1-2017

Understanding the depleting and replenishing effects of compassion on resources and stress recovery

Samantha Su-Hsien SIM
Singapore Management University, samanthassh.2012@pbs.smu.edu.sg

Understanding the depleting and replenishing effects of compassion on resources and stress recovery

by
SAMANTHA SU-HSIEN SIM

Submitted to Lee Kong Chian School of Business in partial fulfilment of the requirements for the Degree of Doctor of Philosophy in Business (Organisational Behaviour and Human Resources)

SINGAPORE MANAGEMENT UNIVERSITY

Dissertation committee:

Jochen Reb (Supervisor/ Chair)
Associate Professor of Organisational Behaviour and Human Resources
Singapore Management University

Michael R. Bashshur
Associate Professor of Organisational Behaviour and Human Resources
Singapore Management University

Ronald Bledow
Assistant Professor of Organisational Behaviour and Human Resources
Singapore Management University

William Tov
Associate Professor of Psychology
Singapore Management University

Singapore Management University
2016

ABSTRACT

Understanding the depleting and replenishing effects of compassion on resources and stress recovery

By Samantha Sim

Existing literature on compassion in the workplace examines the antecedents of compassion and compassionate organizing with the underlying assumption that compassion for the suffering of others is a positive emotion and has desirable outcomes. I challenge this assumption by conceptualizing compassion as an ambivalent emotion and exploring the effects of compassion on individuals who feel compassion. Using an experience-sampling methodology, outcomes such as helping behaviour, regulatory resources, personal resources, and stress response are examined. Feeling compassion for others can be distressing and requires emotional regulation. At the same time, feeling compassion can also motivate behaviours to alleviate suffering. Thus feeling compassion may initially be depleting yet be paradoxically later experienced as replenishing through the increased personal resources associated with helping others. However, whether there are constraints to helping also matters as feelings of compassion are not always acted on. Feelings of compassion should not translate into helping behaviour and should not lead to increased personal resources if constraints to helping are high. Further, conceptualizing compassion as an ambivalent emotion encompassing both pleasant and unpleasant aspects suggests that the emotion has some positive effects such as resilience and improved stress recovery.

Using an experience sampling method, or daily diary method, the effects of compassion on the aforementioned outcomes were examined on a sample of 80 university undergraduates over nine days. The results of the study suggest that compassion feelings and compassion

behaviours have different effects on outcomes. The results of the study also suggest that feeling compassion for others has no significant effects on depletion whereas behaving compassionately is replenishes as it significantly increases personal resources. The results of the study also suggest that constraints to compassion behaviour can reduce the replenishing effects on personal resources. The results of the study also find that compassion increases mixed emotion which in is related to improved stress recovery. The study contributes in providing results that distinguish between compassion feelings and compassion behaviour, as well as being the first to examine within-person fluctuations of compassion feelings and behaviour. The study has implications on organizational citizenship behaviours as well as for organizations interested in building compassion cultures.

Table of contents

ACKNOWLEDGMENTS

This dissertation would not have been possible without the abundant support and love I have received throughout my time in the PhD programme. My deepest gratitude towards the many people in my tribe who have kept me going.

I would like to thank my supervisor and mentor, Professor Jochen Reb, for his guidance and support over a decade since I was his undergraduate research assistant. I have learnt so much from you, not just about research and teaching but also about having more equanimity and incorporating mindfulness meditation into my life. As experimental methodologists, we will never know without a proper control condition whether it is the mindfulness or my maturing prefrontal cortex that has made me more even keeled as an adult, but I think that it is the serendipitous outcome of knowing you since I was an undergraduate.

I would also like to thank Professor Michael Bashshur for the support, encouragement and faith that he has shown me since I started my PhD programme. Also to the rest of my committee members Professor Ronald Bledow and Professor William Tov, thank you for guiding me along with the experience sampling methodology and associated statistics. I have learnt so much from you all and I am really grateful to have you on my PhD committee. In addition, I would also like to thank Professor Abhijeet Vadera for his invaluable opportunity to collect the pilot data.

I would also like to extend my thanks to the Postgraduate Research Office at SMU, Miss Low Wah Eng, Miss Ang Lay Yong, Dr Shelly Li, Professor Melvyn Teo as well as Professor Roy Chua and Miss Grace Tan for all their help with the graduation process. Thank you so much for your assistance!

Also, my heartfelt thanks to my classmates, Serena Lu and Mengzi Jin for always being available for conversations on research ideas and statistical analyses, as well as lunch and dinners, and also the PhD students in my office in general for tolerating the perpetual mess that is my desk.

