07	.10	-.13	.26	.68	.50
Psychological Flexibility									
Block 1	.65								
Negative Affect			.08	.14	.12	-.09	.37	1.19	.24
Positive Affect			.69	1.15	.11	.93	1.37	10.24	<.001
Five Factor Mindfulness			.23	.48	.16	.16	.79	3.02	.003
Block 2	.66	.02							
Emotional Job Resources			.11	.15	.08	-.02	.31	1.73	.09
Psychological Flexibility			.08	.07	.07	-.07	.21	1.03	.31
Block 3	.67	.01							
Emotional Resources*Psychol. Flex			.06	.07	.06	-.05	.19	1.11	.27
Work-Related Psychological Flexibility									
Block 1	.65								
Negative Affect			.08	.14	.12	-.09	.37	1.19	.24
Positive Affect			.69	1.15	.11	.93	1.37	10.24	<.001
Five Factor Mindfulness			.23	.48	.16	.16	.79	3.02	.003
Block 2	.67	.03							
Emotional Job Resources			.11	.16	.08	0	.32	1.96	.05
Work-Related Psychological Flexibility			.14	.18	.09	.01	.35	2.13	.04
Block 3	.67	.01							
Emotional Resources*Work Psych Flex			.05	.08	.09	-.11	.27	.85	.40

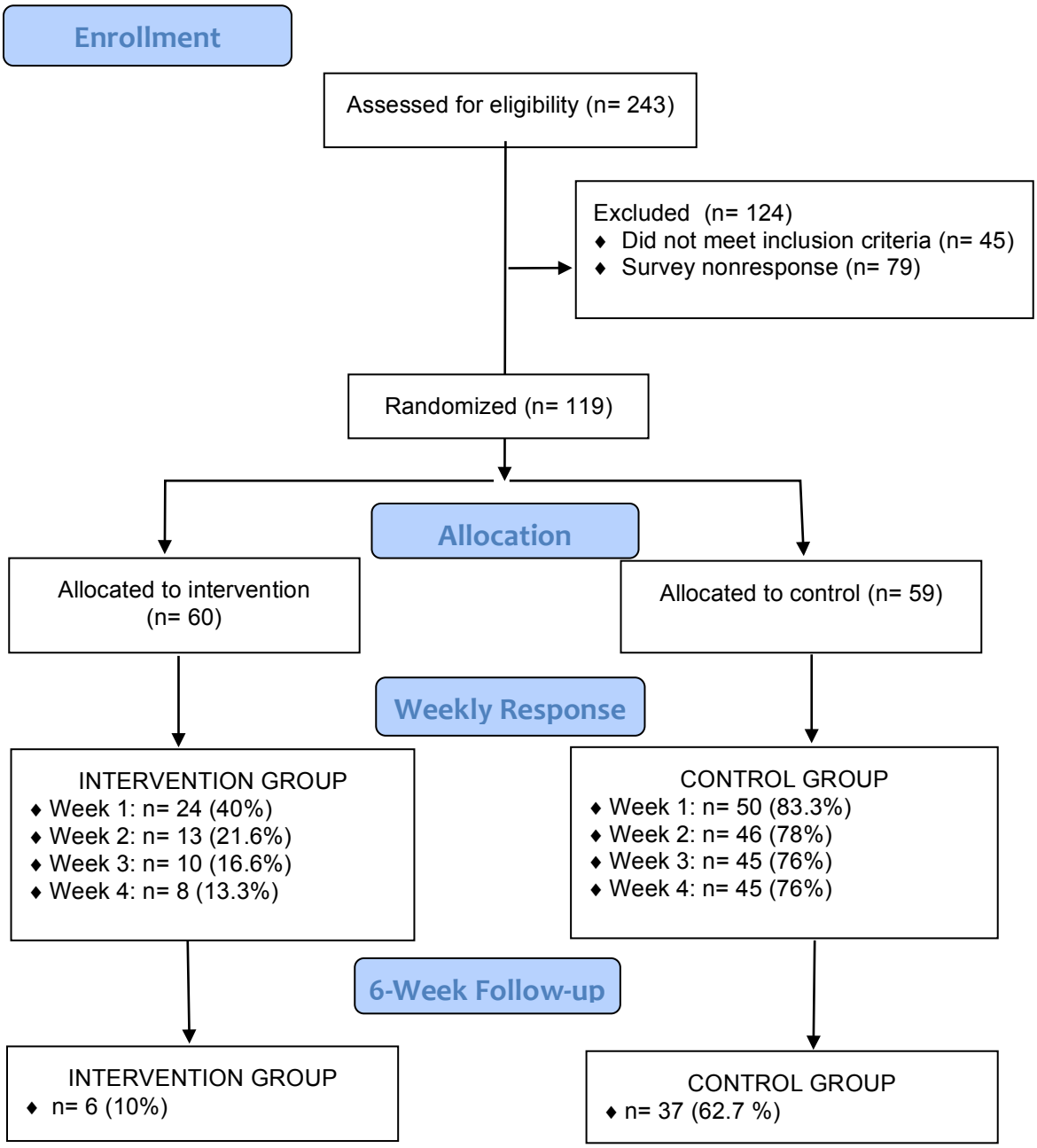


Figure 2. *Attrition Flow Diagram*

Adherence and Manipulation Check

An analysis of adherence data suggested that treatment group participants listened to the meditations on average 2.25 days per week fairly consistently throughout the intervention. During the first week, participants ranged from 1-4 listens per week, while during weeks 2-4, participants ranged from 1-3 listens per week. Of the 45 control group participants who responded to the final weekly survey, only 2 (1.7%) reported speaking with an active treatment group participant during the intervention time frame. When questioned regarding what was shared, one participant responded, "How she was doing the meditations versus how I am doing the survey," and the other reported, "One staff person mentioned they were listening to meditation tapes. No further discussion than that."

Hypothesis Testing

Below, both ITT and PP analyses are reported in sequence for purposes of hypothesis testing. For ITT analyses, due to previously identified baseline group differences, baseline scores on self-compassion and psychological flexibility were included as controls in each analysis, with baseline scores on emotional job demands included as an additional control when examining treatment effects on emotional exhaustion and secondary traumatic stress outcomes specifically. Due to concerns with power, these controls were not included in the PP analyses.

To answer research question two and evaluate whether the 4-week self-compassion meditation intervention led to significant increases in self-compassion and engagement and significant decreases in emotional exhaustion and secondary traumatic stress, a series of repeated-measures analyses of variance (RM-ANOVAs) were

conducted. Results are presented below in the text and in Tables 5 and 6 on page 80. Note that for all ITT analyses, Mauchly's test was significant, indicating that assumptions of data sphericity were violated, so Greenhouse Geisser's corrected *F* values and associated degrees of freedom are presented (Field, 2009). Similarly, for the PP analyses, Mauchly's test for engagement, $\chi^2(9) = 36.18$, $p < .001$, emotional exhaustion, $\chi^2(9) = 21.01$, $p = .013$, and secondary traumatic stress, $\chi^2(9) = 18.94$, $p = .026$, again suggested that assumptions of sphericity were violated, so corrected *F* values are presented.

Hypothesis 2A, suggesting that participants in the intervention group would evidence significant gains in week-level self-compassion and engagement relative to the waitlist control group, was not supported for self-compassion by either ITT, $F(2.81, 323.31) = .23$, $p = .86$, or PP, $F(4, 168) = .16$, $p = .96$, analyses. However, ITT analyses did reveal significant sample-level linear gains in self-compassion across time, $F(2.81, 323.31) = 13.22$, $p < .001$; refer to Figure 3 (pg. 83-85). Post-hoc pairwise comparisons suggested a significant increase in self-compassion from baseline to week 1 that was sustained throughout the intervention; yet, no further significant increases in self-compassion were observed beyond week 1. An evaluation of pre-post treatment gain scores in self-compassion among study completers (per-protocol sample) revealed a moderately-sized increase ($d = .58$) among the treatment group and a much smaller increase ($d = .24$) among the control group; refer to Figure 4 (pg. 86-89). Hypothesis 2A for engagement was not supported by either ITT, $F(2.46, 282.95) = 1.83$, $p = .15$, or PP, $F(2.69, 115.69) = 1.28$, $p = .28$, analyses.

To partially evaluate Hypothesis 2C and determine whether significant gains in self-compassion were maintained at 6-week follow-up, two matched-pairs *t*-tests were

conducted on the ITT sample. Analyses revealed that while sample-level mean differences in self-compassion were significantly different from baseline (M = 2.78, SD = .84) to treatment end (M = 3.00, SD = .76), $t(118) = -2.41$, p = .02, d = .32, they were not significantly different from treatment end to 6-week follow-up (M = 3.06, SD = .73), $t(42) = -.34$, p = .74, suggesting that post-treatment gains in self-compassion were maintained.

Hypothesis 2B, suggesting that participants in the intervention group would evidence significant decreases in week-level emotional exhaustion and secondary traumatic stress relative to participants in the control condition, was not supported for emotional exhaustion by either ITT, $F(2.82, 315.69) = .55$, p = .64, or PP, $F(3.14, 134.82) = .54$, p = .67, analyses; though plots for emotional exhaustion were in the expected directions among the per-protocol sample, with the treatment group exhibiting twice the decrease (d = .43) in emotional exhaustion pre-post treatment relative to the control group (d = .19; refer to Figure 4). Hypothesis 2B for secondary traumatic stress was not supported by either ITT, $F(3.08, 344.79) = .48$, p = .70, or PP, $F(3.14, 134.82) = .54$, p = .67, analyses. Because Hypothesis 2B was not supported, Hypothesis 2C was not evaluated for emotional exhaustion or secondary traumatic stress.

To answer research question three and evaluate whether the 4-week self-compassion meditation intervention led to significant increases in psychological flexibility or work-related psychological flexibility, another series of RM-ANOVAs were conducted. Hypothesis 3A, suggesting that participants in the treatment group would evidence significant gains in psychological flexibility relative to the waitlist control group, was not supported by either ITT, $F(3.29, 378.24) = 1.69$, p = .16, or PP, $F(4, 172)$

= 1.71, p = .15, analyses. However, similar to what was observed for self-compassion, significant sample-level gains across time for psychological flexibility were revealed by both ITT, $F(3.29, 378.24) = 8.20$, $p < .001$, and PP, $F(4, 172) = 3.06$, $p = .02$, analyses, with the per-protocol treatment group evidencing greater pre-post treatment gains (d = .44) than the control group (d = .27; refer to Figure 4). Similarly, significant time by treatment differences were not supported for work-related psychological flexibility by either ITT, $F(3.53, 405.83) = .88$, $p = .47$, or PP, $F(4, 172) = .60$, $p = .66$, analyses; yet ITT analyses suggested significant sample-level gains in work-related psychological flexibility across time, $F(3.53, 405.83) = 3.18$, $p = .02$.

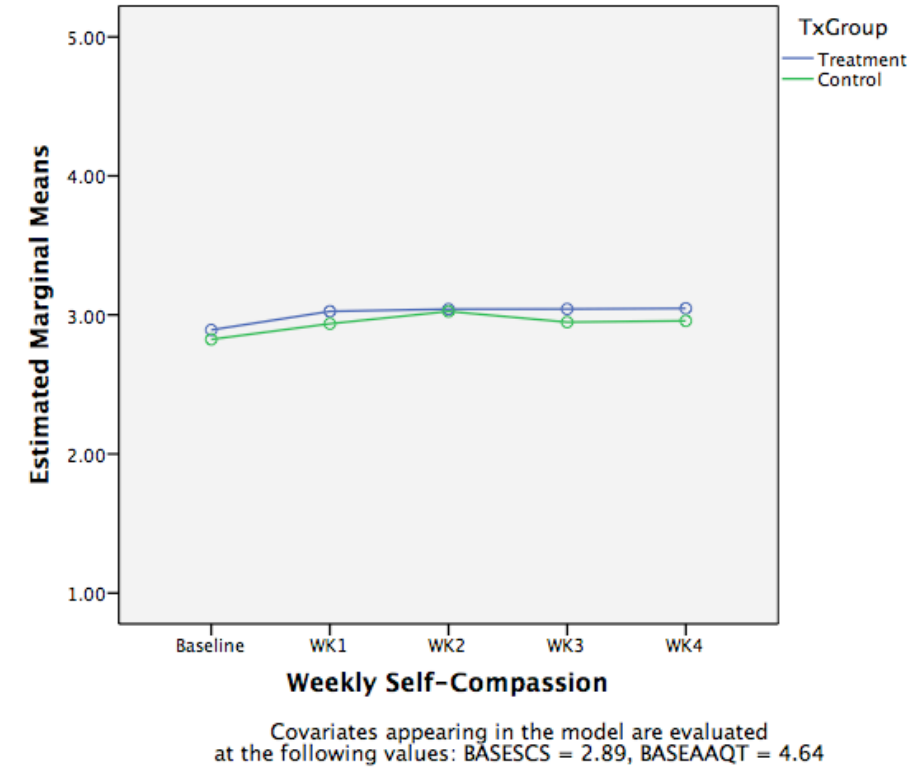
To evaluate Hypothesis 3B and test whether significant gains in psychological flexibility and work-related psychological flexibility were maintained at 6-week follow-up, a series of matched-pairs t-tests were conducted. Results for the ITT sample demonstrated that sample-level mean psychological flexibility continued to increase significantly from treatment end (M = 3.61, SD = 1.00) to 6-week follow-up (M = 4.47, SD = 1.28), $t(118) = -2.59$, $p = .01$, $d = .36$; while results for the per-protocol sample revealed that post-treatment scores (M = 3.21, SD = 1.02) on psychological flexibility did not differ significantly from 6-week follow-up scores (M = 4.47, SD = 1.29), $t(42) = .14$, $p = .89$, suggesting that gains were maintained. A final matched-pairs t-test for the ITT sample revealed that post-treatment scores (M = 3.30, SD = 1.01) on work-related psychological flexibility did not significantly differ from 6-week follow-up scores (M = 4.71, SD = .83), $t(118) = -.85$, $p = .40$, suggesting that sample-level gains in work-related psychological flexibility were also maintained.

Exploratory Analyses

To examine whether increased self-compassion predicted improvements in psychological flexibility or work-related psychological flexibility among the ITT sample, a series of regression analyses were conducted to assess the relationship between pre-post residual change scores in self-compassion and those of psychological flexibility and work-related psychological flexibility. Residual change scores for each respective variable were calculated by subtracting baseline scores from end scores. Results were significant for psychological flexibility, $F(1, 117) = 16.07$, $p < .001$, but not for work-related psychological flexibility, $F(1,117) = 1.62$, $p = .21$, suggesting that increases in self-compassion significantly predicted increases in the former, but not the latter. Results for psychological flexibility suggested that changes in self-compassion predicted 12% of the variance in changes in psychological flexibility, such that for every one-point increase in self-compassion, a corresponding half-point increase in psychological flexibility was predicted.

Additionally, while no significant intervention effects were observed for emotional exhaustion, plots for the per-protocol sample were in the expected directions and suggestive of potential sub-threshold effects. Because sample-level linear gains were observed for both self-compassion and psychological flexibility with intent-to-treat analyses, and per-protocol analyses suggested twice the gain in each among treatment completers versus controls, two additional regression equations were conducted to determine whether pre-post gains in either of these variables predicted pre-post change scores in emotional exhaustion among the intent-to-treat sample. Results suggested that pre-post gain scores in both self-compassion, $F(1,117) = 13.27$, $p < .001$, and

psychological flexibility, $F(1,117) = 14.93$, $p < .001$, did in fact predict pre-post decreases in emotional exhaustion.



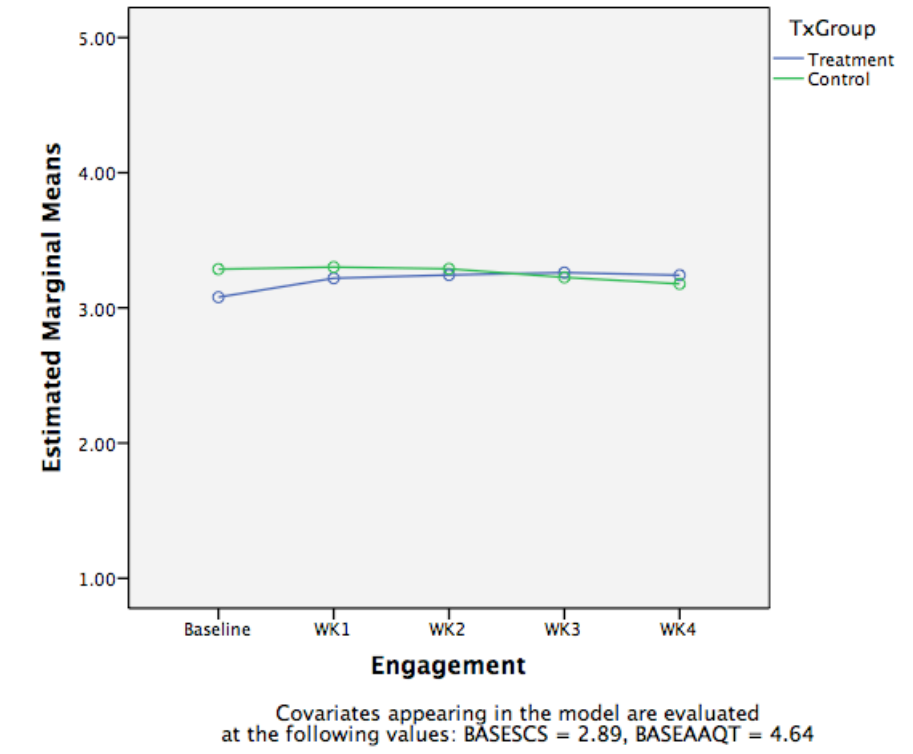
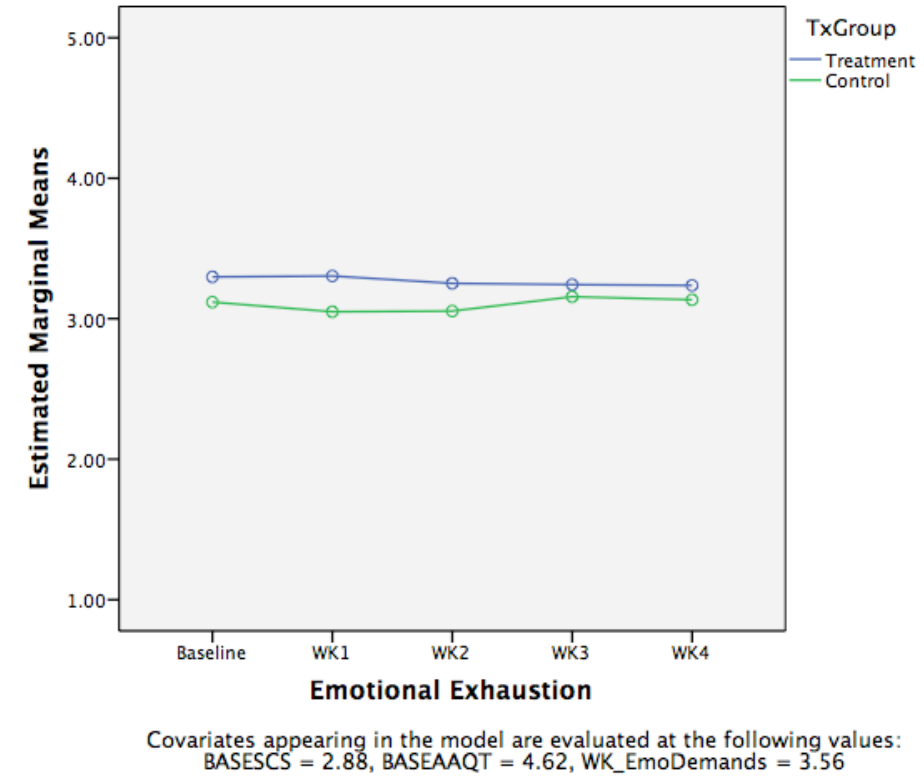


Figure 3
Plots by time and treatment group of key outcome variables for intent-to-treat sample.