There are still other people, outside of academia, who have my deepest gratitude. They include my parents and my sister (who are no doubt very relieved that I am a big step closer to graduating), and my best friends (who may or may not be waiting to collect on their ROI for feeding me ;). Thank you for all the love <3

Special mention to Huiting Chiam, whose couch I am sitting on and Wi-Fi I am mooching off of, who shows her support in so many countless ways all the time. And finally, I also would like to especially thank Dr Zen Goh for her unwavering friendship and support throughout my PhD programme. #femalefriendships

1. INTRODUCTION

Compassion is an important social force that has the potential to change the way we work. Research in neuroscience and psychology has amassed compelling evidence that we are inherently prosocial beings, whose natural tendency is to care for others (Goetz, Keltner, & Simon-Thomas, 2010). This prosocial perspective has also seeped, in a good way, into management studies. In the recent decade, organizational scholars have exhorted fellow researchers to invest their effort into understanding kindness, caring and compassion in organizational contexts (Frost, 1999; Tsui, 2013). Although it appears that the organizational context places limits on these natural tendencies through norms of professionalism and competing demands on individuals embedded in such contexts (George, 2014), the emerging picture is one that suggests that compassion is not at odds with organizational life, and is in fact much needed. While traditional organizational scholarship focuses on understanding and correcting poor outcomes in organizations (Caza & Caza, 2008), there is also a movement to understand work using a humanistic lens. This movement understands that the workplace can be an invaluable source of social support. This movement understands that work is meaningful, that work while inevitable is also influential; we spend an inordinate time at work and it shapes our identity (Gini, 1998). It understands that employees want to make a prosocial difference in the lives of others (Grant, 2007, 2008a, 2008b).

Further, from a positive organizational scholarship standpoint, it is recognized that even as organizational members inevitably experience suffering, organizations have the enormous potential to alleviate suffering (Frost et al., 2006; Frost, Dutton, Worline, & Wilson, 2000; Kahn, 1993). As thus, compassion is relevant at the workplace because it has the enormous potential to give meaning to life and, relatedly, its potential to contribute to well-being remains largely untapped and unexplored. However, the present paper echoes the work

of Simpson and colleagues (Simpson, Clegg, & Freeder, 2013; Simpson, Clegg, & Pitsis, 2014b, 2014a; Simpson, Clegg, & Pina e Cunha, 2013) to be cautious in thinking of compassion as a wholly "good" phenomenon and to oversimplify the process by which compassion operates. This dissertation thus serves to answer two questions about compassion broadly: 1) "How does compassion affect the person feeling it?" And 2) "What do constraints to compassionate action lead to?"

In the present dissertation, I present the definition of compassion and discuss the existing research of compassion broadly and at the workplace. More importantly, I build on the definition and discussion to present a more nuanced picture that shows compassion can be depleting (i.e. reduces regulatory resources) or replenishing (i.e. increases personal resources), and how the constraining the behavioural response – as sometimes can be experienced in the organizational context – weakens the link between compassion and personal resource. Specifically, my focus is on the perspective of the focal actor/feeler of compassion at the workplace.

2. CONCEPTUAL DEFINITIONS OF COMPASSION

2.1. Compassion broadly: an emotion and distinction from empathy

Work in the field of emotions and appraisal theory defines compassion as "the feeling that arises in witnessing another's suffering and that motivates a subsequent desire to help" (Goetz et al., 2010). Similarly, Kanov and colleagues (Kanov et al., 2004) in their study of compassion in organizational life point out that compassion requires the noticing, feeling for and responding to others in the organization who are suffering. This definition suggests that compassion includes cognitive, affective and motivational elements.

In conceptualizing compassion as a state-like discrete emotion, compassion can be thought of as a fairly lawful phenomenon that can be studied (Frijda, 1988). This means that although it is an affective state, this affective component is reached via predictable cognitive appraisals and has similarly predictable motivational consequences. Thus, for an individual to experience compassion, it is felt when the following cognitive appraisals are made: 1) target's suffering does not satisfy self's goals, 2) target is deserving of help (i.e. not blameworthy) and 3) can be helped by self (own resources to cope) (Goetz et al., 2010). Further, in defining compassion as an emotion, it means that the experiential content of compassion comprises of emotivational states and action tendencies (Zeelenberg & Pieters, 2006). Particularly, the experience of compassion has been shown to encompass strong tendencies to relieve the suffering of others (Batson, 1991; Batson et al., 1987), and physiological changes that signal readiness to engage in action (Eisenberg, Fabes, et al., 1988; Eisenberg, Schaller, et al., 1988; Eisenberg, Fabes, Schaller, Carlo, & Miller, 1991; Stellar, Cohen, Oveis, & Keltner, 2015). In addition to cognitive appraisals, action tendencies and emotivational states, compassion

has certain functionalities: intrapersonal functionality to solve problems within individual (Simon, 1967) and interpersonal functionality to navigate social relationships (Ekman, 1992). Both functional perspectives inform us that compassion as an emotion has significance for the individual, dyadic and group level (Keltner & Haidt, 1999).

Behavioural consequences notwithstanding, the above discussion allows us to differentiate compassion from empathy, despite that both constructs are closely related. Empathy and compassion often go hand in hand together, and not surprisingly so if one considers both empathy and compassion as possible responses to another's suffering. However, strictly speaking, empathy merely refers to the ability to share the affective experiences of others (Eisenberg & Miller, 1987; Singer & Lamm, 2009). Empathy has been shown to predict helping and compassionate responding (Batson, Duncan, Ackerman, Buckley, & Birch, 1981; Toi & Batson, 1982). Thus, empathy can be thought of as an affective congruence that is a prerequisite for compassion since empathy is the ability to take the perspective of another, to feel what they are feeling, without necessarily responding. Restated, empathy as a response to another's suffering could mean one is simply mirroring the distress of other. Compassion, on the other hand, goes beyond recognizing distress in another. This has implications in organizations, which may sometimes place limits on responses to recognizing distress in another.

2.2. Compassion at the workplace: an emotion and distinction from related organisational behaviours

To reiterate, compassion should not simply be understood as affect, nor simply understood as prosocial behaviour which helps others. Compassion is instead characterized by changes in cognition, affect, motivation and behaviour. In other words, compassion, as frequently discussed in the organizational behaviour literature, requires all three elements of 1) recognizing the suffering of others, 2) feeling the need to alleviate the suffering for said other and 3) ultimately manifesting the affective aspect with behavioural responses (Dutton, Worline, Frost, & Lilius, 2002). This definition also allows us to differentiate compassion from related behavioural constructs such as organizational citizenship behaviour, helping, or volunteering, which may be motivated by other reasons besides the affective pull of witnessing others' suffering. Organizational citizenship behaviours, helping or volunteering could be motivated by instrumentality, self-interest or even conforming to organizational norms. For example, such behaviours may be a social exchange, instrumental relationship building, reciprocity, or part of impression management. It could also be enacted with overt awareness that it can make us feel better about ourselves (i.e. egotistic motives such as empathic joy and negative-mood relief, have been found to promote helping (e.g., Cialdini et al., 1987; Smith et al., 1989)), but strictly speaking, compassion is motivated by other-interest (over self-interest) and it is driven less by positive affect or anticipated positive affect.

However, it must be noted that the evidence that the third point that a helping behavioural response always follows feelings of compassion is inconsistent. Studies examining compassion as an emotion often elicit the emotion via visual or audio stimuli of distress where a helping behavioural response is not necessarily possible (e.g. Oveis et al., 2009, 2010). This does not contradict the appraisal theory of emotions which states that the

emotional experience can consist of action tendencies (such as a motivation to move towards a target of anger) rather than concrete behaviours (such as actually hitting a target of anger) and that other contextual factors determine behaviours as a result of emotions.

In the organizational context, while certain work situations may elicit feelings of compassion, it is not difficult to imagine that certain aspects of organizational life can limit the progression of action tendencies into actions, particularly as aspects of organizational life often dictates with scripts what is appropriate and creates social distance. For example, witnessing a customer's distress may elicit compassion but strict rules prohibit a helping response. Or perhaps witnessing co-worker's distress may elicit compassion but being in another division might give us the impression that intervening actions cannot help and may be construed as acting out of jurisdiction. Another example of social distance in organizational life constraining behavioural responses of compassion would be witnessing a supervisor in distress but hierarchical distance might convince us that a helping response oversteps boundaries as a subordinate.

3. WHAT LEADS TO COMPASSION?

3.1. Compassion broadly: Predictors and antecedents

Empathy, as a trait, was discussed in a previous section and is a strong predictor of compassion. Besides empathy, other predictors of compassion include class and social economic status, secure attachment, adversity, synchrony and mindfulness (Lim, Condon, & DeSteno, 2015). Social class and economic status have been found to relate negatively to compassion and helping (Stellar, Manzo, Kraus, & Keltner, 2012). Secure attachment, both trait and primed, promoted other-orientation and caregiving behaviours, whereas various forms of insecurity was found to reduce compassionate caregiving (Mikulincer et al., 2005). Adversity has been found to relate positively to compassion but moderated by similarity of self-other suffering; that is people who have undergone adverse circumstances have less compassion for the other when the latter's suffering is similar to the former's difficult situation but have more compassion for the other when the latter's suffering is dissimilar to the former's difficult situation (Ruttan, McDonnell, & Nordgren, 2015). Synchrony has been shown to increase compassion through routes of liking and similarity (Valdesolo & DeSteno, 2011). Finally, mindfulness is theorized to increase compassion (Atkins & Parker, 2012) through increased perceptual, affective and cognitive aspects of compassion. While there is evidence showing that mindfulness increases compassion (Condon, Desbordes, Miller, & DeSteno, 2013), recent work in mindfulness and compassion, however, finds that mindfulness-enhanced compassionate behaviour is not mediated by empathic accuracy (i.e. in the ability to decode the emotional experiences of others) (Lim et al., 2015). This suggests that mindfulness increases attention to suffering stimuli or a reduction of self-related affective biases, but not the affective aspects of compassion as theorize by Atkins and Parker.