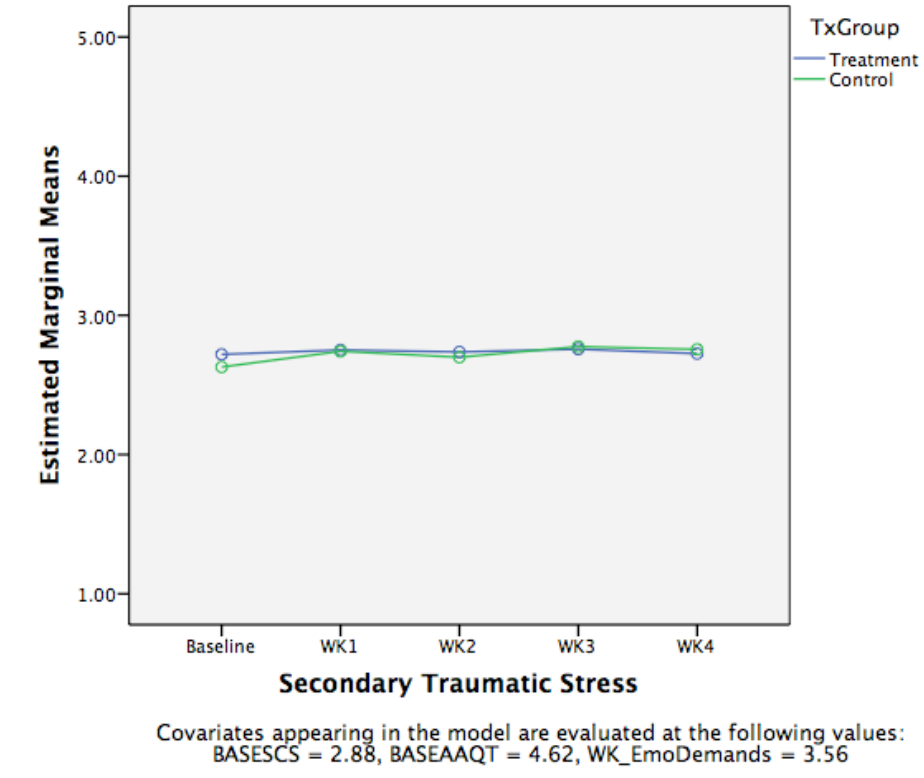
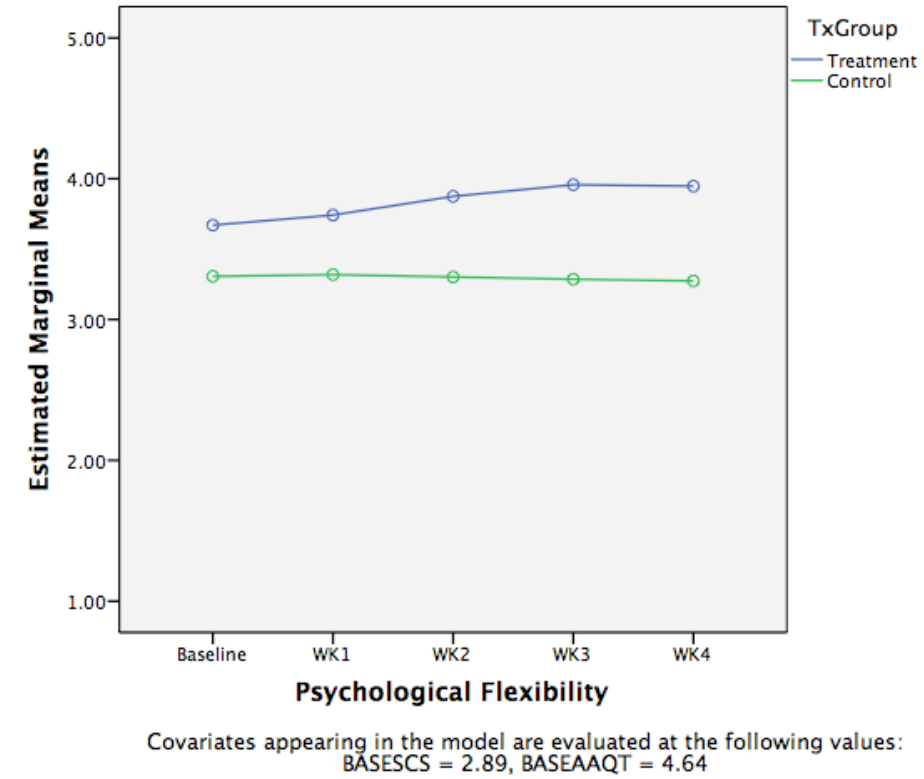


Figure 3 (continued)
Plots by time and treatment group of key outcome variables for intent-to-treat sample.



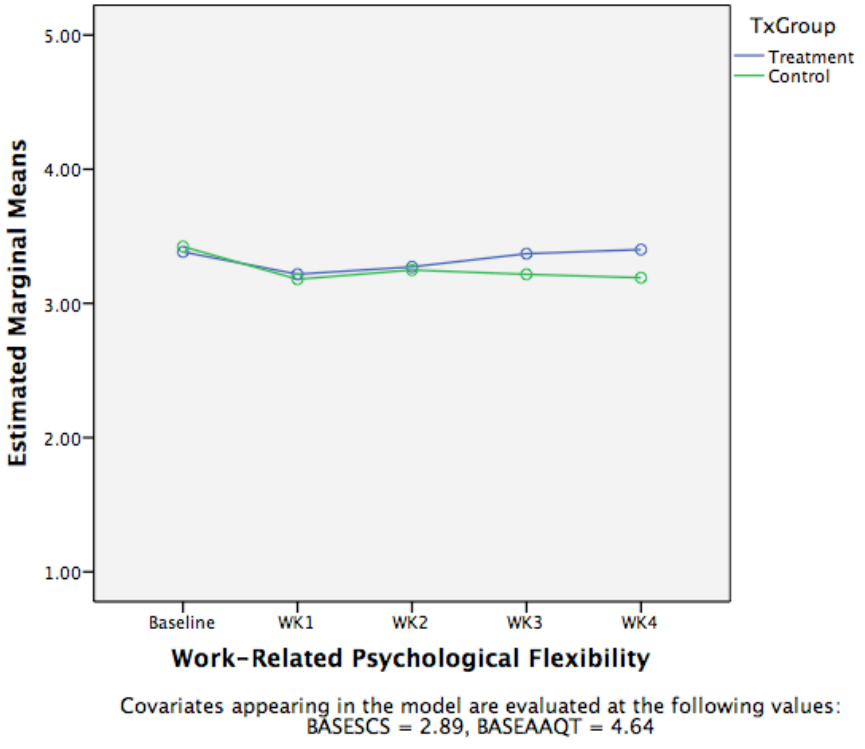
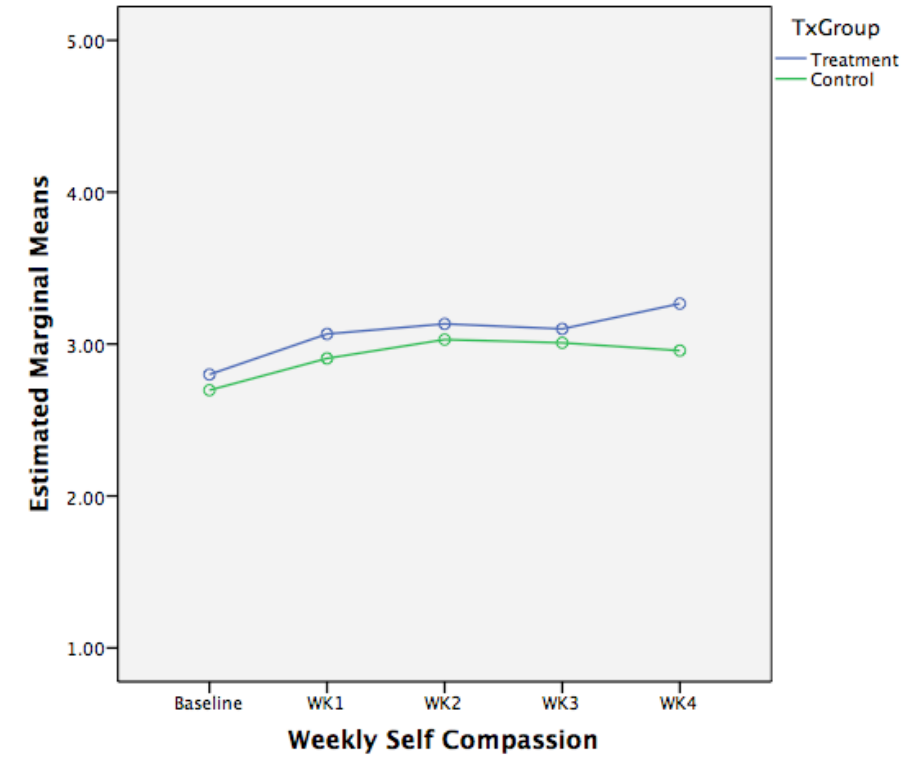


Figure 3 (continued)
Plots by time and treatment group of key outcome variables for intent-to-treat sample



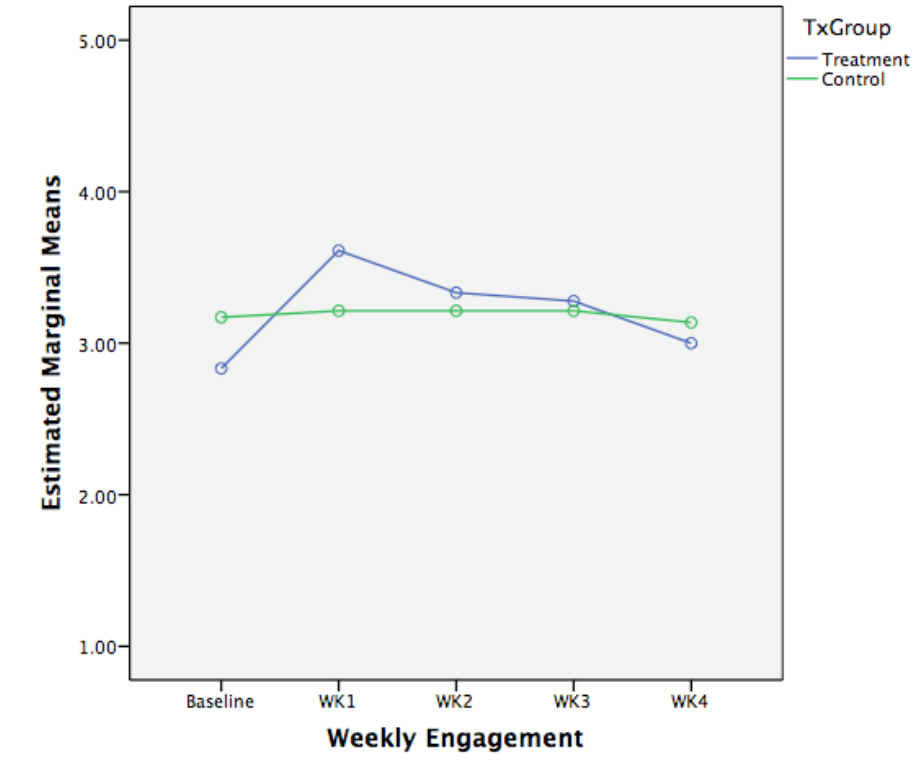
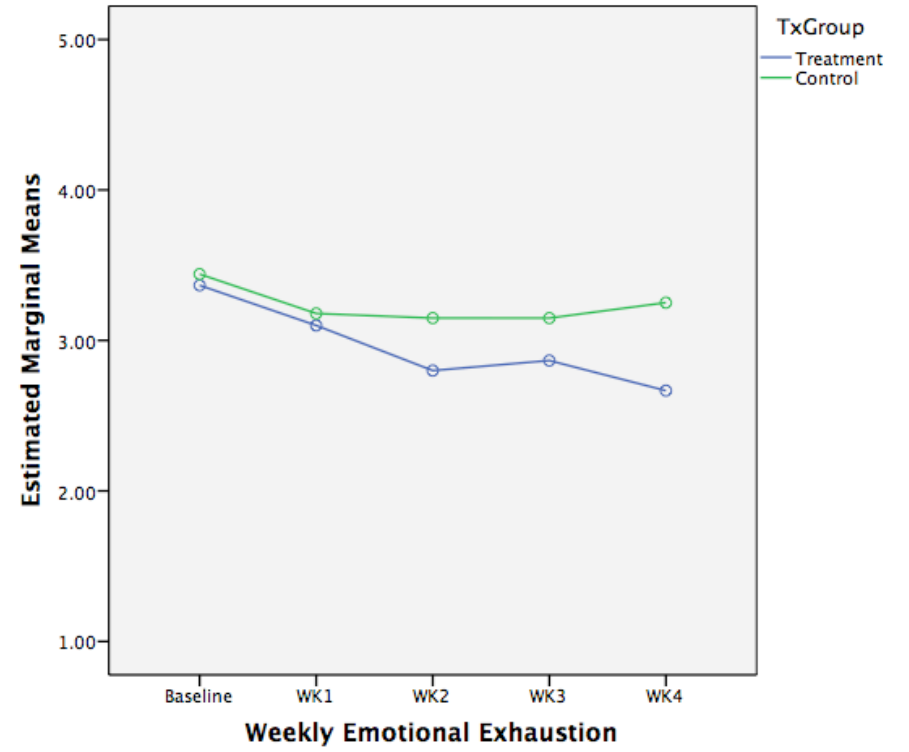


Figure 4
Plots by time and treatment group of key outcome variables for per-protocol sample.



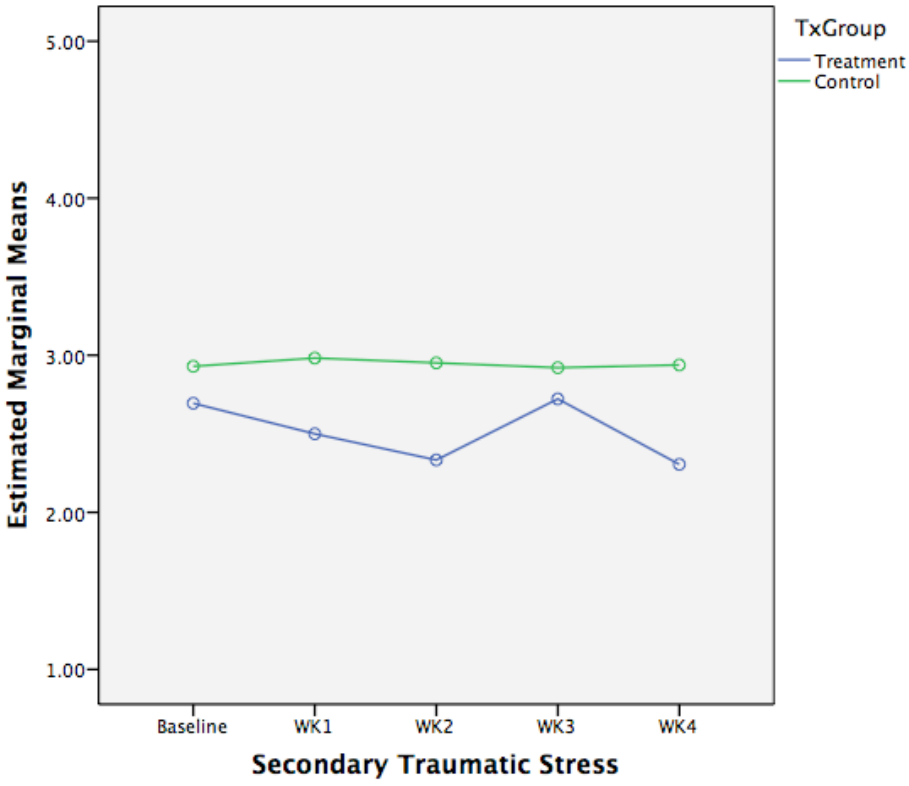
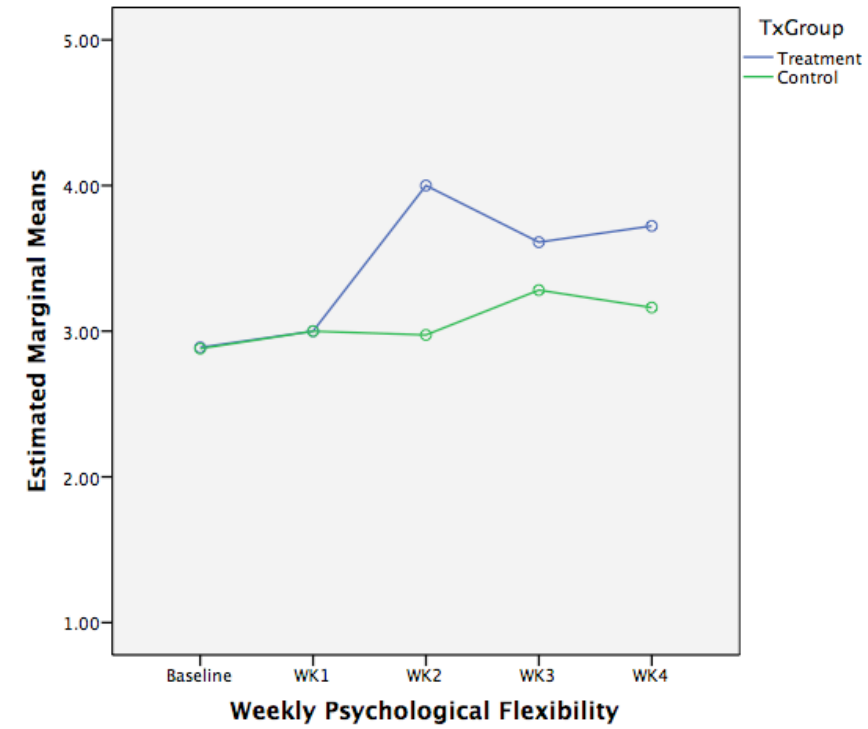


Figure 4 (continued)
Plots by time and treatment group of key outcome variables for per-protocol sample.