3.2. Compassion at the workplace: Antecedents and predictors

More specific to the Organizational Behaviour literature, the discourse on compassion focuses on qualifying what compassion is and examining its antecedents, that is, what is compassion in relation to the organization and what leads to more compassion at work or a more compassionate workplace. For example, Kanov et al. (2004) define organizational compassion, similar to the individual's experience of compassion, as consisting of subprocesses but at a collective level; members' collective noticing of another's pain, collective experiencing of an emotional reaction to the pain, and collective action in response to the pain lead to organizational compassion. They also suggest that what leads to the transformation of individual to organizational compassion is enabled when the organizational context legitimates and propagates these subprocesses, as well as coordinates action, through organizational values, practices, and routines for example. Dutton, Worline, Frost, and Lilius, (2006) also developed and tested a theory of compassion organizing to further explain this transformation. Their in-depth qualitative study examining how members of a university responded to three Master's students who had lost everything in a fire a day found several organizational features that legitimate, propagate and coordinate compassion. Namely, contextual enabling of attention, emotion, and trust, agents improvising structures, and symbolic enrichment, demonstrate how the social architecture of an organization interacts with agency and emergent features to affect the extraction, generation, coordination, and calibration of resources in collective compassion organizing. In addition, the study also specified some dimensions of compassion responding: scale, scope, speed and customization, which may be of interest when operationalizing organizational compassion. Recent work examining employers' provision of aid to employees affected by Hurricane Katrina validated the phenomena of compassion organizing and found that satisfaction with compassionate responding reduces employee psychological and physiological strain via increased perceived

organizational support (Watkins et al., 2015). Finally, Madden, Duchon, Madden, and Plowman (2012) also examine the emergent organizational capacity for compassion and suggest that when individuals in an organization modify their roles to respond compassionately, this amplifies the compassionate responses, which in turn changes the system in which individuals are embedded in and increases the organizational capacity for compassion.

4. WHAT DOES COMPASSION LEAD TO?

4.1. Compassion broadly: Outcomes

Broadly speaking, the literature suggests that compassion has beneficial outcomes for focal actors of compassion (i.e. people who experience the emotion of compassion). Feeling compassion for others has been hypothesized to be hormonally and neurologically replenish and ameliorates the effects of chronic stress (Boyatzis, Smith, & Blaize, 2006). In terms of empirical evidence, Rein, Atkinson, and McCraty (1995) is often cited as causal evidence that compassion has salutary physiological effects. However, it should be noted that this experimental study demonstrates the effects of having positive regard for others (and not necessarily compassion) on salivary immunoglobulin and respiratory health by comparing against the effects of anger (i.e. an emotion associated with stress). Moreover, the experiment lacks a control condition.

Compassion has also been suggested to improve social relationships. Compassion likely benefits focal actors by potentially broadening visual, semantic and social awareness to become more in sync with others. Compassion is also hypothesized to benefit focal actors by improving relationships, forging stronger psychological connections (Frost et al., 2000; Powley, 2009) and thereby engendering trust (Dutton, Lilius, & Kanov, 2007). Indeed, emergent leaders who act with compassion are perceived as being better leaders, although this is mediated by intelligence, a competence-related construct, and unaffected by sensitivity, a warmth-related construct (Melwani, Mueller, & Overbeck, 2012). There is some initial evidence marrying the health and relational routes by which compassion acts. Cosley, McCoy, Saslow, and Epel (2010) showed that trait compassion, that is dispositional compassion for others, is negatively related to stress, but this relationship only holds when social support is

present. In other words, people with high trait compassion fared better at a stressful task than people with low trait compassion when given social support, whereas there was otherwise no difference between the performances of people with high and low trait compassion at a stressful task when social support was not given. This suggests that the positive effect of compassion on health could potentially be activated through social support and perhaps other relational factors. For dyadic or group level effects of compassion, see footnote[1].

It has to be noted that plenty of the evidence for the benefits for compassion is often examined through compassion training, instead of emotional experiences of compassion. Such compassion training typically includes some form of Loving-Kindness Meditation (LKM), which is an established practice that evokes love, contentment and compassion, feelings of warmth and caring for oneself and others (Salzberg, 1995). Compassion training has been found to make people more sensitive to the emotional vocalizations of others (Lutz, Brefczynski-Lewis, Johnstone, & Davidson, 2008) and to reduce implicit bias towards stigmatized groups (Kang, Gray, & Dovidio, 2014). Participants in the compassion training have been found to have reduced neuroendocrine, inflammatory and behavioural responses to psychosocial stress (Pace et al., 2009). Compassion training also leads to increased subsequent daily positive emotions which subsequently reduced illness symptoms and increased ego-resilience (Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008), increased mindfulness, decreased worry and emotional suppression (Jazaieri et al., 2014), as well as increased positive affective experiences in response to witnessing others in distress (Klimecki,

[1] Another way that compassion can improve social relationships is related to the dyadic level of emotional functionality. At a dyadic level, emotional expressions may evoke reciprocal or complementary emotions in others that may in turn help individuals respond adaptively to social events (Keltner & Haidt, 1999). Thus, focal actors may benefit from improved relationships as compassion for another may also trigger a complementary emotion of gratitude in said other, which in turn leads to costly effort to assist the benefactor (Bartlett & DeSteno, 2006). Compassion may also improve social relationships around the focal actor, because when gratitude is elicited, recipients of compassion increase their prosocial behavior (McCullough, Kilpatrick, Emmons, & Larson, 2001), and generalized reciprocity. In a novel economic experiment by Fowler & Christakis (2010), it has been observed that people "pay forward" when they are a recipient of generosity. Thus, it might be that compassion has a social-function of encouraging ripple effects of compassionate acts via gratitude and generalized reciprocity.

Leiberg, Lamm, & Singer, 2013). Compassion training has also been found to increase altruistic redistribution of money (Leiberg, Klimecki, & Singer, 2011; Weng et al., 2013). While I do not argue that the meditation is effective in increasing compassion for others, it seems like the meditation and potential compassion-eliciting events at work are experientially different. For one, compassion in the meditative context focuses on generating positive regard for others, whereas compassion in daily life is situated in the context of noticing another's suffering. Though manipulations vary slightly in instructions, in essence the LKM requires the practitioner to wish for happiness, peace, health and no harm, first for the self, and then similarly for significant and close others and also for distant and general others.

4.2. Compassion at work: Outcomes

The focus of research in organizational compassion has largely examined its antecedents (Dutton et al., 2006; Kanov et al., 2004; Madden et al., 2012) and while compassion is said to have a multitude of positive effects, much of these positive outcomes of compassion are concluded from examining the effects on those receiving compassion. Simply spoken, compassion benefits sufferers as compassion from others involving the provision of resources (e.g., time, concern, material goods) help people cope with their suffering and allow them to recover and resume some normalcy at work (Dutton et al., 2006; Powley, 2009). Compassion from others at the workplace has been shown to improved *interpersonal outcomes* such as to feelings of being valued and connectedness in employees (Dutton et al., 2002; Frost et al., 2000); compassion communicates dignity (Clark, 1987; Frost, 2003; Frost et al., 2000, 2000; Rynes, Bartunek, Dutton, & Margolis, 2012). Compassion from co-workers also has been shown to increase affective organizational commitment (Lilius et al., 2008), and decrease job stress via positive emotions (Lilius, Kanov, Dutton, Worline, & Maitlis, 2011). Compassion from others has also been shown to prevent or reduce compassion fatigue (Kahn, 1993; O'Donohoe & Turley, 2006). In the literature mentioned in this paragraph, where the term 'experiencing compassion' is used in the literature, it typically refers to receiving compassion from others, rather than the experience of compassionate feelings. Thus, many studies on the outcomes of compassion typically examine effects on of the 'receiver', and not on the focal actor or 'giver' of compassion (i.e. people feeling compassion or "giving" compassion).

5. RECONCEPTUALIZING COMPASSION AND HYPOTHESES BUILDING

5.1. Compassion as an ambivalent and dynamic emotion: Effects beyond what is known

Compassion scholars (i.e. Dutton et al., 2002) often imply that compassion is a positive emotion without necessary clarifying what this means. Particularly, the emotion of compassion has been subsumed by researchers under positive psychology as a positive emotion. This typically means that compassion feels "good" (i.e. positive valence) or is "good" (i.e. has good outcomes). However, research has shown that feelings of compassion, as a reaction to others' suffering, is not necessarily a pleasant feeling. In addition, feelings of compassion may have disadvantageous outcomes. These definitions of "positive emotion" towards understanding compassion are problematic because the emotional experience of compassion is often triggered by noticing the suffering of others and in this situation not likely to be a pleasant event, or entail beneficial outcomes. In this section, I propose how compassion reduces regulatory resources.

An emotion can be labelled a positive one if it has positive affective valence (i.e. it is pleasant), presumably if it is an emotional reaction to a pleasant event (Ellsworth & Smith, 1988). In other words, positive emotions are emotions that arise when one registers good prospects or good fortune(Fredrickson, 2013). Examples of positive emotions include joy, gratitude, contentment, interest, hope, pride, amusement, inspiration, awe, and love which are posited to facilitate the accrual of resources such as skills, knowledge, resilience, motivation, new worldviews and social bonds (Fredrickson). However, labelling compassion as a "positive" emotion without examining how it can be good is problematic. Assuming that

compassion is without costs will lead to organizations and individuals blindly pursuing compassion in the workplace. Firstly, compassion is not necessarily a good feeling. Feelings of compassion, as a reaction to others' suffering, is not pleasant. Compassion has been described as a blend of sadness and love (e.g., Shaver, Schwartz, Kirson, & O'Connor, 1987). Research has also shown that while people think compassion is a pleasant feeling, actual inductions of compassion due to being exposed to the suffering of others, led to increased unpleasant affect (Condon & Feldman Barrett, 2013).