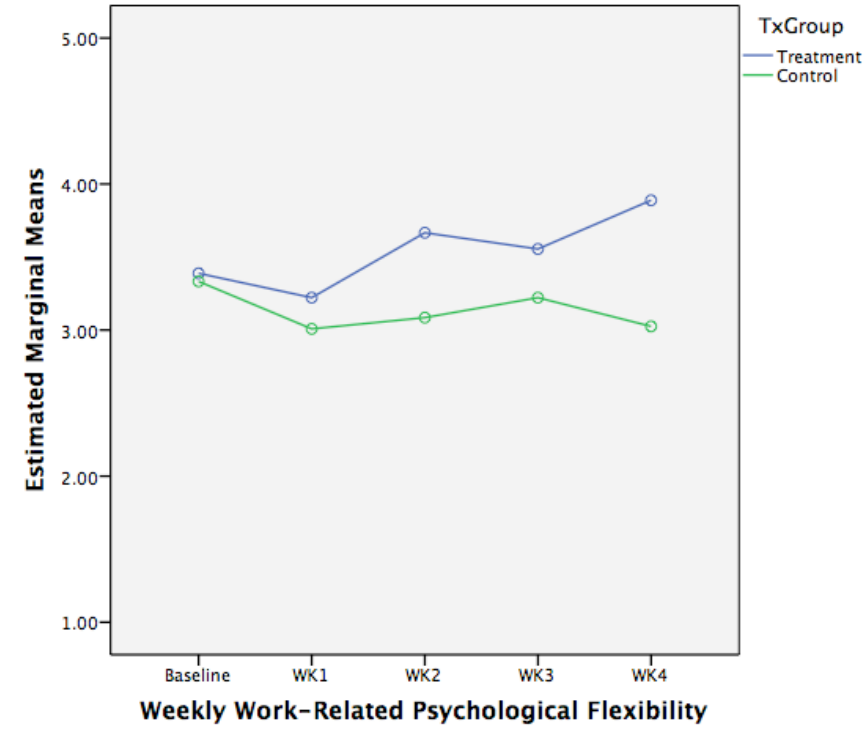


Figure 4 (continued)
Plots by time and treatment group of key outcome variables for per-protocol sample.

Table 7

Weekly mean scores by group and treatment effects analyzed with a series of RM-ANOVAs for intent-to-treat (ITT) sample.

Outcome	Treatment Group ($N = 60$)					Control Group ($N = 59$)				
	Baseline *M* (SD)	WK1 *M* (SD)	WK2 *M* (SD)	WK3 *M* (SD)	WK4 *M* (SD)	Baseline *M* (SD)	WK1 *M* (SD)	WK2 *M* (SD)	WK3 *M* (SD)	WK4 *M* (SD)
Self-Compassion	3.03 (.78)	3.12 (.76)	3.14 (.77)	3.13 (.74)	3.13 (.76)	2.69 (.83)	2.85 (.68)	2.92 (.72)	2.86 (.84)	2.88 (.75)
Engagement	3.16 (.91)	3.27 (.82)	3.31 (.76)	3.31 (.77)	3.29 (.81)	3.20 (.88)	3.25 (.81)	3.23 (.82)	3.18 (.85)	3.13 (.84)
Emo. Exhaustion	3.10 (1.19)	3.15 (1.16)	3.11 (1.17)	3.13 (1.20)	3.10 (1.21)	3.32 (1.08)	3.20 (1.05)	3.20 (1.03)	3.28 (1.09)	3.28 (.98)
Sec. Trau. Stress	2.55 (.87)	2.63 (.86)	2.61 (.90)	2.65 (.89)	2.62 (.90)	2.80 (.83)	2.86 (.72)	2.82 (.77)	2.88 (.69)	2.86 (.72)
Psych. Flexibility	3.88 (1.04)	3.88 (1.04)	4.03 (1.00)	4.06 (.99)	4.06 (1.00)	3.10 (1.25)	3.18 (1.14)	3.14 (1.22)	3.19 (1.12)	3.16 (1.06)
Work Psych. Flex.	3.49 (.99)	3.30 (.92)	3.38 (.99)	3.42 (.97)	3.45 (.97)	3.32 (1.00)	3.10 (.97)	3.14 (1.01)	3.17 (1.03)	3.14 (1.03)

Table 8

Weekly mean scores by group and treatment effects analyzed with a series of RM-ANOVAs for per-protocol (PP) sample.

Outcome	Treatment Group ($N = 6$)					Control Group ($N = 39$)				
	Baseline *M* (SD)	WK1 *M* (SD)	WK2 *M* (SD)	WK3 *M* (SD)	WK4 *M* (SD)	Baseline *M* (SD)	WK1 *M* (SD)	WK2 *M* (SD)	WK3 *M* (SD)	WK4 *M* (SD)
Self-Compassion	2.80 (.79)	3.07 (.72)	3.13 (.92)	3.10 (.73)	3.27 (.83)	2.70 (.80)	2.91 (.59)	3.03 (.68)	3.01 (.86)	2.96 (.72)
Engagement	2.83 (.96)	3.61 (.53)	3.33 (.63)	3.28 (.65)	3.00 (.92)	3.17 (.85)	3.21 (.76)	3.21 (.80)	3.21 (.88)	3.14 (.86)
Emo. Exhaustion	3.37 (.57)	3.10 (.79)	2.80 (.52)	2.87 (.87)	2.67 (.99)	3.44 (1.03)	3.18 (1.04)	3.15 (1.02)	3.15 (1.10)	3.25 (.98)
Sec. Trau. Stress	2.69 (.49)	2.50 (.42)	2.33 (.72)	2.72 (.60)	2.31 (.81)	2.93 (.89)	2.98 (.71)	2.95 (.80)	2.92 (.77)	2.94 (.79)
Psych. Flexibility	2.89 (.96)	3.00 (.70)	4.00 (1.10)	3.61 (.98)	3.72 (.99)	2.88 (1.09)	3.00 (.97)	2.97 (1.17)	3.28 (1.09)	3.16 (1.02)
Work Psych. Flex.	3.39 (1.22)	3.22 (.62)	3.67 (1.15)	3.56 (1.07)	3.89 (.75)	3.33 (.99)	3.01 (.93)	3.09 (.98)	3.22 (1.05)	3.03 (.97)

Content Analysis of Open-Ended Data

Participants in the treatment group were presented with four open-ended questions during the last weekly (post-treatment) survey, probing for general reactions to and experiences with the weekly meditations. They were questioned regarding any difficulties they experienced with practicing the meditations, and were also asked to provide suggestions for improving future research endeavors. For each question, line-by-line open coding was used to compare and simplify data into its main constitutive components in order to facilitate provisional conceptualization (Starks & Brown Trinidad, 2007). Then, selective coding was used to identify and describe core categories or central phenomena within the data that best captured the perspectives of participants (Strauss & Corbin, 1998). The following four primary categories were identified:

1. Positive experiences, including enjoying the meditations, feeling calm, relaxed, and centered;
2. Negative experiences, including disliking the tone and/or speed of the interventionist's voice, and/or finding the content repetitive, unhelpful, or condescending;
3. Logistical challenges, including difficulty finding time and/or privacy to complete the meditations; and
4. Suggestions for improvement, including shorter meditations with different voices and more variety, and meditations that were more specific to compassion fatigue in animal sheltering.

Positive experiences. Several participants reported liking the meditations, stating that they enjoyed them, they were easy for beginners, and would recommend them to a

friend. Additionally, several participants reported feeling better, calm, relaxed, and centered after the meditations, stating they were "very soothing," and "…[the] voice was good for relaxing." Finally, participants reported especially liking the "affectionate breathing" meditation and a focus on the breath throughout all weeks' meditations.

Negative experiences. On the other hand, many participants reported not liking the meditations. Several did not like the interventionist's voice, stating that they "did not enjoy the tone and speed of the voice" or that it "was condescending." Some found the "repetitive nature" of the third week's loving-kindness meditation to be "annoying" or simply "really disliked" it. One found the sound of the meditation bell during the first week to be "annoying and jarring," and another reported that the "content…[of some of the meditations was] ridiculous or downright annoying." Finally, one participant reported that they felt their "tolerance levels decreased significantly during the first 3 weeks…[and I became] irrationally angry. I have about 20 minutes of compassion and tolerance in my whole body every day and if I used it on myself I could not tolerate using it at work." The same participant reported "finding a more balanced view by the 4th week."

Logistical challenges. By far the largest category, twenty-two responses suggested difficulty in finding time and/or privacy to complete the meditations. Reflecting on their experiences, many participants realized the need to schedule the meditations into their day in order to stay consistent and make them a priority (though this was explicitly recommended in the "primer" document); many also acknowledged the difficulty and ineffectiveness of trying to complete the meditations in a work environment: "I was better off doing the meditations at home vs. at work." However, others mentioned that finding "a quiet place to do [them] uninterrupted can be difficult to

find at home and at work." By far, however, the largest reported barrier to completing the meditations was time. One participant noted that she "work[s] 10 hour days…with 100 minutes of commute time…I tried to get my husband to join in the meditations with me, but we don't get much time together, and he didn't want to spend it in this way." Another acknowledged that "it's realistically about setting priorities" and that they will "try to set a realistic goal for meditation practice in the future."

Suggestions for improvement. Participants offered many suggestions for improvement, mainly centered around the meditations themselves, including: shorter length; different voice[s]; more variety; and more specificity with regard to compassion fatigue in animal welfare. Participants reported "getting antsy after 15 minutes" and being "disappointed with the length" of the meditations. On the other hand, some participants reported liking the length of the meditations, noting that they "passed more quickly than [they] expected." Participants reported wanting the meditations and voice to be "more uplifting," or "more focused on relaxation and positive visualization techniques." Others noted wanting and/or enjoying "the choice of which meditation[s] to listen to," and wanting "more variety within the week." One participant requested a meditation that "focused on healing and forgiveness," and another requested meditations "more specific to compassion fatigue…[saying things like], 'let go of the animals,' 'no guilt,' 'not your fault.'" Finally, with regard to study logistics, one participant noted that it would have been helpful to receive daily e-mail reminders to complete the meditations. Another requested take-home exercises for throughout the day, and finally, another suggested adjusting the timeframe for survey collection, stating that the Friday

disbursement schedule with a Monday return deadline "reminds us that we're not normal."

Additional comments and feedback. A final open-ended question asked for any additional comments and feedback. One participant noted that she was "adding a 20-minute meditation session for staff [at her shelter] and would be interested to see if anyone joins me." Two more said they "found it [the study] helpful" and "would love access to ongoing guided meditations." Finally, one participant asked, "What do we [the participants] do with this now?"

CHAPTER 6: DISCUSSION

The present study had several aims: a) to extend theory surrounding the job demands-resources framework of burnout and engagement by incorporating and testing three novel personal resources as moderators in a cross-sectional sample of workers in a high-demand, low-resource field; b) to conduct a preliminary evaluation of the feasibility, acceptability, and potential effectiveness of a brief online self-compassion intervention for compassion fatigue via a pilot randomized controlled field trial; and, as a secondary, exploratory aim, c) to evaluate whether a brief intervention designed to enhance self-compassion might also lead to increases in psychological flexibility and/or work-related psychological flexibility, two constructs closely related to self-compassion.

The field of animal sheltering has historically been plagued by high job demands, including high workload (e.g., volume of animals relative to staffing capacities); emotional demands, characterized by the "caring-killing paradox" of frequently needing to euthanize healthy yet unwanted companion animals entrusted to their care (Arluke, 1994); and the public's perception of animal sheltering work as "dirty work," or work that is morally, socially, and physically tainted (Ashforth & Kreiner, 1999) due to its associations with animal detritus and death (Bickmeier, 2015). Not only do staff in animal sheltering struggle with exceptionally high job demands, but must strive continuously to meet these demands in the face of severely limited resources, including the financial, temporal, and emotional support (Rank et al., 2009) that is frequently

afforded to their professional counterparts in human services. This continual combination of high job demands coupled with low job resources leads synergistically, over time, to further resource depletion and an ultimate inability to ever truly recover (Hobfoll, 1989, 2011). This perpetuation of burnout often results in untoward effects including absenteeism, turnover, callousness toward both coworkers and members of the general public, substance abuse, and mental health problems – up to and including completed suicide (Rank et al., 2009; Reeve et al., 2005, Tiesman et al., 2015). Given this set of circumstances, it is not surprising then that compassion fatigue, comprised of emotional exhaustion, the core and primary stage of burnout, and secondary traumatic stress, incurred by caring for traumatized others (Figley & Roop, 2006), continues to take its toll on the dedicated and compassionate individuals who have devoted their professional lives to helping companion animals. Unfortunately, while this problem is widely acknowledged by both staff and administrators alike, prevention and intervention options are very limited, not widely accessible or understood, and usually not time- or cost-effective, necessitating the development and evaluation of briefer, more widely accessible means for combatting this serious and widespread occupational hazard.

Positive Psychological Mechanisms as Moderators in the JD-R Framework

In many ways, the animal sheltering occupational context can be considered a quintessential example of the JD-R model at play – high job demands, including emotional drain and heavy workload, are consistently coupled with low organizational resources, which over time contribute to a personal resource drain and the development of emotional exhaustion and compassion fatigue. In recent years, theoretical development of the JD-R framework has turned toward identifying and exploring the indirect effects of

personal resources that may mitigate or enhance relationships between job demands and burnout or job resources and engagement, respectively. Scholars have examined the effects of self-efficacy (Xanthopoulou et al., 2007), optimism (Garrosa et al., 2011; Xanthopoulou et al., 2007), proactive coping (Ângelo & Chambel, 2014; Searle & Lee, 2015), and emotional support-seeking (Van de Ven et al., 2013) with varying levels of support for each within the context of the stress-buffering (demands-exhaustion) and motivational (resources-engagement) processes of the model. Yet work to date has frequently failed to a) adequately specify and unify the domains of interest across predictor, outcome, and intervening variables (de Jonge & Doormann, 2006), resulting in poor model specification; and b) examine both sides of the model in tandem.

The present study sought to address these limitations by clearly specifying and measuring all aspects of the model as they related to the emotional domain (i.e., emotional job demands, emotional job resources, emotional exhaustion, and emotional regulatory mechanisms as intervening variables) and by examining both sides of the model in parallel in hopes of facilitating a more integrated and holistic understanding of well-being in the workplace (cf. Ângelo & Chambel, 2014). Specifically, three novel positive psychology mechanisms were chosen given their robust associations with reduced stress and enhanced overall health and well-being within clinical (Hayes et al., 1999), health (Arch et al., 2014; Breines et al., 2014), community (cf. Barnard & Curry, 2011; Leary et al., 2007; Neff et al., 2007), and occupational (Barnard & Curry, 2012; Bond et al., 2013; Hayes et al., 2006; Lloyd et al., 2013; Olson et al., 2015) contexts. These mechanisms were each introduced and evaluated as moderators in hopes of beginning to elucidate new avenues for identification, prevention, and early intervention

within the developmental process of burnout more generally and compassion fatigue more specifically among animal sheltering staff. Based on prior literature and/or hypothesized or established relationships with the outcomes of interest (e.g., Alarcon et al., 2009; Craigie et al., 2016; Woodruff et al., 2014), three individual difference factors were chosen as controls in six of the moderator models: trait positive affect, trait negative affect, and five-factor mindfulness.

The Health Impairment Process: Exploring the Demands-Exhaustion Relationship

The first three models, each testing self-compassion, psychological flexibility, and work-related psychological flexibility, in turn, sought to examine the relationship between emotional job demands and emotional exhaustion, also known as the "health impairment process" side of the model. As has been established (Bakker et al., 2004, 2005; Alarcon, 2011), inclusive of all predictors, emotional job demands (e.g., doing a lot of emotionally draining work; having to display emotions that are inconsistent with feelings; having to deal with people or animals whose problems touch them emotionally; de Jonge et al., 2009) explained the largest portion of variance in emotional exhaustion across all three models. While the inclusion of each of the novel positive psychology variables contributed considerable incremental variance toward predicting emotional exhaustion as well, none emerged as significant moderators of the relationship between demands and exhaustion.

Self-compassion contributed an additional 4% negative predictive variance to emotional exhaustion above and beyond emotional job demands. This finding is not surprising given prior work demonstrating inverse relationships between self-compassion and burnout among both clergy (Barnard & Curry, 2012) and first-year pediatric residents

(Olson et al., 2015), occupational samples who also belong to the helping professions as the current sample. This accumulation of evidence seems to suggest that the regular practice of extending kindness and compassion toward oneself while maintaining a non-judgmental awareness of one's present internal psychological experiences (e.g., suffering) is protective against the development of emotional exhaustion and burnout among individuals engaged in high-emotion work.

The finding that psychological flexibility predicted an additional 13% variance in emotional exhaustion beyond emotional job demands is consistent with prior work investigating the role of psychological flexibility in mitigating the effects of emotional exhaustion and burnout in the workplace. Working within the JD-R model, Onwezen and colleagues (2014) found psychological flexibility to mediate the negative effects of emotional job demands on emotional exhaustion and performance among a group of 116 not-for-profit service workers; similarly, Biron and Van Veldhoven (2012) found person-level psychological flexibility to moderate the day-level relationship between emotional job demands and emotional exhaustion across three consecutive workdays among a group of 170 service workers, and to be negatively associated with day-levels of emotional exhaustion reported at bedtime.

Lloyd and colleagues (2013) conducted a randomized controlled trial of a worksite-based Acceptance and Commitment Therapy intervention designed to increase psychological flexibility among a sample of 100 UK government workers and found significant increases in psychological flexibility to mediate subsequent decreases in emotional exhaustion among the treatment group. Further, they demonstrated that decreases in emotional exhaustion among the treatment group appeared to prevent the

significant increases in depersonalization evidenced among the control group, consistent with Maslach's theory of burnout progression (2001). Finally, they provided convincing evidence suggesting that both emotional exhaustion and strain have their basis in low levels of psychological flexibility.

Given these findings, it is somewhat surprising that psychological flexibility failed to emerge as a significant moderator in the demands-exhaustion relationship in the present study. A likely contributor was the high level of emotional exhaustion observed at baseline in the current sample. In their examination of psychological flexibility in the demands-exhaustion-performance relationship, Onwezen and colleagues (2014) found the attenuating role of psychological flexibility to diminish among employees already high on emotional exhaustion. While it can be difficult to make comparisons across samples due to differences in scale measurement among other factors, Lloyd and colleagues (2013) used the same measure of emotional exhaustion as the current study in their sample of UK government customer-service employees, chosen based on prior literature to be at high risk of emotional burnout and strain (Maslach et al., 1996). Their sample reported a baseline mean of 2.73 on a 6-point scale of emotional exhaustion, with significant decreases observed among the treatment group, whose final post-treatment score was 2.42. The baseline mean of emotional exhaustion in the present study was 3.65, almost an entire point higher than the Lloyd and colleagues (2013) sample, suggesting the presence of much higher levels of distress in the current sample.

Thus, the high levels of emotional exhaustion observed might have precluded the emergence of the stress-buffering moderator effects of psychological flexibility in this particular case. As Onwezen and colleagues (2014) noted, while psychologically flexible

employees are generally more resilient to job demands, they are not entirely protected from the effects of emotional exhaustion, and as such, are likely to eventually reach a point of diminishing returns for their psychologically flexible responding in the face of sustained demands. Therefore, they too are likely to benefit from early detection and intervention efforts as well as reduced strain when possible.

This study was the first to examine the impact of work-related psychological flexibility on emotional exhaustion, and found it to predict 8% additional variance in this outcome over and above emotional job demands. This finding somewhat contradicts the assertions made by Bond and colleagues (2013) in their scale development paper that the work-related measure correlates more strongly with work-related outcomes, such as emotional exhaustion, while the general measure correlates more strongly with general mental health outcomes (e.g., general levels of psychological distress). Indeed, findings from the present analysis seem to suggest the general measure as a much stronger predictor of feelings of emotional depletion from work than the work-specific measure. There are several reasons why this might be the case, including again the high levels of emotional exhaustion reported by the current sample that might be more reflective of clinical levels of distress, and the fact that the general measure of psychological flexibility is actually a measure of experiential avoidance which is then reverse-scored. According to ACT theory, experiential avoidance is thought to play an important and pervasive role in the etiology and maintenance of many psychological disorders (Valdivia-Salas, Sheppard, & Forsyth, 2010). The research implications of the differences in measurement scales are discussed in more detail below.

The second three models again tested the potential moderating effects of each of the positive psychology variables in the demands-exhaustion relationship, this time including positive and negative trait affect and multifaceted mindfulness as control variables. Again, none of the positive psychology variables emerged as significant moderators in any of the models; yet psychological flexibility continued to contribute incremental variance in predicting emotional exhaustion over and above emotional job demands and all included controls.

Consistent with prior work (e.g., Craigie et al., 2016), trait negative affect emerged as a significant positive predictor of emotional exhaustion across all models. However, behind emotional job demands, five-factor mindfulness emerged as the second most powerful predictor of emotional exhaustion, exhibiting strong and significant negative relationships with this outcome across all three models. This finding is aligned with emerging research in applied psychology and organizational behavior surrounding stress in the workplace and suggesting negative relationships between mindfulness and emotional exhaustion, both cross-sectionally (Duchemin, Steinberg, Marks, Vanover, & Klaff, 2015; Hülsheger et al., 2013; Roche, Haar, & Luthans, 2014; Taylor & Millear, 2016) and experimentally (e.g., Hülsheger et al., 2013; for a review, see Luken & Sammons, 2016). Like the present study, Taylor and Millear (2016) investigated five-factor mindfulness within the JD-R model specifically and found all 5 factors combined to predict 16.5% of the variance in emotional exhaustion, accounting for no other predictors, among a community sample of women working at least one day per week. In their systematic review of mindfulness practice interventions for reducing job burnout, Luken and Sammons (2016) found that six of eight studies, of fair to good quality and

mostly among health care professionals and teachers, demonstrated significant decreases in job burnout after mindfulness training.

Though the salutary effects of single-factor mindfulness have only recently come under the empirical scrutiny of scholars within the fields of applied psychology and organizational behavior (Dane, 2011; Dane & Brummel, 2013; Hülsheger et al., 2013, 2014), psychological flexibility as a construct and as a promotable personal resource offers us something more: Not only are psychologically flexible employees more mindful; they are better able to *persist in goal-directed action* while maintaining their awareness of psychologically difficult phenomena (e.g., job stress) because they do not need to expend effort regulating emotions as their less psychologically-flexible peers do (Biron & Van Veldhoven, 2012). Thus, they are better able to respond to job demands and less likely to become resource-depleted over time, as preliminary experimental evidence has shown (Lloyd et al., 2013). Also, they perform their jobs better (Onwezen et al., 2014). Data from the present study continues to advocate for the role of psychological flexibility in predicting important work-related outcomes.

The Motivational Process: Exploring the Resources-Engagement Relationship

The second set of moderator models in the current study sought to examine the effects of self-compassion, psychological flexibility, and work-related psychological flexibility in the job resources-engagement relationship, or the "motivational process" side of the JD-R model. Consistent with prior work, emotional job resources (e.g., getting emotional support from clients, colleagues, or supervisors at work; feeling esteemed by others at work; de Jonge et al., 2009) emerged as the strongest predictors of engagement. As above, none of the positive psychology variables emerged as significant moderators in

the resources-engagement relationship, yet each contributed significant incremental variance to the construct of engagement.

This is the first study to the author's knowledge to examine associations between self-compassion and engagement, with the former yielding an additional 6% predictive variance to the latter after controlling for the effects of emotional job resources. Given conceptualizations of engagement as the positive antipode of burnout (cf. Schaufeli et al., 2006) and prior studies demonstrating significant inverse relationships between burnout and self-compassion, it is not surprising that self-compassion positively predicts engagement. Theoretically, both are constructs capturing positive, adaptive functioning – self-compassion is more general while engagement is work-specific. However, within the context of animal sheltering in particular (as in other high emotion work), it is not surprising that those who are able to mindfully play the role of the compassionate other toward the self are able to better engage with (be present for and dedicated to) their work on an ongoing basis. Future work should examine subscale correlations and predictive relationships between the three faces of self-compassion (mindfulness, self-kindness, and common humanity; Neff, 2003b) as well as the three components of engagement (vigor, dedication, and absorption; Schaufeli et al., 2006).

Similarly, the general measure of psychological flexibility contributed an additional 6% positive predictive variance in engagement, while work-related psychological flexibility contributed an additional 13% predictive variance. These findings are overwhelming consistent with Bond and colleagues (2013) who found the work-related measure of psychological flexibility to correlate much more strongly with engagement than the general measure. Again, this is likely due to differences in how each

of the scales measure psychological flexibility – with the general scale needing to be reverse scored to capture this construct, and the work-specific scale being a direct measure of this construct in a specific context that does *not* need to be reverse-scored. Context aside, the work-specific measure is likely to correlate more strongly with constructs related to positive and adaptive functioning (e.g., engagement), while the general measure is likely to correlate more strongly with negative or maladaptive functioning, simply as function of scale computation and scoring. Indeed, additional research using both measures and multiple outcomes within a variety of occupational samples is needed in order to determine how each functions within work-specific contexts.

The final set of moderator models, again examining the resources-engagement relationship but this time including covariates of trait positive and negative affect and five-factor mindfulness, again failed to support any of the positive psychology variables as significant moderators. In these models, contrary to prior research demonstrating strong predictive links between job resources and engagement (Crawford, LePine, & Rich, 2010; Nahrgang, Morgeson, & Hofmann, 2011), emotional job resources failed to emerge as a significant predictor of engagement after controlling for the effects of trait affect and mindfulness. In one sense, this finding is unexpected given two large-scale meta-analyses demonstrating positive relationships between various job resources (e.g., knowledge, social support, leadership, job variety) and engagement ($\rho = .36$, $p < .05$; Crawford et al., 2010; $r_c = .30$-$.80$; Nahrgang et al., 2011); yet in another, it is not, because similar to the demands-exhaustion relationship, prior studies have failed to account for the influence of any confounding variables in these relationships.

Consistent with prior literature suggesting a dispositional basis for engagement (Macey & Schneider, 2008), trait positive affect was by far the strongest predictor of engagement across all three models, contributing 48% of the variance. While research examining person-level antecedents of engagement is developing (e.g., Big 5 personality traits; Inceoglu & Warr, 2011), evidence from the related construct of job satisfaction suggests that nearly 30% of its variance is "hereditary," and of that 30%, 45% is attributable to trait affect, while only 24% is attributable to Big 5 personality factors (Ilies & Judge, 2003). Trait affect has also been identified as a proximal antecedent to organizational citizenship behaviors (Spector & Fox, 2002; in Dalal et al., 2012). Taken together with results from the current study, these findings support the notion that, all else being equal, people who are characteristically happy tend to be happy and engaged with their jobs (Dalal et al., 2012), and based on the current sample, this appears to be true for individuals working in animal sheltering as well.

However, mindfulness, reflecting both a dispositional tendency *and* a trainable skill, was the second strongest predictor of engagement across all three models, contributing an additional 3% variance after accounting for trait positive and negative affect. Using latent growth curve analysis to model static and dynamic relationships between mindfulness and engagement across time in the context of an 8-week mindfulness-based stress reduction training in three samples, Leroy and colleagues (2013) found support not only for the direct effects of mindfulness on engagement both cross-sectionally and across time, but also for the indirect effects of mindfulness on engagement through enhanced authentic functioning, defined as being aware of oneself

and regulating oneself accordingly (Avolio & Gardner, 2005; in Leroy et al., 2013), or "being more open and non-defensive (p. 244)."

Grounded in self-determination theory (Ryan & Deci, 2000), these authors postulated that mindfulness influences work engagement both directly, by making people more attentive and focused, and indirectly, by enhancing internal awareness and thereby generating higher levels of authentic functioning. Findings from the present study indeed suggest the important effects of mindfulness in predicting work engagement, and are the first to shed light on the impact of multidimensional mindfulness in particular. It is important to note however that across all six moderator models, a single score was used to represent five-factor mindfulness. A more fine-grained examination of each of the five facets of mindfulness and their respective relationships with various occupational outcomes (e.g., performance, engagement, job stress, burnout) is a promising avenue for further exploration.

Of the three positive psychology constructs, work-related psychological flexibility was the only variable to contribute incremental predictive variance over and above trait positive and negative affect and five-factor mindfulness. This is not surprising given strong relationships between this construct and engagement exhibited in the models that did not include controls. Taken together, findings from the present study as well as Bond et al (2013) suggest that, from construct development, theoretical, and practical standpoints, the work-specific measure of psychological flexibility holds promise for future inquiry surrounding mental health and behavioral effectiveness in the workplace, and moreover, that training in psychologically flexible responding at work might be

particularly fruitful for indirectly enhancing engagement among staff in animal sheltering.

Enhancing Self-Compassion to Treat Compassion Fatigue: A Brief Online Intervention and Randomized Controlled Field Trial

As previously discussed, compassion fatigue represents a psycho-emotional state of being comprised of heightened burnout, or emotional exhaustion and drain, coupled with an experience of secondary trauma by a continuous outpouring of one's compassionate resources toward suffering others (Stamm, 2010). High levels of compassion fatigue among animal sheltering staff are associated with a multitude of untoward personal and occupational outcomes, yet shelter administrators are ill equipped to reduce the prevalence and severity of this condition due to a lack of well understood, efficacious, and cost- and time-effective interventions (Baran et al., 2009; Gentry et al., 2004; Rank et al., 2009; Reeve et al., 2004, 2005; Rogelberg et al., 2007). Moreover, work in animal sheltering is viewed by the public as "dirty work" due to its associations with animal detritus and death (Bickmeier, 2015), further taxing workers' positive self-image and socioemotional resources.

Emanating from the positive psychology movement and associated with enhanced compassion for both self and others, self-compassion as a personal resource and as a practice is positively and robustly related to well-being (Barnard & Curry, 2011) and negatively related to burnout among clergy (Barnard & Curry, 2012) and first-year pediatric residents (Olson et al., 2015). Essentially representing a fusion of mindful awareness and positive self-talk, self-compassion involves invoking a presence of mindful equanimity while extending kindness and compassion toward the self,

recognizing that perceived failures and shortcomings are part of the larger shared human experience (Neff, 2003a). Preliminary evidence suggests that self-compassion can be significantly enhanced via a brief online intervention consisting of audio-recorded guided self-compassion meditations (Albertson et al., 2015). Given its strong associations with well-being and prospective inverse relationships with psychological distress (Neff et al., 2007), including anxiety, depression, and burnout, it was postulated that a brief online intervention to promote self-compassion might decrease the burnout and secondary traumatic stress known as compassion fatigue among animal sheltering staff. While no studies to date have explored the relationship between self-compassion and engagement, it was also postulated that the same intervention to promote self-compassion might also simultaneously enhance engagement, given that it is considered to be the positive antipode of burnout (Schaufeli et al., 2006).

Additionally, given increasing interest in the theoretical and empirical links between self-compassion and psychological flexibility, including cross-sectional relationships documenting high levels of shared variance between respective measures of each (Wendling, 2012; Woodruff et al., 2014), it was posited that an intervention to enhance self-compassion might also indirectly enhance psychological flexibility and its contextualized counterpart, work-related psychological flexibility. Also grounded in mindful awareness yet encompassing a behavioral commitment to sustained or continued engagement in values-directed action (Hayes et al., 2006), psychological flexibility as a construct and as a buildable personal resource is fast gaining ground among organizational scholars for its ability to enhance behavioral effectiveness in the workplace. This is evidenced by multiple worksite-based interventions to promote it

(Biron & Van Veldhoven, 2012; Bond & Bunce, 2000; Brinkborg et al., 2011; Flaxman & Bond, 2010a, 2010b; Hayes et al., 2006; Lloyd et al., 2013) and a newly developed measure of work-related psychological flexibility, reflecting the extent to which employees are consistently able to engage in work-related goal-directed actions in the face of difficult or unwanted internal experiences (Bond et al., 2013). Importantly, the present study was the first of its kind to explore whether any intervention other than the professionally delivered and time-intensive Acceptance and Commitment Therapy (ACT; Hayes et al., 2006) was able to effectively enhance psychological flexibility. In sum, the intervention portion of the present study involved a piloted, randomized controlled field trial of the effectiveness, feasibility, and acceptability of a brief online self-compassion meditation intervention for enhancing self-compassion, engagement, psychological flexibility, and work-related psychological flexibility, while reducing emotional exhaustion and secondary traumatic stress among a sample of animal shelter workers.

Intervention Effectiveness: Hypothesis Evaluation

Self-compassion and engagement. Hypothesis H2A, suggesting that individuals in the treatment group would evidence significant pre-post treatment gains in self-compassion and engagement relative to the control group, was not supported by either intent-to-treat or per protocol analyses. However, intent-to-treat analyses did reveal significant sample-level linear gains in self-compassion across time, occurring specifically between baseline and week 1 (representing one week of active treatment for the treatment group) and sustaining through 6-week follow-up. While pre-post treatment gains in self-compassion were nearly twice the size among compliers in the treatment group relative to the control group (per-protocol sample), significant time by group

differences failed to emerge, likely due to statistical power issues generated by the high levels of attrition observed in the treatment group (discussed in detail below).

Interestingly, the entire sample evidenced gains in self-compassion from baseline to week 1, regardless of treatment condition. Either or both of two factors perhaps explain this: a) the effect of hope ("placebo effect" in psychotherapy; Rosenthal & Frank, 1956); and/or b) the priming potentially created in the control group by the weekly completion of questionnaires tapping self-compassionate content. It has long been understood in clinical psychology that patients' outcome expectations, or their beliefs about the consequences of receiving treatment, contribute to the efficacy of psychotherapeutic intervention (Frank, 1968; Goldstein, 1960) – by as much as a quarter of a standard deviation, according to a recent meta-analysis (Constantino, Arnkoff, Glass, Ametrano, & Smith, 2011). The presence of this effect is suggested in the present study by the broad and sweeping increases in self-compassion across groups from baseline (study enrollment) to week 1, and is even more likely given that control group participants had been informed that they would be receiving the intervention immediately after completing the series of weekly questionnaires. Further, this effect has been documented in other randomized studies of mindfulness-based meditation (cf. Ledesma & Kumano, 2009) and online self-compassion meditation (Toole & Craighead, 2016) interventions. Secondly, while the collection of weekly measurements from the control group was necessary for comparison's sake, it is possible that the simple completion of the measures each week fostered and sustained initial awareness of self-compassionate content, making participants, regardless of condition, more attuned to any attempts at extending compassion toward themselves. This notion is supported by longstanding research in

psychology suggesting that the simple observation of behavior will cause the behavior to change (i.e. the Hawthorne effect; Landsberger, 1958).

Emotional exhaustion and secondary traumatic stress. Both intent-to-treat and per-protocol analyses also failed to support Hypothesis 2B, which suggested that participants in the intervention group would evidence significant decreases in week-level emotional exhaustion and secondary traumatic stress relative to controls. However, plots for the per-protocol sample were in the expected directions, with treatment group compliers exhibiting twice the decrease in emotional exhaustion post-treatment relative to the control group. Moreover, exploratory analyses revealed that sample-level gains in self-compassion and psychological flexibility did in fact significantly predict sample-level decreases in emotional exhaustion. These findings are consistent with more than a decade of work demonstrating that increasing psychological flexibility can improve employees' mental health while reducing stress and burnout, including emotional exhaustion in particular (Biron & Van Veldhoven, 2012; Bond & Bunce, 2000; Brinkborg et al., 2011; Flaxman & Bond, 2010a, 2010b; Hayes et al., 2006; Lloyd et al., 2013). This preliminary evidence, combined with baseline analyses showing psychological flexibility in particular to be a robust negative predictor of emotional exhaustion over and above strong covariates, suggests that future intervention endeavors aimed at decreasing emotional exhaustion by means of enhancing self-compassion and psychological flexibility among this population might prove fruitful, especially if attrition and other methodological factors influencing statistical power are adequately addressed.

Psychological flexibility and work-related psychological flexibility. Relatedly, Hypothesis 3A, suggesting that participants in the treatment group would evidence

significant time by treatment gains in psychological flexibility and work-related psychological flexibility relative to the control group, was not supported by either intent-to-treat or per-protocol analyses. Yet again, significant sample-level linear gains were observed for both, with the treatment group compliers evidencing significantly greater gains in psychological flexibility, but not work-related psychological flexibility, relative to the control group. Follow-up analyses revealed that the sample-level gains observed in both variables were maintained from treatment end to 6-week follow-up, and that moreover, psychological flexibility continued to increase by almost an entire point during this timeframe, according to intent-to-treat analyses.

Again, this is the first study to the author's knowledge to demonstrate increases in psychological flexibility effected by any intervention other than ACT, which for clinicians, can be complex to learn and implement, and for participants, can be time- and cost-intensive to attend. What was especially innovative about the present study was that the intervention provided was not designed to directly influence psychological flexibility, but instead, self-compassion. As expected, exploratory analyses among the intent-to-treat sample suggested that psychological flexibility did in fact significantly increase by way of increases in self-compassion. Even more surprising is that these results emerged though participants reported listening to the self-compassion meditations on average only two days per week – though this level of adherence appears to be fairly typical for this type of intervention (Albertson et al., 2014; Toole & Craighead, 2016). Taken together with evidence from prior work, the present study provides very rudimentary evidence that psychological flexibility can be indirectly enhanced through a brief self-guided intervention designed to increase self-compassion.

Of note, the present work was also the first to the author's knowledge to examine whether work-related psychological flexibility is able to be manipulated by any intervention. While sample-level linear gains were observed and maintained according to intent-to-treat analyses, there were no significant between-group differences in change scores among completers according to per-protocol analyses. As previously mentioned, the lack of significant findings is likely to due the specific sample used, representing a more clinically distressed population; and also potentially the intervention itself, whose content was not contextualized to the workplace, though the intervention was offered as a means of reducing workplace stress. Had workplace-tailored intervention content specifically related to compassion fatigue been used among a less distressed population of animal care workers, it is possible that the contextualized measure of psychological flexibility might have evidenced change. However, whether, how, to what extent, and by what specific mechanisms this variable is able to manipulated among various occupational groups and settings is a question for future research to address.

Methodological Considerations

Many aspects of the current intervention were unique from a methodological perspective, including the use of an entirely online intervention method in a novel population and setting, raising many avenues for discussion and consideration of the feasibility, acceptability, and sustainability of future related work. Namely, the online nature of the present study introduced difficulties specifically related to recruitment, retention, and adherence that are either not often encountered, or encountered in the same magnitude, as in face-to-face or traditionally delivered randomized controlled trials (cf. Davies, Morriss, & Glazebrook, 2014). Though online trials have been taking place for a

little over a decade, a lack of specific guidelines for designing and conducting them has led to significant bias, with many publications failing to sufficiently report their methods (Davies et al., 2014). Further, this lack of consensus offered little direction for guiding the work at hand. Below, considerations regarding the feasibility, acceptability, appropriateness (i.e., level of care), and sustainability of the present work are explored and contrasted with extant literature surrounding either similar methodology (i.e., online RCTs), intervention mechanisms (e.g., mindfulness-based stress reduction approaches), or both.

Evaluating feasibility: Recruitment, retention, and adherence.