Having reviewed the outcomes of compassion, which have thus far been largely positive, we should also be aware that the suffering of others – a required trigger for feelings of compassion –, on the other hand, can have a different set of effects. Among care providers (e.g. social workers (Adams, Boscarino, & Figley, 2006), psychotherapists (Figley, 2002) and nurses (Abendroth & Flannery, 2006; Hooper, Craig, Janvrin, Wetsel, & Reimels, 2010; Sabo, 2006)) who are frequently exposed to others' suffering, compassion fatigue, a form of vicarious trauma from working with those who are suffering, has dire consequences on work performance (Figley, 1995). It is not a stretch of imagination to that compassion in the organization also has similar effects. Recognizing and attending to the suffering, whether of co-workers, bosses, subordinates or clients necessarily takes attention away from other organizational matters; the provision of time, concern, material goods to help people cope with their suffering may aid their recovery (Dutton et al., 2006; Powley, 2009), but may also put a strain on those who provide the slack resources.

Thus, compassion should not be conceptualized as a static construct with static outcomes, but rather thought of as an ambivalent emotion that is dynamic in that its effects unfold over time. This follows the temporal approach exhorted by recent scholars; organizational scholars have started to encourage the examination of the temporal nature of relationships between independent and dependent variables, and the examination the duration

of cause and effect (George & Jones, 2000; Mitchell & James, 2001; Roe, 2008). This approach not only speaks to the practicality of applied psychology (Roe), but also richness in building theory (George & Jones; Mitchell & James). If one adopts an unfolding approach towards compassion, understanding that the duration and occurrence of effects take time, the effects of compassion would be better understood as dynamic and may have distinct salutary and deleterious outcomes.

Therefore, one of the aims of this dissertation is to provide a roadmap for organizations interested in developing compassion at the workplace to understand a possible natural rhythm of compassion, allowing such organizations to support their employees who may experience some initial reduction on self-regulation due to compassion, in order to allow the personal resource enhancing and recovery-enhancing effect of compassion to emerge. This dissertation attempts to look at how compassion can be depleting, but also replenishing, and how the constraints on a helping response – as sometimes can be experienced in the organizational context – weakens the link between compassion and personal resource.

5.2. Feeling compassion can be depleting

At its onset, compassion begins with the suffering of others. Compassion in daily life often requires the attending to this suffering of others. The affective response to the suffering of others can be predominantly self-oriented (i.e. distress, anxiety), or other-oriented (i.e. compassion, sympathy; Goubert et al., 2005). More often than not, being confronted by others in physical pain elicits affective distress in the observer (Craig, 1968). However, compassionate responding and altruistic behaviour that follows being exposed to the suffering of others is strongly related to individual tendencies towards emotion regulation. Personal distress in the face of others' suffering has been repeatedly found to relate negatively towards altruistic behaviour (Davis, 1983; Eisenberg et al., 1989) and related to an egoistic motivation to reduce one's own aversive arousal (Batson, Fultz, & Schoenrade, 1987). People who are able to regulate their emotions are better able to modulate their negative vicarious emotional response to the suffering of others, that is, they are not overwhelmed by their distress that they focus solely on it (Eisenberg & Eggum, 2009). Compassion thus moves from attending to the distress of others to downregulating our own anxiety and distress, enough to provide a helping response. Emotional regulation, in terms of decreasing felt emotion, has long been established as effortful and depleting of regulatory resources (Muraven, Tice, & Baumeister, 1998). Although the emotional regulation literature differentiates between explicit and implicit emotional regulation (Gyurak, Gross, & Etkin, 2011) – with one key difference being that explicit emotional regulation (i.e. suppression) is more effortful than implicit emotional regulation (i.e. habitual emotional regulation) and occurring under awareness rather than without – I do not in the present dissertation make a distinction whether the downregulation process is explicit or implicit. For one, I find this inconsequential because there is some evidence that implicit emotion regulation also requires effort (Ritter, Karremans, & van Schie, 2010). Secondly, people have been shown to engage

in multiple strategies to regulate their emotions (Aldao & Nolen-Hoeksema, 2013), and I expect that the downregulation of our own anxiety and distress responses to the suffering of others also requires multiple strategies, both explicit and implicit. Further, explicit emotion regulation can also become implicit over time such that the frequent use of a given explicit strategy can render the initiation of said strategy to become more implicit during regulation (Gyurak et al.). Therefore, momentary feelings of compassion may involve emotional regulation, which is effortful. Thus, compassion may reduce regulatory resources and increase depletion upon its incidence.