Recruitment. Three primary factors broadly affected the recruitment of participants in the present study: a) the distribution of incomplete recruitment information via a listserv for shelter administrators, leading to a partially non-representative sample; b) the decision to exclude from randomization individuals who had completed less than 75% of the baseline survey, leading to a substantial loss of participants and potentially biased randomization; and c) the decision to exclude individuals concurrently receiving any form of psychotherapy or treatment, instigating the loss of additional, potentially very motivated, participants.

With regard the partially non-representative sample, the president of the Society of Animal Welfare Administrators (SAWA) agreed to distribute information regarding the study in the organization's monthly newsletter. Instead of including the recruitment information as provided by the primary investigator (i.e., a short blurb and a flier requesting that study information be disbursed to shelter *staff*), a single line requesting participants with a link to the baseline survey was distributed. This led to an over-

representation of administrators – who were not the intended study population – enrolling and participating in the study, as evidenced by the large proportion of participants (23%) indicating possession of master's and doctoral degrees. Not only was this highly educated sample not the intended population, they likely also unduly influenced scores on measures of interest and perhaps contributed to partially ineffective randomization, as individuals in the treatment group were more likely to evidence higher scores on psychological flexibility and self-compassion and lower scores on emotional job demands at baseline. Furthermore, 65% of this very educated sample reported some prior experience with meditation, which is nearly 10% higher than previously published research among community samples (57%; Albertson et al., 2015), also potentially influencing study results.

Yet another factor that could have contributed to the observed baseline group differences was the decision to exclude from randomization those individuals who had not completed at least 75% of the baseline enrollment survey. While this decision led to a substantial loss of the total recruitment sample (40%; n = 79), it was made in an effort to prevent further attrition given the considerably high risk in online RCTs (Christensen et al., 2009) and based on prior research surrounding online interventions (i.e., allowing only those with completed baseline data to access the intervention; Todd et al., 2012). It is impossible to know whether and how this attempt to pre-screen those who were less engaged with or committed to the study might have reduced attrition rates, contributed to the retention of a non-representative sample (e.g., excluded those with lower levels of conscientiousness or higher levels of neuroticism), or affected the effectiveness of randomization. Certainly, future work in this area would benefit from research

investigating the effectiveness, advantages, and disadvantages of various techniques in minimizing rates of attrition based on participant characteristics at baseline (e.g., perceived lack of engagement or commitment) – however, achieving a balance between evaluating the efficacy versus the effectiveness of interventions is a continual challenge.

Finally, to minimize confounding treatment effects, the current study included an exclusionary criterion of concurrent receipt of any form of psychotherapy, counseling, or coaching. Unfortunately this led to a loss of 12% (n = 30) of the recruited sample whom might have been the most motivated to participate given likely higher levels of experienced distress. Future efforts may benefit from choosing not to exclude those receiving other forms of treatment but simply include this as a statistical control when accounting for treatment effects.

Retention and adherence. Representing the most problematic aspect of the current study, extremely high rates of attrition were observed throughout the study period for the treatment group in particular. Not surprisingly, most of the attrition occurred between recruitment and the first weekly survey, representing a 6-week time lag that included one week of active treatment. Yet, other than treatment group membership, no systematic patterns of nonresponse were identified, except a small effect for marital status suggesting those identifying as "divorced" were significantly more likely to attrit than those identifying as "single."

Considering total attrition regardless of treatment group, drop out rates in the current study were slightly higher (65%) than a recent review of online trials among college students (7.2% - 44.2%; Davies et al., 2014), which is perhaps expected given that most of the college students received course credit for participation and largely,

based on age, were not tasked with managing the time demands experienced by the current sample of working adults (e.g., pets; spouses; children; daily commute time). The extant literature suggests that individuals in *any* active condition, whether treatment or control, are more likely to attrit than those in an inactive condition (e.g. waitlist). Nevertheless, the near 90% attrition observed in the treatment group in the current study far surpasses the average reported for active treatment groups in a recent meta-analysis of computerized cognitive behavioral therapy interventions (28%; Grist & Cavanagh, 2013).

Indeed, a review of the open-ended content collected from participants cites time and other logistical challenges, such as privacy, as the number one barrier to full participation in the current study. Despite a "primer" document distributed at study initiation strongly suggesting such, most participants failed to set aside a time each day to complete the meditations, instead attempting to complete them at work or at home with near constant interruptions by coworkers, pets, and others. Some participants acknowledged a need to "[set] priorities," while others suggested incorporating daily reminders to meditate.

This touches on another aspect of the current study that could have led to the high rates of attrition – namely, lack of any personal interaction whatsoever with the interventionist, either in person or via some electronic medium other than e-mail (e.g., phone; video conferencing). While the present study can be classified as "semi-guided" given that weekly e-mail reminders were sent encouraging completion of the meditations and survey questionnaires, no other coaching or support was offered. In the future, including students or other allied animal care professionals as coaches to help foster engagement (e.g., regular "check-ins") and decrease barriers (e.g., aid in problem-solving

around logistics) to participation may help enhance retention and adherence to the protocol. While the largely absent involvement of the interventionist could have been deemed an advantage of current study, the high rates of attrition and low levels of adherence observed seem to echo prior work suggesting that the best outcomes are often achieved by combining self-help with face-to-face support (Rickwood & Bradford, 2012).

A very recently published paper employing the same self-compassion meditations identified comparable struggles with retention and adherence. In an intervention designed to reduce body image disturbance among college women, Toole and Craighead (2016) asked participants to listen to a series of three guided meditations each day for one week, and provided an in-person training session at the outset. While retention was high, adherence was low, with only half of participants listening to the meditations even once outside of the lab. Participants remarked that the meditations were too long and that it was difficult to make time for them during the day. Thus it appears that a shortened intervention length and the addition of an in-person training session are not enough to fully engage participants in this type of effort – more consideration should be given to how to improve engagement and sustainability, perhaps by the use of focus groups in the future.

Acceptability, appropriateness, and sustainability.

Acceptability. Regarding acceptability of the intervention in meeting participants' needs, several issues arose for consideration. First, with regard to the audio-recorded meditations themselves, several participants mentioned a desire for more "compassion fatigue or animal care specific" meditations including content such as, "let go of the

animals… not your fault." Like other research investigating the effects of mindfulness-based stress reduction approaches for enhancing work engagement (e.g., Leroy et al., 2013), both quantitative and qualitative data from the current study seem to suggest that these types of interventions *must be tailored* to the workplace in order to effect maximum change in work-related outcomes of interest such as compassion fatigue and engagement. Also regarding meditation content, many participants reported disliking the recorded voice, desiring a male voice or other female voice, and/or disliking the meditation bells used in some of the meditations. While some participants felt like the time spent in meditation passed quickly, more often, participants reported wishing the meditations were around ten to fifteen minutes instead of twenty. Those who participated in the final week of meditations, choosing which to listen to, reported liking the variety and wished that had been incorporated in prior weeks. In sum, the acceptability of the present intervention could be improved by a) tailoring intervention content specifically to animal care related compassion fatigue; b) reducing the length of the meditations to 10-12 minutes; and c) offering more choices in terms of voice, type of meditations offered (e.g., body scan, affectionate breathing), and when and how often participants should complete each meditation (i.e., allowing for variety and choice throughout the intervention).

Appropriateness. Whether an entirely online, mostly self-guided intervention is the "appropriate" intervention or level of care for this population is not a question that can be answered by a single study. In many regards, the current sample reflected levels of distress more characteristic of a clinical population (i.e., likely to meet threshold criteria for diagnosis), reporting high average levels of emotional exhaustion, with nearly 15% of the initial recruitment sample reporting active receipt of psychotherapy. This suggests

that many individuals in the current sample might benefit from more intensive intervention efforts such as one-on-one or small group counseling delivered in multiple in-person sessions. However, the inaccessibility of such an approach is a primary reason for the online design of the present study, reflecting the notion that appropriateness is not always based solely on need, but also on practicality (i.e., online interventions often reach individuals who are unwilling to access services otherwise; Davies et al., 2014). While plagued by issues of statistical power due to attrition, initial results of the effectiveness of the present pilot study are somewhat promising, especially considering other similar work demonstrating that the individuals who benefit most from this type of intervention are those with high levels of distress at baseline (e.g., Flaxman & Bond, 2010a).

Sustainability. The central consideration of sustainability was cogently raised by one of the participants in a response to an open-ended question: "What do we [the participants] do with this now?" An integral component for future development of the present intervention should be clear establishment of expectation that participants are embarking on an *ongoing practice* of mindful self-compassion – one that is to be engaged in regularly as form of self-care. That is, the practice is not to be used as a temporary fix in crisis situations, nor is it beneficial for one to wait until they feel overly stressed to begin the practice. Often, this is counterproductive as individuals become frustrated with unsuccessful attempts to self-regulate given high levels of stress and agitation. Rather, the practice is most productive when viewed as a regular, daily investment in one's well-being, such that challenging moments and times do not instigate the previously experienced level of disruption to one's equilibrium.

Indeed, studies of mindfulness-based meditation practice among cancer patients demonstrate improved quality of life, less vulnerability to stress, and more tolerance toward the negative aspects of self and others *when the practice became a disciplined approach* (cf. Ledesma & Kumano, 2008). At the core of all mindfulness-based practice, including self-compassion, is the fostering and maintenance of a non-judgmental awareness of the present moment – again indicative of engagement in a continuous practice. Communicating the significance of this continued practice as a *way of being* would perhaps best be achieved in future intervention efforts by providing either an in-person or video orientation stressing such.

Many participants requested ongoing access to the audio-recorded meditations, and others requested some form of additional supplementary material (e.g., "take-home" assignments). Many of these, including the meditations, are freely available online via Kristen Neff's website (www.self-compassion.org). In the future, intervention effects as well as long-term well-being outcomes may be beneficially impacted by providing access to these materials either directly from Neff's website or, with permission, via another portal that is more specific to animal welfare. Like the audio meditations, some of the supplementary content may need to be tailored to best meet the needs of those suffering specifically from compassion fatigue in animal welfare.

Finally, sustainability can be improved in the future by directly prompting participants to consider, throughout the intervention and again at the end, the utility, portability, and sustainability of the strategies and skills learned once the intervention is over. In a qualitative study of how those recovering from substance use incorporated mindfulness-based stress reduction strategies into their daily lives to cope with stressful

situations, three themes emerged: utility, portability, and sustainability (Carroll, Lange, Liehr, Raines, & Marcus, 2008). Utility referred to the usefulness of the practice for calming the self – for example, focusing on the breath – while portability referred to the transfer of skills learned through the meditations to cope with stressful situations elsewhere. Sustainability referred to the potential long-range contributions of the practice to ongoing or future goal achievement. Dovetailing from this, future iterations of the present intervention may include questions for participants such as, "How are you going to use what you've learned through the self-compassion meditations to help you cope with stress at work in the future?" "List 3-4 skills you learned through the meditations that you can use at work or at home to cope with stress and compassion fatigue," or "Now that the study is ending, how are you going to ensure a continued commitment to the practices you have been learning and investing in?" Responses to these questions from future focus groups may shed light as to how to better structure subsequent efforts to enhance the long-term sustainability of the current work.

Limitations and Future Directions

Findings from the present study must be considered in light of several important limitations. Chief among these were the high levels of attrition observed among treatment group participants, leading to imbalanced groups and inadequate power to detect effects. The sheer amount of missing data makes it difficult indeed to draw many meaningful conclusions regarding the effectiveness of this piloted intervention. Future efforts aimed at this population should take care to more thoroughly inform potential participants of the time commitment involved in such a study, as well as provide peer- or coach-based

support as previously discussed. Hopefully, the addition of such measures may help to reduce the rate of attrition in future studies.

Relatedly, a limitation of the current study was the decision to exclude from randomization those participants with incomplete baseline data. This decision led to an unmitigated loss of 40% of the recruited sample, many of which might have participated more fully given the chance. Further, the exclusion of these participants could have led to biased representation in the retained sample (e.g., higher than average levels of conscientiousness), a potential contributor to the between-group differences observed at baseline on certain key outcome variables. While these differences were statistically controlled for in intent-to-treat analyses, they nonetheless problematically suggest that randomization was partially ineffective. Future work should consider alternative benchmarks for determining what level of "completeness" should be required from participants at baseline to consider them in good standing for allocation to treatment conditions.

In a similar vein, the decision to exclude from enrollment those individuals concurrently receiving any form of psychotherapy, counseling, or coaching was perhaps a bit preemptive given the current stage of intervention development. It is likely that these individuals would have been very motivated to participate in the present undertaking and further might have been able to provide informed and insightful commentary regarding how future intervention efforts may be shaped given their experiences. Indeed, in a recent study, Toole and Craighead (2016) found that those with highest distress at baseline were most likely to engage in a self-compassion meditation training intervention.

An additional limitation was the low level of internal consistency evidenced by the shortened emotional job demands measure throughout the weekly measurement occasions. While only the first week (baseline) was used as a control variable in two of the intent-to-treat analyses, the unacceptably low coefficient alphas demonstrated throughout the study (weekly average $\alpha = .63$) rendered the measure essentially non-interpretable. Despite requests from the measure's first author, no factor analytic results were able to obtained *a priori* to aid selection of items for the shortened measure. Thus, three of five items from the emotional job demands subscale of the shortened DISQ 2.1 (de Jonge et al., 2009) were retained based on face validity and appropriateness for the current study. The same strategy was used in selecting items to measure emotional job resources, evidencing no apparent measurement difficulty in the present work. Though the DISQ 2.1 is the only validated measure to date offering a multidimensional assessment of job demands and resources along cognitive, emotional, and physical dimensions, the current study suggests that the emotional job demands subscale in particular should be used only in its entirety and not truncated for experience sampling methods.

Furthermore, the item complexity, wording, and reading level required for accurate completion of the general measure of psychological flexibility (Acceptance & Action Questionnaire II; Bond et al., 2011) is questionable, even among the most educated and insightful samples (e.g., "My painful experiences and memories make it difficult for me to live a life that I would value."). This is despite its widespread use among samples with lower levels of formal education (e.g., among individuals diagnosed with severe and recurrent mental illness such as Type 1 bipolar disorder). Given its

ubiquity, validation of this measure is needed among more socioeconomically-diverse samples by way of techniques such as cognitive assessment.

A number of future directions arise for consideration in future research with regard to the job demands-resources framework, as well as further development of the piloted self-compassion meditation intervention. A serious limitation of extant literature surrounding the JD-R framework is the apparent lack of consideration given to incorporating person-level covariates (e.g., trait affect) as predictors in falsifications of the model. The demands-exhaustion relationship is arguably well established in the literature and was further evidenced here as emotional job demands emerged as the strongest predictor of emotional exhaustion across all moderator models.

However, the resources-engagement relationship is certainly less tenable, also as evidenced presently given that emotional job resources failed to predict any variance whatsoever in engagement after accounting for the effects of trait positive affect and five-factor mindfulness. Results from the current analysis certainly seem to favor Macey and Schneider's (2008) conceptualization of job engagement as a person-level factor that is far better predicted by individual differences than the occupational context per se. Hence, future JD-R scholars are tasked with demonstrating the continued importance of whether and how to consider job resources as necessarily predictive of employee engagement in light of other much more relevant factors (e.g., trait affect; mindfulness).

With regard to the intervention, this pilot test overwhelmingly suggested that participants needed much more support in engaging with and sustaining the daily self-compassion meditation practices. Ideally, this should be achieved on several levels in the future, including if possible a face-to-face orientation prior to intervention initiation

emphasizing the nature of the meditations as an ongoing practice, as well as providing personalized peer-to-peer or student coaching and shorter meditations. Another avenue to improve adherence and increase access might be to train Human Resource professionals (where available) to deliver the intervention onsite to their staff; yet, this approach carries its own limitations given that agencies with dedicated Human Resource professionals tend to be those with more resources (and therefore lower levels of burnout and compassion fatigue among staff) in the first place.

Additionally, intervention content needs to be tailored more specifically to compassion fatigue, ideally within animal welfare. Not only might more targeted material improve adherence rates; it might also better instigate change in work-related outcomes of interest (e.g., emotional exhaustion) via enhanced self-compassion and psychological flexibility, as evidenced by cross-sectional and longitudinal findings from the current study as well as prior literature (e.g., Biron & Van Veldhoven, 2012; Lloyd et al., 2013; Onwezen et al., 2014). This could be achieved by conducting more in-depth qualitative work, including the use of focus groups and individual interviews geared toward discovering what types of intervention(s) animal sheltering staff need and desire in terms of improving self-care and coping strategies. Finally, sustainability should be addressed in the future by posing direct questions regarding such to intervention participants. Again, the use of focus groups to further develop intervention content and structure, especially with regard to adherence and sustainability, might provide especially beneficial prior to conducting the intervention again with a larger cohort.

Consideration must also be given to the complementary, rather than competing, roles of instigating individual-level versus organizational-level change in addressing the

occurrence of phenomena such as burnout and compassion fatigue. Difficulty arises in trying to compare the efficacy and effectiveness of these two broad approaches due to, for instance, discrepancies in design for evaluating them (e.g., randomized controlled trials, the gold standard for evaluating intervention efficacy among individuals, tend to be much more rigorous than designs used to evaluate the efficacy of organizational interventions, which do not routinely use randomization or contemporaneous comparison groups, for example). Indeed, a meta-analysis of 238 field experiments comparing the two found that while organizational change and development interventions overall had moderate effects, outcomes were not moderated by the level of intervention (Barnett, 2005). While the benefits and drawbacks of pursuing top-down versus bottom-up change within organizations is a long-standing debate within the organizational sciences more generally, many scholars and practitioners recognize that the most beneficial and effective change is achieved by working simultaneously and/or sequentially from both levels. Thus, the current intervention, focused on effecting individual-level (i.e. bottom-up) change, should ideally be cast as part of a larger effort encompassing administrators and organizational policy change also designed toward the same end (reducing burnout, increasing engagement) to be maximally effective.

Conclusions

In closing, several theoretical, methodological, and practical implications stem from the present work. Theoretically, a large contribution of the current study was the demonstration of experimental increases in psychological flexibility via increases in self-compassion, and by an intervention other than ACT. Scholars have begun to consider the conceptual, empirical, and practical ties between self-compassion and psychological

flexibility (Neff & Tirch, 2013; Wendling, 2012; Woodruff et al., 2014) – intuitively understanding that the extension of kindness and compassion toward oneself in times of suffering should enable more psychologically responding – yet, this is the first study to the author's knowledge to demonstrate changes in latter resulting from the former. However, the nature, extent, and temporality of this relationship is in need of much more refinement and is something for future research to continue to uncover.

From a measurement perspective, psychological flexibility and its work-related counterpart, work-related psychological flexibility, demonstrated conceptual distinction from trait affect and multidimensional mindfulness and contributed incremental explanatory power to emotional exhaustion and engagement, respectively. Consistent with prior work (e.g., Bond et al., 2013; Woodruff et al., 2014), the present study suggested that the general measure of psychological flexibility is a stronger predictor of negative indicators of psychological health and workplace functioning (e.g., burnout; counterproductive work behaviors), while the contextualized measure is a stronger predictor of positive workplace health and functioning. However, this could also be a function of the measurement scales, as the contextualized measure reflects work-related psychological flexibility, while the general measure reflects experiential avoidance and must be reverse-scored to reflect psychological flexibility. More studies among varying samples and contexts are needed in order to increase understanding of the differential functioning of these two measures, including the establishment of antecedents, consequents, and when to use each based on outcomes or processes of interest.

The online self-guided meditation intervention designed to increase self-compassion initially appears to be an accessible and timely intervention for reducing

compassion fatigue among staff in the animal sheltering community, but needs further development. The intervention should be shortened to one to two weeks, contain an in-person orientation session, offer personalized coaching, compassion-fatigue tailored intervention content, shorter meditations (10-15 minutes), and a greater focus on sustainability. Future efforts also need to be adequately powered and more carefully consider recruitment efforts (e.g., inclusion/exclusion criteria).

In conclusion, the positive psychological constructs and personal resources examined here cross-sectionally and via a brief online intervention provide initial evidence of transference to the workplace setting. Provided that methodological limitations are addressed and intervention refinements take place, the current work holds preliminary hope for shedding a positive new light on the world of compassion fatigue not only in animal welfare, but in other areas of high-emotion work as well, including police and other emergency personnel (e.g. medics, firefighters, etc.).

REFERENCES

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions.* Newbury Park, CA: Sage Publications.

Alarcon, G. M. (2011). A meta-analysis of burnout with job demands, resources, and attitudes. *Journal of Vocational Behavior, 79,* 549-562. doi: 10.1016/j.jvb.2011.03.007

Alarcon, G., Eschleman, K. J., & Bowling, N. A. (2009). Relationships between personality variables and burnout: A meta-analysis. *Work & Stress, 23*(3)*,* 244-263. doi: 10.1080/02678370903282600

Albertson, E. R., Neff, K. D., & Dill-Shackleford, K. E. (2015). Self-compassion and body dissatisfaction in women: A randomized controlled trial of a brief meditation intervention. *Mindfulness, 6*(3)*,* 1-11. doi: 10.1007/s12671-014-0277-3

Allen, T. D., & Kiburz, K. M. (2012). Trait mindfulness and work–family balance among working parents: The mediating effects of vitality and sleep quality. *Journal of Vocational Behavior*, *80*(2), 372–379. doi: 10.1016/j.jvb.2011.09.002

Ângelo, R. P., & Chambel, M. J. (2014). The role of proactive coping in the Job Demands–Resources Model: A cross-section study with firefighters. *European Journal of Work and Organizational Psychology*, *23*(2), 203–216. doi: 10.1080/1359432X.2012.728701

Arch, J. J., Brown, K. W., Dean, D. J., Landy, L. N., Brown, K. D., & Laudenslager, M. L. (2014). Self-compassion training modulates alpha-amylase, heart rate variability, and subjective responses to social evaluative threat in women. *Psychoneuroendocrinology, 42,* 49-58. doi: 10.1016/j.psyneuen.2013.12.018

Arluke, A. (1994). Managing emotions in an animal shelter. In A. Manning & J. Serpell (Eds.), *Animals and Human Society* (pp.145-165). New York: Routledge.

Armijo-Olivo, S., Warren, S., & Magee, D. (2009). Intention to treat analysis, compliance, drop-outs and how to deal with missing data in clinical research: A review. *Physical Therapy Reviews, 14*(1)*,* 36-49. doi: 10.1179/174328809X405928

Ashforth, B. E., & Kreiner, G. E. (1999). "How can you do it?": Dirty work and the challenge of constructing a positive identity. *The Academy of Management Review*, *24*(3), 413. doi: 10.2307/259134

Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment, 13,* 27-45.

Bakker, A. B., & Demerouti, E. (2007). The Job Demands-Resources model: state of the art. *Journal of Managerial Psychology*, *22*(3), 309–328. doi: 10.1108/02683940710733115

Bakker, A. B., & Demerouti, E. (2014). Job demands–resources theory. In C. Cooper & P. Chen (Eds.), *Wellbeing: A complete reference guide* (Vol. III, pp. 1–64). Chichester, UK: Wiley-Blackwell.

Bakker, A. B., Demerouti, E., & Euwema, M. C. (2005). Job resources buffer the impact of job demands on burnout. *Journal of Occupational Health Psychology*, *10*(2), 170–180. doi: 10.1037/1076-8998.10.2.170

Bakker, A. B., Demerouti, E., & Verbeke, W. (2004). Using the job demands-resources model to predict burnout and performance. *Human Resource Management*, *43*(1), 83–104. doi: 10.1002/hrm.20004

Bandura, A. (1986). *Social foundations of thought and action.* Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1990). Reflections on nonability determinants of competence. In R. J. Sternberg & J. Kolligian, Jr. (Eds.), *Competence considered* (pp. 316–352). New Haven, CT: Yale University Press.

Baran, B. E., Allen, J. A., Rogelberg, S. G., Spitzmüller, C., DiGiacomo, N. A., Webb, J. B., … Walker, A. G. (2009). Euthanasia-related strain and coping strategies in animal shelter employees. *Journal of the American Veterinary Medical Association*, *235*(1), 83–88.

Barnard, L. K., & Curry, J. F. (2011). Self-compassion: Conceptualizations, correlates, & interventions. *Review of General Psychology*, *15*(4), 289–303. doi: 10.1037/a0025754

Barnard, L. K., & Curry, J. F. (2012). The relationship of clergy burnout to self-compassion and other personality dimensions. *Pastoral Psychology*, *61*(2), 149–163. doi: 10.1007/s11089-011-0377-0

Barnett, M. L. (2005). Organizational development: A comparison of individual and organizational level change (Unpublished master's thesis). University of North Texas.

Bergomi, C., Tschacher, W., & Kupper, Z. (2013). The assessment of mindfulness with self-report measures: Existing scales and open issues. *Mindfulness, 4,* 191-202. doi: 10.1007/s12671-012-0110-9

Bickmeier, R. M. (2015). Differentiating the domains of dirty work in animal euthanasia (Unpublished master's thesis). University of North Carolina at Charlotte.

Biron, M., & van Veldhoven, M. (2012). Emotional labor in service work: Psychological flexibility and emotion regulation. *Human Relations, 65*(10)*,* 1259-1282. doi: 10.1177/0018726712447832

Bohlmeijer, E., ten Klooster, P. M., Fledderus, M., Veehof, M., & Baer, R. (2011). Psychometric properties of the Five Facet Mindfulness Questionnaire in depressed adults and development of a short form. *Assessment, 18*(3)*,* 308-320. doi: 10.1177/1073191111408231

Bond, F. W., & Bunce, D. (2000). Mediators of change in emotion-focused and problem-focused worksite stress management interventions. *Journal of Occupational Health Psychology, 5*(1)*,* 156-163. doi: 10.1037//1076-8998.5.1.156

Bond, F. W., Flaxman, P. E., & Bunce, D. (2008). The influence of psychological flexibility on work redesign: Mediated moderation of a work reorganization intervention. *Journal of Applied Psychology*, *93*(3), 645–654. doi: 10.1037/0021-9010.93.3.645

Bond, F. W., & Hayes, S. C. (2002). ACT at work. In F. W. Bond & W. Dryden (Eds.), *Handbook of brief Cognitive Behaviour Therapy* (pp. 117–139). Chichester, UK: John Wiley.

Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K. ... & Zettle, R. D. (2011). Preliminary psychometric properties of the Acceptance and Action Questionnaire – II: A revised measure of psychological inflexibility and experiential avoidance. *Behavior Therapy, 42,* 676–688. doi:10.1016/j.beth.2011.03.007

Bond, F. W., Lloyd, J., & Guenole, N. (2013). The work-related acceptance and action questionnaire: Initial psychometric findings and their implications for measuring psychological flexibility in specific contexts. *Journal of Occupational and Organizational Psychology*, *86*(3), 331–347. doi: 10.1111/joop.12001

Bova, N., De Jonge, J., & Guglielmi, D. (2013). The Demand-Induced Strain Compensation Questionnaire: A cross-national validation study. *Stress & Health, 31*(3)*,* 236-244. doi: 10.1002/smi.2550

Breines, J., Toole, A., Tu, C., & Chen, S. (2014). Self-compassion, body image, and self-reported disordered eating. *Self and Identity, 13*(4)*,* 432-448. doi: 10.1080/15298868.2013.838992

Bride, B. E., Radey, M., & Figley, C. R. (2007). Measuring compassion fatigue. *Clinical Social Work Journal*, *35*(3), 155–163. doi: 10.1007/s10615-007-0091-7

Bride, B. E., Robinson, M. M., Yegidis, B., & Figley, C. R. (2004). Development and validation of the Secondary Traumatic Stress Scale. *Research on Social Work Practice, 14*(1)*,* 27-35. doi: 10.1177/1049731503254106

Brinkborg, H., Michanek, J., Hesser, H., & Berglund, G. (2011). Acceptance and commitment therapy for the treatment of stress among social workers: A randomized controlled trial. *Behaviour Research and Therapy, 49,* 389-398. doi:10.1016/j.brat.2011.03.009

Britton, W. B., Bootzin, R. R., Cousins, J. C., Hasler, B. P., Peck, T., & Shapiro, S. L. (2010). The contribution of mindfulness practice to a multicomponent behavioral sleep intervention following substance abuse treatment in adolescents: A treatment-development study. *Substance Abuse, 31,* 86–97.

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological wellbeing. *Journal of Personality and Social Psychology, 84,* 822-848.

Carroll, D., Lange, B., Liehr, P., Raines, S., & Marcus, M. T. (2008). Evaluating Mindfulness-Based Stress Reduction: Analyzing stories of stress to formulate focus group questions. *Archives of Psychiatric Nursing, 22*(2)*,* 107-109. doi: 10.1016/j.apnu.2007.12.004

Cavanagh, K., Strauss, C., Cicconi, F., Griffiths, N., Wyper, A., & Jones, F. (2013). A randomised controlled trial of a brief online mindfulness-based intervention. *Behaviour Research and Therapy, 51,* 573-578. doi: 10.1016/j.brat.2013.06.003

Cavanagh, K., Strauss, C., Forder, L. and Jones, F. W. (2014). Can mindfulness and acceptance be learnt by self-help?: A systematic review and meta-analysis of mindfulness and acceptance-based self-help interventions. *Clinical Psychology Review, 34,* 118-129.

Christensen, H., Griffiths, K., & Farrer, L. (2009). Adherence in Internet interventions for anxiety and depression: Systematic review. *Journal of Medical Internet Research, 2*(11)*,* online publication. doi: 10.2196/jmir.1194

Constantino, M. J., Arnkoff, D. B., Glass, C. R., Ametrano, R. M., & Smith, J. Z. (2011). Expectations. *Journal of Clinical Psychology, 67*(2)*,* 184-192. doi: 10.1002.jclp.2075

Costa, Jr., P. T., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI): Professional manual.* Odessa, FL: Psychological Assessment Resources.

Craigie, M., Osseiran-Moisson, R., Hemsworth, D., Auon, S., Francis, K., Brown, J., Hegney, D., & Rees, C. (2016). The influence of trait-negative affect and

compassion satisfaction on compassion fatigue in Australian nurses. *Psychological Trauma: Theory, Research, Practice, and Policy, 8*(1)*,* 88-97. doi: 10.1037/tra0000050

Crawford, E. R., LePine, J. A., & Rich, B. L. (2010). Linking job demands and resources to employee engagement and burnout: A theoretical extension and meta-analytic test. *Journal of Applied Psychology, 95*(5)*,* 834-848. doi: 10.1037/a0019364

Dalal, R. S., Baysinger, M., Brummel, B. J., & LeBreton, J. M. (2012). The relative importance of employee engagement, other job attitudes, and trait affect as predictors of job performance. *Journal of Applied Social Psychology, 42*(S1)*,* E295-E325. doi: 10.1111/j.1559-1816.2012.01017.x

Dane, E. (2011). Paying attention to mindfulness and its effects on task performance in the workplace. *Journal of Management, 37*(4)*,* 997-1018. doi: 10.1177/0149206310367948

Dane, E., & Brummel, B. J. (2013). Examining workplace mindfulness and its relations to job performance and turnover intention. *Human Relations*, *67*(1)*,* 105-128. doi: 10.1177/0018726713487753

Davies, E. B., Morriss, R., & Glazebrook, C. (2014). Computer-delivered and web-based interventions to improve depression, anxiety, and psychological well-being of university students: A systematic review and meta-analysis. *Journal of Medical Internet Research, 16*(5)*,*1-22.

Deci, E. L., & Ryan, R. M. (1995). Human autonomy: The basis for true self-esteem. In M. H. Kernis (Ed.), *Efficacy, agency, and self-esteem* (pp. 31–49). New York: Plenum.

de Jonge, J., & Dormann, C. (2006). Stressors, resources, and strain at work: A longitudinal test of the triple-match principle. *Journal of Applied Psychology, 91,* 1359 –1374. doi:10.1037/0021-9010.91.5.1359

de Jonge, J., Dormann, C., van Vegchel, N., von Nordheim, T., Dollard, M., Cotton, S., & van den Tooren, M. (2009). *The DISC Questionnaire English Version 2.1.* Retrieved from: http://www.jandejonge.nl/disq.html.

Demerouti, E., & Bakker, A. B. (2011). The job demands-resources model: Challenges for future research. *SA Journal of Industrial Psychology*, *37*(2), 01–09.

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, *86*(3), 499–512. doi: 10.1037//0021-9010.86.3.499

Duchemin, A.-M., Steinberg, B. A., Marks, D. R., Vanover, K., & Klatt, M. (2015). A small randomized pilot study of a workplace mindfulness-based intervention for surgical intensive care unit personnel: Effects on salivary α-amylase levels.

Journal of Occupational and Environmental Medicine, 00, 1-7. doi: 10.1097/JOM.0000000000000371

Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Figley, C. R. (Ed.) (1995). *Compassion fatigue: Coping with secondary traumatic stress disorder.* New York: Brunner/Mazel.

Figley, C. R., & Roop, R. (2006). *Compassion fatigue in the animal care community.* Washington, DC: Humane Society Press.

Flaxman, P. E., & Bond, F. W. (2010a). Worksite stress management training: Moderated effects and clinical significance. *Journal of Occupational Health Psychology, 15*(4)*,* 347-358. doi: 10.1037/a0020522

Flaxman, P. E., & Bond, F. W. (2010b). A randomized worksite comparison of acceptance and commitment therapy and stress inoculation training. *Behaviour Research and Therapy, 48,* 816-820. doi: 10.1016/j.brat.2010.05.004

Frank, J. (1968). Influence of patients' and therapists' expectations on outcome of psychotherapy. *British Journal of Medical Psychology, 41*(4)*,* 349-356. doi: 10.1111/j.2044-8341.1968.tb02043.x.

Garrosa, E., Moreno-Jiménez, B., Rodríguez-Muñoz, A., & Rodríguez-Carvajal, R. (2011). Role stress and personal resources in nursing: A cross-sectional study of burnout and engagement. *International Journal of Nursing Studies*, *48*(4), 479–489. doi: 10.1016/j.ijnurstu.2010.08.004

Gentry, J. E. Accelerated recovery program PPT [PowerPoint slides]. Retrieved from www.compassionunlimited.com/pdf/PowerPointPresentation.pdf

Gentry, J. E., Baggerly, J. J., & Baranowsky, A. B. (2004). Training-as-treatment: The effectiveness of the Certified Compassion Fatigue Specialist Training. *International Journal of Emergency Mental Health, 6*(3), 147–155.

Glück, T. M., & Maercker, A. (2011). A randomized controlled pilot study of a brief web-based mindfulness training. *BMC Psychiatry, 11,* 175.

Goldstein, A. P. (1960). Patient's expectancies and non-specific therapy as a basis for (un)spontaneous remission. *Journal of Clinical Psychology, 16*(4)*,* 399-403.

Greenglass, E., Schwarzer, R., & Taubert, S. (1999, July). *The Proactive Coping Inventory (PCI): A multidimensional research instrument.* Paper presented at the 20th international conference of the Stress and Anxiety Research Society, Cracow, Poland.

Grist, R., & Cavanagh, K. (2013). Computerized cognitive behavioural therapy for

common mental health disorders, what works, for whom under what circumstances? A systematic review and meta-analysis. *Journal of Contemporary Psychotherapy, 43*(4)*,* 243-251. doi: 10.1007/s10879-013-9243-y

Grossman, P., Niemann, L., Schmidt, S., & Walach, H. (2004). Mindfulness-based stress reduction and health benefits: A meta-analysis. *Journal of Psychosomatic Research, 57*(1)*,* 35-43.

Gupta, S. K. (2011). Intention-to-treat concept: A review. *Perspectives in Clinical Research, 2*(3)*,* 109-112. doi: 10.4103/2229-3485.83221

Halbesleben, J. R. B., & Wheeler, A. R. (2008). The relative roles of engagement and embeddedness in predicting job performance and intention to leave. *Work & Stress*, *22*(3), 242–256. doi: 10.1080/02678370802383962

Hayes, S. C. (1987). A contextual approach to therapeutic change. In N. S. Jacobson (Ed.), *Psychotherapists in clinical practice: Cognitive and behavioral perspectives* (pp. 327-387). New York: Guilford Press.

Hayes, S. C. (2002). Buddhism and acceptance and commitment therapy. *Cognitive and Behavioral Practice, 9, 58-66.* doi:10.1016/S1077-7229(02)80041-4

Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: Model, processes, and outcomes. *Behaviour Research and Therapy, 44,* 1-25. doi: 10.1016/j.brat.2005.06.006

Hayes, S. C., Strosahl, K., & Wilson, K. G. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change.* New York: Guilford Press.

Hayes, S. C., Strosahl, K. D., Wilson, K. G., Bassett, R. T., Pastorally, J., Toarmino, D. & McCurry, S. M. (2004). Measuring experiential avoidance: A preliminary test of a working model. *The Psychological Record, 54,* 553–578.

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist, 44*(3), 513-524.

Hobfoll, S. E. (2011). Conservation of resource caravans and engaged settings. *Journal of Occupational and Organizational Psychology, 84*(1)*,* 116-122. doi: 10.1111/j.2044-8325.2010.02016.x

Hobfoll, S. E., Johnson, R. J., Ennis, N., & Jackson, A. P. (2003). Resource loss, resource gain, and emotional outcomes among inner city women. *Journal of Personality and Social Psychology, 84,* 632–643. doi: 10.1037/0022-3514.84.3.632

Hülsheger, U. R., Alberts, H. J. E. M., Fienholdt, A., & Lang, J. W. B. (2013). Benefits of mindfulness at work: The role of mindfulness in emotion regulation, emotional exhaustion, and job satisfaction. *Journal of Applied Psychology, 98*(2)*,* 310-325.

doi: 10.1037/a0031313

Hülsheger, U. R., Lang, J. W. B., Depenbrock, F., Fehrmann, C., Zijlstra, F. R. H., & Alberts, H. J. E. M. (2014). The power of presence: The role of mindfulness at work for daily levels and change trajectories of psychological detachment and sleep quality. *Journal of Applied Psychology*, *99*(6), 1113–1128. doi: 10.1037/a0037702

Ilies, R., & Judge, T. A. (2003). On the heritability of job satisfaction: The mediating role of personality. *Journal of Applied Psychology, 88*(4)*,* 750-759. doi: 10.1037/0021-9010.88.4.750

Inceoglu, I., & Warr, P. (2011). Personality and job engagement. *Journal of Personnel Psychology, 10*(4)*,* 177-181. doi: 10.1027/1866-5888/a000045

Kabat-Zinn, J. (1982). An outpatient program in behavioral medicine for chronic pain patients based on the practice of mindfulness meditation: Theoretical considerations and preliminary results. *General Hospital Psychiatry, 4,* 33-47.

Klein, H. (1989). An integrated control theory model of work motivation. *Academy of Management Review, 14,* 150–172. doi:10.2307/258414

Kline, R. B. (2010). *Principles and practices of structural equation modeling* (3rd ed.). New York, NY: Guilford Press.