Therefore, hypothesis 1 is as follows:

H1: At its incidence, compassion reduces regulatory resources (increases depletion)

Note that the outcome described in H1 is temporally proximal to feelings of compassion in terms of very short moments (see Figure 1).

5.3. Compassion feelings to compassionate behaviours

In the previous section, I examined compassion at the onset of the emotional experience. With time, the emotional experience of compassion changes. Upon downregulation of initial negative affect, the subsequent action tendencies experienced is to relieve the suffering of others (Batson et al., 1987; Batson & Shaw, 1991). In addition to action tendencies, emotional experience of compassion is also accompanied by physiological changes such as heart rate deceleration and lowered skin conductance (Eisenberg, Fabes, et al., 1988; Eisenberg, Schaller, et al., 1988; Eisenberg et al., 1991) and vagal activity (Stellar et al., 2015). The visceral feeling of compassion, through the aforementioned physiological response, is one that orients the individual to social approach and to act to soothe the sufferer (Goetz et al., 2010). This has an important implication. Although the emotional experience of compassion encompasses the affective and motivational changes which facilitate helping behaviours, these aspects are separate from the behavioural component of compassion. It is not always the case that feeling compassion leads to compassionate behaviours. It appears that even when one is unable to help the person who is suffering, compassionate feelings are still felt, for instance: participants viewing or hearing distressed others, where a helping behavioural response is not possible, still report feelings of compassion (e.g. Oveis et al., 2009, 2010).

Thus, while it can be expected that feelings of compassion generally translate into compassion behaviours, whether or not compassion translates into compassion behaviour may depend on moderating factors. One such moderating factor could be constraints to helping. In a qualitative pilot study, reported in detail in chapter 6, in which students recalled experiences of compassion in the last ten days, it was apparent that while students reported feeling compassion for a suffering other, not every instance gave them an opportunity to act

on that compassion. For example, one student reported feeling compassion for an elderly person having difficulty crossing the road, but was unable to render assistance because the person was on the other side of the road. Others also report being unable to help their foreigner friends who had complex problems, such as being a victim of political instability back in their native country. This has parallels to the organizational context. While certain work situations may elicit feelings of compassion, certain aspects of organizational life can limit the expression of compassionate actions, such as organizational rules, norms, schedules and other structures that create social distance. For example, witnessing a customer's distress may elicit compassion but strict rules prohibit a helping response. Another example could be that witnessing coworker's distress may elicit compassion but being in another team or division might give us the impression that intervening actions cannot help due to a lack of expertise and or may be construed as acting out of jurisdiction. Yet another example is that one may witness a coworker's distress but work schedules such as having to be at another meeting or site puts a limit on our capacity to respond. Another example of organizational life constraining behavioural responses of compassion would be witnessing a supervisor in distress but hierarchical distance might convince us that a helping response oversteps boundaries as a subordinate. Thus, whether or not one acts on their feelings of compassion is moderated by perceived constraints to action.

In summary, this section builds arguments for the following hypotheses about compassion feelings and behaviour:

H2: Feeling compassion should lead to behaviours that relieve suffering of others.

H3: The relationship between feelings of compassion and compassionate behaviour is moderated perceived constraints to action.

Note that the outcome and moderator described in H2 and H3 are temporally proximal to feelings of compassion in terms of moments (see Figure 1).

5.4. Compassion behaviours can be replenishing

In the previous section, a distinction between compassion feelings and compassion behaviours is made. In this section, I focus on compassion behaviours and provide some arguments for why compassion behaviours can be replenishing. In recent theorizing, Lilius (2012) writes about the episodic nature of caregiving work, and suggests that compassion at work may serve as a work-based activity that could aid recovery of regulatory resources. Work episodes may range from being effortless to effortful, while at the same time differing on the propensity to increase personal resources (i.e. increasing perceived prosocial impact and self-efficacy). In other words, episodes can vary on dimensions of regulatory resources required and personal resources generated and lead to a typology of interactions which include: low-maintenance, draining, replenishing and breakthrough interactions. According to Lilius, compassionate behaviours – in the context of compassionate care provision – is a type of work episode that increases personal resources (e.g. professional identity) and is potentially replenishing (low regulatory resource demands) or breakthrough (high regulatory resource demands). Similarly, it can be expected that compassionate behaviours, which occur outside of the caregiving context, can build personal resources. Specifically, *perceived prosocial impact* refers to the extent to which people see how their actions make a difference in the lives of others (Grant, 2008b). Compassionate behaviours are hypothesized to increase perceived prosocial impact by eliciting expressions of gratitude and (Grant, 2007). Perceived prosocial impact has been found to be an important personal resource in that it buffers against the negative effects of emotional exhaustion on intrinsic motivation and self-evaluations (Grant & Sonnentag, 2010). Perceived prosocial impact has also been found to be replenishing of resources (Lanaj, Johnson, & Wang, 2016). For these reasons, compassionate behaviour should lead to an increase of perceived prosocial impact, which is an important personal resource.