Landsberger, H. A. (1958). *Hawthorne Revisited: Management and the Worker, Its Critics, and Developments in Human Relations in Industry.* Ithaca, NY: Cornell University Press.

Leary, M. R., Tate, E. B., Adams, C. E., Batts Allen, A., & Hancock, J. (2007). Self-compassion and reactions to unpleasant self-relevant events: The implications of treating oneself kindly. *Journal of Personality and Social Psychology, 92,* 887–904. doi:10.1037/0022- 3514.92.5.887

Ledesma, D., & Kumano, H. (2009). Mindfulness-based stress reduction and cancer: A meta-analysis. *Psycho-Oncology, 18,* 571-579. doi: 10.1002/pon.1400

Leroy, H., Anseel, F., Dimitrova, N. G., & Sels, L. (2013). Mindfulness, authentic functioning, and work engagement: A growth modeling approach. *Journal of Vocational Behavior*, *82*(3), 238–247. doi: 10.1016/j.jvb.2013.01.012

Lloyd, J., Bond, F. W., & Flaxman, P. E. (2013). The value of psychological flexibility: Examining psychological mechanisms underpinning a cognitive behavioural therapy intervention for burnout. *Work & Stress*, *27*(2), 181–199. doi: 10.1080/02678373.2013.782157

Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance.* Englewood Cliffs, NJ: Prentice Hall.

Luken, M., & Sammons, A. (2016). Systematic review of mindfulness practice for reducing job burnout. *The American Journal of Occupational Therapy, 70*(2)*,* 1-13.

Macey, W. H., & Schneider, B. (2008). The meaning of employee engagement. *Industrial and Organizational Psychology: Perspectives on Science and Practice, 1*(1)*,* 3-30. doi: 10.111/j.1754-9434.2007.0002.x

Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Occupational Behaviour, 2,* 99-113.

Maslach, C., Jackson, S.E., & Leiter, M.P. (1996). *Maslach burnout inventory manual* (3rd ed.). Palo Alto, CA: Consulting Psychologists Press.

Maslach, C. Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Reviews in Psychology, 52,* 397-422.

Nahrgang, J. D., Morgeson, F. P., & Hofmann, D. A. (2011). Safety at work: A meta-analytic investigation of the link between job demands, job resources, burnout, engagement, and safety outcomes. *Journal of Applied Psychology, 96*(1)*,* 71-94. doi: 10.1037/a0021484

Neely, M. E., Schallert, D. L., Mohammed, S. S., Roberts, R. M., & Chen, Y.-J. (2009). Self-kindness when facing stress: The role of self- compassion, goal regulation, and support in college students' well-being. *Motivation and Emotion, 33,* 88–97. doi: 10.1007/s11031-008-9119-8

Neff, K. (2003a). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self and Identity, 2,* 85-101. doi: 10.1080/1529886039129863

Neff, K. D. (2003b). The development and validation of a scale to measure self-compassion. *Self and Identity, 2,* 223-250. doi: 10.1080/15298860390209035

Neff, K. D., & Germer, C. K. (2013). A pilot study and randomized controlled trial of the mindful self-compassion program. *Journal of Clinical Psychology, 69*(1)*,* 28-44. doi: 10.1002/jclp.21923.

Neff, K., Hsieh, Y., & Dejitterat, K. (2005). Self-compassion, achievement goals, and coping with academic failure. *Self and Identity, 4,* 263–287. doi:10.1080/13576500444000317

Neff, K. D., Kirkpatrick, K. L., & Rude, S. S. (2007). Self-compassion and adaptive psychological functioning. *Journal of Research in Personality*, *41*(1), 139–154. doi: 10.1016/j.jrp.2006.03.004

Neff, K., & Tirch, D. (2013). Self-compassion and ACT. In T. B. Kashdan & J. Ciarrochi, (Eds.), *Mindfulness, acceptance, and positive psychology: The seven foundations of well-being* (pp. 78-106). Oakland, CA: Context Press.

Neff, K., & Vonk, R. (2009). Self-compassion versus global self-esteem: Two different ways of relating to oneself. *Journal of Personality, 77,* 23–50. doi:10.1111/j.1467-6494.2008.00537.x

Newman, D. A. (2014). Missing data: Five practical guidelines. *Organizational Research Methods, 17*(4)*,* 372-411. doi: 10.1177/1094428114548590

Ng, T. W. H., & Feldman, D. C. (2010). The relationships of age with job attitudes: A meta-analysis. *Personnel Psychology, 63*(3)*,* 677-718. doi: 10.1111/j.1744-6570.2010.1184.x

Niks, I. M. W., Gevers, J. M. P., De Jonge, J., & Houtman, I. L. D. (2016). The relation between off-job recovery and job resources: Person-level differences and day-level dynamics. *European Journal of Work and Organizational Psychology, 25*(2)*,* 226-238. doi:10.1080./1359432X.2015.1042459

Olson, K., Kemper, K. J., & Mahan, J. D. (2015). What factors promote resilience and protect against burnout in first-year pediatric and medicine-pediatric residents? *Journal of Evidence-Based Complementary and Alternative Medicine, 20*(3)*,* 192-198. doi: 10.1177/2156587214568894

Onwezen, M. C., van Veldhoven, M. J. P. M., & Biron, M. (2014). The role of psychological flexibility in the demands–exhaustion–performance relationship. *European Journal of Work and Organizational Psychology*, *23*(2), 163–176. doi: 10.1080/1359432X.2012.742242

Öst, L-G. (2014). The efficacy of Acceptance and Commitment Therapy: An updated systematic review and meta-analysis. *Behaviour Research and Therapy, 61,* 105-121. doi: 10.1016/j.brat.2014.07.018

Pennebaker, J. W. (1989). Confession, inhibition, and disease. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (pp. 211–244). New York: Academic Press.

Pennebaker, J. W (1993). Putting stress into words: Health, linguistic, and therapeutic implications. *Behaviour Research and Therapy, 31,* 539–548.

Prakash, A., Risser, R. C., & Mallinckrodt, C. H. (2008). The impact of analytic method on interpretation of outcomes in longitudinal clinical trials. *International Journal of Clinical Practice, 62*(8)*,* 1147-1158. doi: 10.1111/j.1742-1241.2008.01808.x

Raes, F., Pommier, E., Neff, K. D., & Van Gucht, D. (2011). Construction and factorial validation of a short form of the Self-Compassion Scale. *Clinical Psychology and*

Psychotherapy, 18, 250-255. doi: 10.1002/cpp.702

Rank, M. G., Zaparanick, T. L., & Gentry, J. E. (2009). Nonhuman-animal care compassion fatigue. *Best Practices in Mental Health*, *5*(2), 40–61.

Reeve, C. L., Rogelberg, S. G., Spitzmüller, C., & DiGiacomo, N. (2005). The caring-killing paradox: Euthanasia-related strain among animal-shelter workers. *Journal of Applied Social Psychology*, *35*(1), 119–143.

Reeve, C. L., Spitzmüller, C., Rogelberg, S. G., Walker, W., Schultz, L., & Clark, O. (2004). Employee reactions and adjustment to euthanasia-related work: Identifying turning-point events through retrospective narratives. *Journal of Applied Animal Welfare Science, 7*(1)*,* 1-25.

Richardson, K. M., & Rothstein, H. R. (2008). Effects of stress management intervention programs: A meta-analysis. *Journal of Occupational Health Psychology, 13*(1)*,* 69-93. doi: 10.1037/1076-8998.13.1.69

Rickwood, D., & Bradford, S. (2012). The role of self-help in the treatment of mild anxiety disorders in young people: An evidence-based review. *Journal of Psychology Research and Behavior Management, 5,* 25-36. doi: 10.2147/PRBM.S23357

Roche, M., Haar, J. M., & Luthans, F. (2014). The role of mindfulness and psychological capital on the well-being of leaders. *Journal of Occupational Health Psychology, 19*(4)*,* 476-489. doi: 10.1037/a0037183

Rogelberg, S. G., DiGiacomo, N., Reeve, C. L., Spitzmüller, C., Clark, O. L., Teeter, L., …& Starling, P. G. (2007). What shelters can do about euthanasia-related stress: An examination of recommendations from those on the front line. *Journal of Applied Animal Welfare Science, 10*(4)*,* 331-347.

Rosenberg, M. (1965). *Society and the adolescent self-image.* Princeton, NJ: Princeton University Press.

Rosenthal, D., & Frank, J. D. (1956). Psychotherapy and the placebo effect. *Psychological Bulletin, 53*(4)*,* 294-302.

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25,* 54-67. doi: 10.1006/ceps.1999.1020

Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, Cognition & Personality, 9,* 185–211.

Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement. *Journal of Organizational Behavior,*

25, 293–315.

Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and Psychological Measurement, 66*(4)*,* 701-716. doi: 10.1177/0013164405282471

Schulz, K. F., Altman, D. G., & Moher, D. (2010). CONSORT 2010 statement: Updated guidelines for reporting parallel group randomized trials. *BMC Medicine, 8*(1)*,* 18.

Searle, B. J., & Lee, L. (2015). Proactive coping as a personal resource in the expanded job demands–resources model. *International Journal of Stress Management*, *22*(1), 46–69. doi: 10.1037/a0038439

Seligman, M. E. (1995). *The optimistic child.* Boston: Houghton Mifflin.

Seligman, M. E., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55*(1)*,* 5-14. doi: 10.1037/0003-066X55.1.5

Smeets, E., Neff, K., Alberts, H., & Peters, M. (2014). Meeting suffering with kindness: Effects of a brief self-compassion intervention for female college students. *Journal of Clinical Psychology, 70*(9)*,* 794-807. doi: 10.1002/jclp.22076

Stamm, B. H. (2002). Measuring compassion satisfaction as well as fatigue: Developmental history of the Compassion Satisfaction and Fatigue Test. In C. R. Figley (Ed.), *Treating Compassion Fatigue* (pp. 107–119). New York: Brunner-Routledge.

Stamm, B.H. (2010). *The Concise ProQOL Manual* (2nd ed.). Pocatello, ID: ProQOL.org.

Starks, H., & Brown Trinidad, S. (2007). Choose your method: A comparison of phenomenology, discourse analysis, and grounded theory. *Qualitative Health Research, 17*(10)*,* 1372-1380.

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd ed.)*.* Thousand Oaks, CA: Sage Publications.

Tang, Y. Y., Ma, Y., Wang, J., Fan, Y., Feng, S., Lu, Q., & Posner, M. I. (2007). Short-term meditation training improves attention and self-regulation. *Proceedings of the National Academy of Sciences, 104,* 17152–17156.

Taylor, N. Z., & Millear, P. M. R. (2016). The contribution of mindfulness to predicting burnout in the workplace. *Personality and Individual Differences, 89,* 123-128. doi: 10.1016/j.paid.2015.10.005

Thompson, E. R. (2007). Development and validation of an internationally reliable short-

form of the Positive and Negative Affect Schedule (PANAS). *Journal of Cross-Cultural Psychology, 38*(2)*,* 227-242. doi: 10.1177/0022022106297301

Tiesman, H. M., Konda, S., Hartley, D., Menéndez, C. C., Ridenour, M., & Hendricks, S. (2015). Suicide in U.S. workplaces, 2003–2010. *American Journal of Preventive Medicine*, *48*(6), 674–682. doi: 10.1016/j.amepre.2014.12.011

Todd, N. J., Solis-Trapala, I., Jones, S. H., & Lobban, F. A. (2012). An online randomized controlled trial to assess the feasibility, acceptability, and potential effectiveness of "Living with Bipolar": A web-based self-management intervention for Bipolar Disorder trial design and protocol. *Contemporary Clinical Trials, 33,* 679-688. doi: 10.1016/j.cct.2012.02.011

Toole, A. M., & Craighead, L. W. (2016). Brief self-compassion meditation training for body image distress in young adult women. *Body Image, 19,* 104-112. doi: 10.1016/j.bodyim.2016.09.001

Unsworth, K. L., Rogelberg, S. G., & Bonilla, D. (2010). Emotional expressive writing to alleviate euthanasia-related stress. *The Canadian Veterinary Journal*, *51*(7), 775.

Valdivia-Salas, S., Sheppard, S. C., & Forsyth, J. P. (2010). Acceptance and Commitment Therapy in an emotion regulation context. In A. M. Kring & D. M. Sloan, *Emotion Regulation and Psychopathology: A Transdiagnostic Approach to Etiology and Treatment* (pp. 310-338)*.* New York: The Guilford Press.

van Dernoot Lipsky, L. (2009). *Trauma Stewardship: An Everyday Guide to Caring for Self While Caring for Others.* San Francisco, CA: Berret-Koehler Publishers.

Van de Ven, B., van den Tooren, M., & Vlerick, P. (2013). Emotional job resources and emotional support seeking as moderators of the relation between emotional job demands and emotional exhaustion: A two-wave panel study. *Journal of Occupational Health Psychology*, *18*(1), 1–8. doi: 10.1037/a0030656

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*(6)*,* 1063-1070.

Wendling, H. M. (2012). The relation between psychological flexibility and the Buddhist practices of meditation, nonattachment, and self-compassion (Unpublished doctoral dissertation). The University of Akron, Akron, Ohio.

Williams, J. G., Stark, S. K., & Foster, E. E. (2008). Start today or the very last day? The relationships among self-compassion, motivation, and procrastination. *American Journal of Psychological Research, 4,* 37-44.

Woodruff, S. C., Glass, C. R., Arnkoff, D. B., Crowley, K. J., Hindman, R. K., & Hirschhorn, E. W. (2014). Comparing self-compassion, mindfulness, and

psychological inflexibility as predictors of psychological health. *Mindfulness*, *5*(4), 410–421. doi: 10.1007/s12671-013-0195-9

Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2007). The role of personal resources in the job demands-resources model. *International Journal of Stress Management*, *14*(2), 121–141. doi: 10.1037/1072-5245.14.2.121

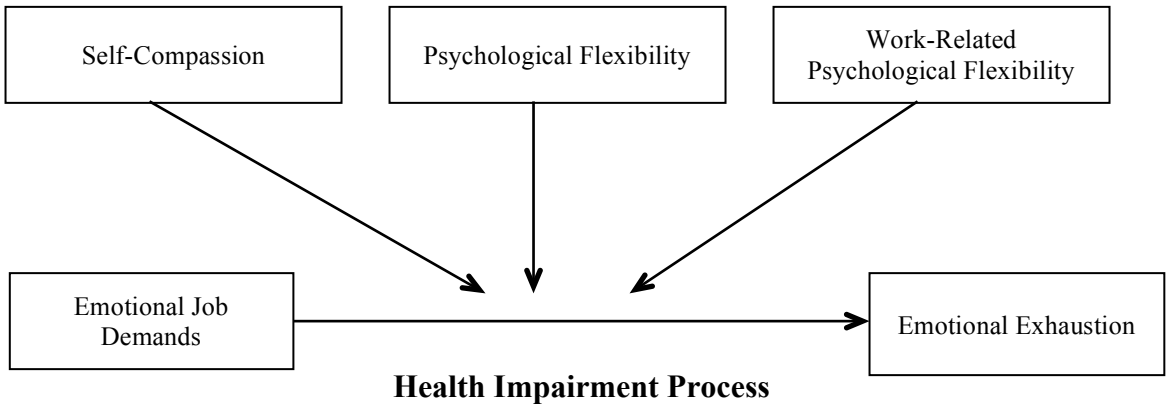
Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2009). Work engagement and financial returns: A diary study on the role of job and personal resources. *Journal of Occupational and Organizational Psychology*, *82*(1), 183–200. doi: 10.1348/096317908X285633

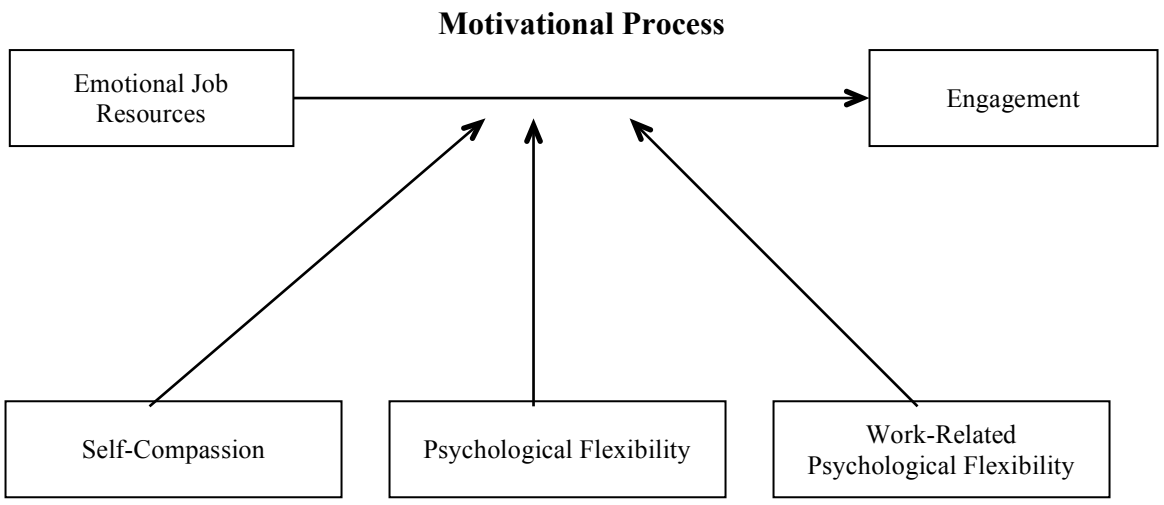
Zessin, U., Dickhäuser, O., & Garbade, S. (2015). The relationship between self-compassion and well-being: A meta-analysis. *Applied Psychology: Health and Well-Being*, 1-25. doi: 10.1111/aphw.12051

APPENDIX A: POSITIVE PSYCHOLOGICAL MECHANISMS IN THE JD-R FRAMEWORK

Figure A1. *Positive psychological mechanisms as buffers of stress and enhancers of engagement in the Job Demands-Resources framework.*

Panel A.





Panel B.

Note. Panel A depicts self-compassion, psychological flexibility, and work-related psychological flexibility each serving as moderators (stress buffers) in the health impairment process portion of the JD-R model, while Panel B depicts these same constructs serving as facilitators or enhancers in the motivational process of the model. Each of the moderators will be tested separately but are presented here in one figure for parsimony.

APPENDIX B: MEASURES AND TIME OF ASSESSMENT FOR EACH STUDY VARIABLE

Table A1. *Measures and time of assessment for each study variable.*

Variable	Measure	Administered	Groups
Informed Consent	N/A	• Baseline	Both
Demographics	See Appendix C	• Baseline	Both
Adherence	See Appendix C	• Weekly	Treatment
Qualitative Feedback	See Appendix C	• Post	Treatment
Manipulation Check	See Appendix C	• Post	Control
Trait NA/PA (control)	I-PANAS-SF (Thompson, 2007)	• Baseline	Both
Trait Mindfulness (control)	Five-Factor Mindfulness Questionnaire (FFMQ; Bohlmeijer et al., 2011)	• Baseline	Both
Self-Compassion	Self-Compassion Scale, Short-Form (SCS-SF; Raes et al., 2011)	• Baseline • Weekly • Post • Follow-up	Both
Psychological Flexibility	Acceptance and Action Questionnaire, II (AAQ-II; Bond et al., 2011)	• Baseline • Weekly • Post • Follow-up	Both
Work-Related Psychological Flexibility	Work Acceptance and Action Questionnaire (WAAQ; Bond et al., 2013)	• Baseline • Weekly • Post • Follow-up	Both
Emotional Job Demands and Resources	DISC 2.1 (de Jonge et al., 2009)	• Baseline • Weekly • Post • Follow-up	Both
Emotional Exhaustion	Corresponding subscale from Maslach Burnout Inventory (MBI; Maslach et al., 1996)	• Baseline • Weekly • Post • Follow-up	Both
Secondary Traumatic Stress	Secondary Traumatic Stress Scale (Bride et al., 2004)	• Baseline • Weekly • Post • Follow-up	Both
Engagement	Utrecht Work Engagement Scale, short form (Schaufeli et al., 2006)	• Baseline • Weekly • Post • Follow-up	Both

APPENDIX C: MEASURES ADMINISTERED

Eligibility Pre-Screen

1. Are you over the age of 18?
    a. 0 = No (*exclusionary criteria*)
    b. 1 = Yes

2. Do you do *paid* work (i.e., not volunteer) at an animal shelter in the U.S. or Canada at least 30 hours per week, every week?
    a. 0 = No (*exclusionary criteria*)
    b. 1 = Yes

3. Are you currently receiving any type of counseling, psychotherapy, or coaching, including individual, family, or group counseling?
    a. 0 = No
    b. 1 = Yes (*exclusionary criteria*)

Demographic Questionnaire

1. What is your first and last name? Please provide accurate information.

2. Please provide your e-mail address to receive weekly surveys.

3. At which organization do you work? [free response]

4. What is your age?
    a. 1 = 18-30 years old
    b. 2 = 31-40 years old
    c. 3 = 41-50 years old
    d. 4 = 51-60 years old
    e. 5 = over 60 years old

5. What is your gender?
    a. 1 = Male
    b. 2 = Female
    c. 3 = Transgendered
    d. 4 = Gender Neutral/Gender Queer
    e. 5 = Choose not to disclose

6. What is your marital status?
    a. 1 = single
    b. 2 = married
    c. 3 = partnered
    d. 4 = divorced
    e. 5 = widowed

f. 6 = separated

7. What is your race/ethnicity?
    a. 1 = White/European American
    b. 2 = Black/African American
    c. 3 = American Indian or Alaska Native
    d. 4 = Asian
    e. 5 = Native Hawaiian or Other Pacific Islander
    f. 6 = Some other race/ethnicity

8. What was your annual, pre-tax household income for 2015 ($USD)?
    a. 1 = Less than $34,999
    b. 2 = $35,000-$49,999
    c. 3 = $50,000-$74,999
    d. 4 = $75,000-$99,000
    e. 5 = $100,000-$149,999
    f. 6 = Over $150,000
    g. 7 = Choose not to disclose

9. How long have you been at your current job?
    a. 1 = Less than 6 months
    b. 2 = Less than 1 year
    c. 3 = Less than 5 years
    d. 4 = Less than 10 years
    e. 5 = More than 10 years

10. What is highest level of education you have completed?
    a. 1 = Less than high school diploma
    b. 2 = High School Diploma
    c. 3 = Some college
    d. 3 = Trade School/Vocational School/Associate's Degree
    e. 4 = Bachelor's Degree
    f. 5 = Master's Degree
    g. 6 = Doctoral Degree

11. In what region of the U.S./Canada do you live?
    a. 1. Pacific Southwest
    b. 2. Pacific Northwest
    c. 3. Mountain States
    d. 4. Midwest
    e. 5. Southeast
    f. 6. Mid-Atlantic
    g. 7. Northeast
    h. 8. Canada

12. Do you have any prior experience with meditation?

a. 0 = No
b. 1 = Yes, but I do not practice regularly or have not practiced in a long time
c. 2 = Yes, and I practice somewhat regularly (a few times a month)
d. 3 = Yes, and I practice daily or almost daily

Adherence

1. Please report how many days per week this past week you listened to the meditations:

    a. 1 = 1 day
    b. 2 = 2-3 days
    c. 3 = 4-5 days
    d. 4 = 6 days
    e. 5 = every single day

Qualitative Feedback

1. Please describe your overall experiences with the meditations – what did you like or not like about them? Did you enjoy them? Would you recommend them to a friend?

2. Please identify and describe any barriers you encountered throughout the study in practicing the meditations on a daily basis:

3. What changes would you suggest, if any, to make the study more successful in the future?

4. Any additional feedback or comments?

Manipulation Check

1. At any point over the past four weeks, did you speak with anyone who was currently receiving the intervention (i.e., practicing the meditations) about the intervention itself or their experiences with the intervention or meditations?
    a. Yes
    b. No

2. If yes, please briefly describe what was discussed.

Self-Compassion Scale – Short Form

HOW I TYPICALLY ACT TOWARD MYSELF IN DIFFICULT TIMES

Instructions: *Please read each item carefully before answering. Below each item, indicate how often you behave in the stated manner, using the following scale:*

1	2	3	4	5
Almost Never				Almost Always

1. When I fail at something important to me I become consumed by feelings of inadequacy.
2. I try to be understanding and patient towards those aspects of my personality I don't like.
3. When something painful happens I try to take a balanced view of the situation.
4. When I'm feeling down, I tend to feel like most other people are probably happier than I am.
5. I try to see my failings as part of the human condition.
6. When I'm going through a very hard time, I give myself the caring and tenderness I need.
7. When something upsets me I try to keep my emotions in balance.
8. When I fail at something that's important to me, I tend to feel alone in my failure.
9. When I'm feeling down I tend to obsess and fixate on everything that's wrong.
10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.
11. I'm disapproving and judgmental about my own flaws and inadequacies
12. I'm intolerant and impatient towards those aspects of my personality I don't like.

Acceptance and Action Questionnaire II

Instructions: *Below you will find a list of statements. Please rate how true each statement is for you by choosing a number next to it. Use the scale below to make your choice.*

1 = never true
2 = very seldom true
3 = seldom true
4 = sometimes true
5 = frequently true
6 = almost always true
7 = always true

1. My painful experiences and memories make it difficult for me to live a life that I would value.
2. I'm afraid of my feelings.
3. I worry about not being able to control my worries and feelings.

4. My painful memories prevent me from having a fulfilling life.
5. Emotions cause problems in my life.
6. It seems like most people are handling their lives better than I am.
7. Worries get in the way of my success.

Work Acceptance and Action Questionnaire

Instructions: *Below you will find a list of statements. Please rate how true each statement is for you by choosing a number next to it. Use the scale below to make your choice.*

1 = never true
2 = very seldom true
3 = seldom true
4 = sometimes true
5 = frequently true
6 = almost always true
7 = always true

1. I am able to work effectively in spite of any personal worries that I have.
2. I can admit to my mistakes at work and still be successful.
3. I can still work very effectively even if I am nervous about something.
4. Worries do not get in the way of my success.
5. I can perform as required no matter how I feel.
6. I can work effectively, even when I doubt myself.
7. My thoughts and feelings do not get in the way of my work.

DISQ 2.1

Instructions: *Suppose someone else ("employee X") has the same job in the organization as you have. The tasks, clients, colleagues, supervisors and everything else are identical to your job. Employee X has the same qualifications (schooling, training, skills, experience, and so on) as you do for this job.*

Estimate what the work would be like for employee X, one year into his/her new job. Please estimate how things <u>are</u>, rather than on how things may be in the future.

Select the response category that reflects best the situation of employee X.

1 = Never or Very Rarely
2 = Rarely
3 = Occasionally
4 = Often
5 = Very Often or Always

After having had one year of experience in a job similar to mine…

1. Employee X will have to deal with people (e.g. clients, colleagues or supervisors) who have unrealistic expectations.
2. Employee X will have to control his/her emotions to complete tasks within a limited time frame.
3. Employee X will have to deal with people (e.g. clients, colleagues or supervisors) whose problems touch him/her emotionally.
4. Employee X will have to deal with people (e.g. clients, colleagues or supervisors) who get easily angered towards him/her.
5. Employee X will have to do a lot of emotionally draining work.
6. Employee X will have to display emotions (e.g. towards clients, colleagues or supervisors) that are inconsistent with his/her current feelings.
7. Employee X will be able to stop emotionally-laden interactions with others for a while whenever he/she wants to.
8. Employee X will feel esteemed at work by others (e.g. clients, colleagues or supervisors).
9. Employee X will get emotional support from others (e.g. clients, colleagues or supervisors) when a threatening situation at work occurs.
10. Employee X will have the opportunity to express his/her emotions after a threatening situation occurs, without experiencing negative consequences (e.g. from supervisors, colleagues or clients).
11. Other people (e.g. clients, colleagues or supervisors) will be a listening ear for employee X when he/she has faced a threatening situation.

Maslach Burnout Inventory
Emotional Exhaustion Subscale

Instructions: *Following is a list of statements concerning how you typically feel about work. Please read each statement carefully and choose the answer that best represents how you generally feel based on the following scale:*

0 = Never
1 = Almost Never/A few times a year or less
2 = Rarely/Once a month or less
3 = Sometimes/A few times a month
4 = Often/Once a week
5 = Very Often/A few times a week
6 = Always/Every day

1. I feel emotionally drained from work.
2. I feel “used up” due to work.
3. I feel burned out from work.
4. I feel like I am at the end of my rope at the end of a typical work day.

5. I feel fatigued when I get up in the morning knowing I have to face another day on the job.

Secondary Traumatic Stress Scale

Instructions: *The following is a list of statements made by persons who have been impacted by their work with traumatized animals. Read each statement, then indicate how frequently the statement was true for you in the* ***past seven (7) days.***

1 = Never
2 = Rarely
3 = Sometimes
4 = Often
5 = Very Often

1. I felt emotionally numb.
2. My heart started pounding when I thought about my work with animals.
3. It seemed as if I was reliving the trauma(s) experienced by my animal(s).
4. I had trouble sleeping.
5. I felt discouraged about the future.
6. Reminders of my work with animals upset me.
7. I had little interest in being around others.
8. I felt jumpy.
9. I was less active than usual.
10. I thought about my work with animals when I didn't intend to.
11. I had trouble concentrating.
12. I avoided people, places, or things that reminded me of my work with animals.
13. I had disturbing dreams about my work with animals.
14. I wanted to avoid working with some animals.
15. I was easily annoyed.
16. I expected something bad to happen.

Work & Well-being Survey (UWES)

Instructions: *The following 9 statements are about how you feel at work. Please read each statement carefully and decide if you ever feel this way about your job. If you have never had this feeling, select "0." If you have had this feeling, indicate how often you feel it by selecting the number from 1-6 that best describes how frequently you feel that way.*

0 = Never
1 = Almost Never/A few times a year or less
2 = Rarely/Once a month or less
3 = Sometimes/A few times a month
4 = Often/Once a week
5 = Very Often/A few times a week
6 = Always/Every day

1. At my work, I feel bursting with energy.
2. At my job, I feel strong and vigorous.
3. I am enthusiastic about my job.
4. My job inspires me.
5. When I get up in the morning, I feel like going to work.
6. I feel happy when I am working intensely.
7. I am proud of the work that I do.
8. I am immersed in my work.
9. I get carried away when I'm working.

I-PANAS-SF

Instructions: Thinking about yourself and how you normally feel, to what extent do you generally feel:

1 = Never
2 = Rarely
3 = Sometimes
4 = Often
5 = Always

1. Upset
2. Hostile
3. Alert
4. Ashamed
5. Inspired
6. Nervous
7. Determined
8. Attentive
9. Afraid
10. Active

Five Facet Mindfulness Questionnaire – Short Form (FFMQ-SF)

Instructions: *Below is a collection of statements about your everyday experience. Using the scale of 1 to 5 below, please indicate, on the line to the left of each statement, how frequently or infrequently you've had each experience in the last month (or other agreed-upon time period). Please answer according to what really reflects your experience rather than what you think your experience should be.*

1 = never or very rarely true
2 = not often true
3 = sometimes true, sometimes not true
4 = often true
5 = very often or always true

____ 1. I'm good at finding the words to describe my feelings.
____ 2. I can easily put my beliefs, opinions, and expectations into words.
____ 3. I watch my feelings without getting carried away by them.
____ 4. I tell myself that I shouldn't be feeling the way I'm feeling.
____ 5. It's hard for me to find the words to describe what I'm thinking.
____ 6. I pay attention to physical experiences, such as the wind in my hair or the sun on my face.
____ 7. I make judgments about whether my thoughts are good or bad.
____ 8. I find it difficult to stay focused on what's happening in the present moment.
____ 9. When I have distressing thoughts or images, I don't let myself be carried away by them.
____ 10. Generally, I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.
____ 11. When I feel something in my body, it's hard for me to find the right words to describe it.
____ 12. It seems I am running on automatic without much awareness of what I'm doing.
____ 13. When I have distressing thoughts or images, I feel calm soon after.
____ 14. I tell myself I shouldn't be thinking the way I'm thinking.
____ 15. I notice the smells and aromas of things.
____ 16. Even when I'm feeling terribly upset, I can find a way to put it into words.
____ 17. I rush through activities without being really attentive to them.
____ 18. When I have distressing thoughts or images, I can just notice them without reacting.
____ 19. I think some of my emotions are bad or inappropriate and I shouldn't feel them.
____ 20. I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.
____ 21. When I have distressing thoughts or images, I just notice them and let them go.
____ 22. I do jobs or tasks automatically without being aware of what I'm doing.
____ 23. I find myself doing things without paying attention.
____ 24. I disapprove of myself when I have illogical ideas.

WEEKLY MEASURES

Self-Compassion Scale, Short-Form

1 = Strongly Disagree
2 = Somewhat Disagree
3 = Neither Agree nor Disagree
4 = Somewhat Agree
5 = Strongly Agree

This past week:

1. When something painful happened, I tried to take a balanced view of the situation.
2. If I was going through a very hard time, I tried to give myself the caring and tenderness I needed.

3. When I failed at something that's important to me, I felt alone in my failure.
4. When I felt down I tended to obsess and fixate on everything that's wrong.
5. When I felt inadequate in some way, I tried to remind myself that feelings of inadequacy are shared by most people.
6. I was disapproving and judgmental of my own flaws and inadequacies.

Acceptance and Action Questionnaire II

1 = Strongly Disagree
2 = Somewhat Disagree
3 = Neither Agree nor Disagree
4 = Somewhat Agree
5 = Strongly Agree

This past week:

1. I worried about not being able to control my worries and feelings.
2. My painful memories prevented me from having a fulfilling life.
3. Emotions caused problems in my life.

Work-Related Acceptance and Action Questionnaire

1 = Strongly Disagree
2 = Somewhat Disagree
3 = Neither Agree nor Disagree
4 = Somewhat Agree
5 = Strongly Agree

This past week:

1. Worries did not get in the way of my success at work.
2. I could perform as required no matter how I felt at work.
3. My thoughts and feelings did not get in the way of my work.

DISC-S 2.1 Emotional Job Demands and Resources Short Form

1 = Strongly Disagree
2 = Somewhat Disagree
3 = Neither Agree nor Disagree
4 = Somewhat Agree
5 = Strongly Agree

This past week:

1. I had to deal with people (clients, colleagues, or supervisors) or animals whose problems touched me emotionally.
2. I had to deal with people (clients, colleagues, or supervisors) who got easily angered toward me.

3. I had to do a lot of emotionally draining work.
4. I could count on emotional support from others (clients, colleagues, or supervisors) when a threatening situation at work occurred.
5. I had the opportunity to express my emotions after a threatening situation, without experiencing negative consequences (from supervisors, colleagues, or clients).
6. I could count on other people (clients, colleagues, or supervisors) to be a listening ear when I faced a threatening situation.

Maslach Burnout Inventory, Emotional Exhaustion Subscale

1 = Never
2 = Rarely
3 = Occasionally
4 = Often
5 = Very Often

This past week:

1. I felt emotionally drained from work.
2. I felt "used up" due to work.
3. I felt burned out from work.
4. I felt like I was at the end of my rope.
5. I felt fatigued when I got up in the morning and had to face another day on the job.

STSS

1 = Never
2 = Rarely
3 = Occasionally
4 = Often
5 = Very Often

This past week:

1. Reminders of my work with animals upset me.
2. I had little interest in being around others.
3. I thought about my work with animals when I didn't intend to.
4. I had trouble concentrating.
5. I wanted to avoid working with some animals.
6. I was easily annoyed.

UWES

1 = Never
2 = Rarely
3 = Occasionally
4 = Often
5 = Very Often

This past week:

1. At my work, I felt bursting with energy.
2. I was enthusiastic about my job.
3. I was immersed in my work.

APPENDIX D: MEDITATION PRIMER FOR TREATMENT GROUP

Meditation "primer" e-mail sent to treatment group prior to first weekly meditation.

Welcome to the world of meditation, and to this study on stress among animal shelter staff. While immensely rewarding, a professional life in animal sheltering can sometimes be stressful and overwhelming. Whether it's kitten season, decisions related to euthanasia, limited financial resources, or other stressors, animals (and sometimes their people!) constantly depend on your care. Eventually, these demands add up and can result in feeling detached or "burned out."

It can feel like much of life, work, and their related stress is out of our control. However, research suggests that we can take control over our own state of mind and change it for the better, using tools such as meditation. "Mindfulness" meditation can be thought of simply as paying attention to the present moment, without judging what is happening, and attending to whatever bodily sensations, thoughts, and feelings arise in the moment, whether they are good, bad, or indifferent.

The type of meditation you are being asked to practice is used by thousands of people all over the world, including people in hospitals and clinics throughout the United States, Canada, Europe, South Africa, Australia and New Zealand. Scientific studies have shown that regular practice of mindfulness meditation is highly effective in dealing with a number of stress-related health conditions, and even in generating new brain cells in complex areas of the brain!

The meditations presented throughout these next few weeks also contain an element of extending kindness and understanding toward oneself on a regular basis, and especially in times of suffering. Research evidence suggests that making a regular practice of this form of "self-relating" is robustly associated with general well-being.

These meditations are meant to be "done" or "experienced" rather than merely being "listened to." They require your active participation in them to be effective. It would be a good idea if you could set aside a special time each day to do them. Think of this time as time for you to take care of yourself. The meditations will be guided. Much of the time, all you have to do is just breathe and be with yourself and your thoughts.

Each week for the next 3 weeks, you will be emailed a link to a guided meditation each Monday morning, with instructions to listen to that meditation once per day for the following week. Each Friday, you will receive a very short (<5 minutes) survey asking

about your experiences that week. You will be asked to complete the survey by Sunday at 11:59pm. On Monday of the 4th week, you will be asked to listen to whichever meditation you liked best from the prior weeks. You will again complete the short survey on Friday of that week.

Finally, 6 weeks after you complete the last weekly survey, you will be asked to complete a short follow-up survey via email. You may continue to practice the meditations during this time if you wish.
That's it for now – please be on the lookout for your first weekly meditation on **Monday, April 4th.** Also, be sure to regularly check your "Spam" folder as sometimes study communications are re-routed there. If you have any questions at all about the study now or in the future, please do not hesitate to contact Study Coordinator Peter Han at unccResearcherPete@gmail.com

Sincerely,

Mallory F. Fiery, MA, Licensed Psychological Associate
PhD Candidate, Health Psychology
3123 Colvard – University of North Carolina at Charlotte
9201 University City Boulevard, Charlotte, NC 28223
mforman@uncc.edu