Compassionate behaviours are also hypothesized to increase self-efficacy. According to Bandura (1977), *self-efficacy* can be increased via experienced mastery. In the experience of compassion, one can enhance self-efficacy in the provision of help (e.g. a behavioural manifestation of compassion) and even more so when there is feedback that the sufferer is soothed. Further according to Bandura, enhanced self-efficacy via success in one domain can be easily generalized to other situations in which performance was self-debilitated by preoccupation with personal inadequacies. This suggests that self-efficacy gained through compassion is like a reservoir that can be drawn in a different but challenging situation. Thus, I posit that compassion behaviours also increase an individual's perception of generalized self-efficacy, which leads to hypothesis 4:

H4: Compassionate behaviour is positively related to personal resources such as (a) perceived prosocial impact and (b) self-efficacy.

Note here that it is the compassion behaviours that lead to the increase in personal resources, instead of compassion feelings. This is so because of the specificity that some action has to occur in order to experience increased perceived prosocial impact and self-efficacy. One cannot experience the suffering of others without acting and feeling that what they have done impacts others, or that they are capable of doing. Note also that outcomes described in H4 are temporally proximal to feelings of compassion in terms of minutes (see Figure 1).

5.5. Conditions under which compassion feelings can be replenishing

At the beginning of the previous section, a distinction was made between compassion feelings and behaviours. However, in general, it can be expected that compassion feelings tend to promote compassion behaviours, which in turn increase personal resources. Thus, this leads to hypothesis 5:

H5: Compassionate behaviour mediates the relationship between feelings of compassion and personal resources such as (a) perceived prosocial impact and (b) self-efficacy.

This also implies that it is acting on these feelings that lead to increase in personal resources. The emotional suppression and emotional dissonance literature informs us about possible negative effects of feeling compassion when it is not acted upon. Emotional suppression has been shown to lead to changes in somatic activity (e.g. the part of the peripheral nervous system associated with voluntary control of body movements and involuntary reflex arcs) while increasing sympathetic nervous system activity (e.gl. a part of the peripheral nervous system associated with below consciousness visceral functions) in terms of cardiovascular and skin conductance measures (Gross & Levenson, 1993), which suggests that it is a stressful event. Emotional suppression also does not change the subjective emotional experience (Gross & Levenson). That is, people still feel the emotion even if they have to suppress it. Emotional suppression has also been found to have ironic rebound effects in which suppressing negative affect leads to subsequently stronger experiences of negative affect, compared to a no regulation or low negative affect suppression condition (Dalgleish, Yiend, Schweizer, & Dunn, 2009). Compassion behaviours can be thought of as a way to express feelings of compassion. However, as outlined in previous section (e.g. section 5.3), there can be organizational constraints to helping such that individuals feeling compassion are unable to express them through behaviour and leading to emotional dissonance.

Emotional dissonance, has been defined as the conflict between genuinely felt emotions and emotions required to be displayed in the organization (Middleton, 1989). Emotional dissonance has also been shown to lead to burnout and decreased in-role performance (Bakker & Heuven, 2006). Specific to compassion, recent work by Yagil (2015) found that suppressing expressions of compassion causes more discomfort than suppression of malevolent or neutral emotions and that suppressing displays of compassion leads to customers having higher sense of inauthenticity and lowered satisfaction. These findings suggest there are negative consequences for personal resources when feelings do not translate into behaviour. When individuals feel constraints to compassion action, compassion feelings do not lead to increases in personal resources because there is no behaviour to feel that what they have done is impactful to others nor is there behaviour to feel that they are capable of doing. Thus, when constraints to action are high, even though people feel compassion, these feelings do not translate into behaviour and in turn do not lead increased perceived prosocial impact or self-efficacy. In other words, the relationship between compassionate feelings, compassionate behaviours, constraints to action and personal resources is that of a mediated moderation relationship.

H6: The relationship between compassionate feelings and (a) perceived prosocial impact and (b) self-efficacy is moderated by constraints to compassion action such that when constraints are low (high), compassion feelings lead compassion behaviours which build (do not build) personal resources.

Similar to H4, outcomes described in H5 and H6 Note are temporally proximal to feelings of compassion in terms of minutes (see Figure 1).

5.6. Compassion and stress recovery

In addition to effects on regulatory and personal resources, compassion may also lead to better stress recovery in individuals. As explained in previous sections, compassion can be thought to be encompassing both positive and negative valence components and thus can be thought of as an ambivalent emotion. The ambivalence, as in literal bi-valence, of the emotional experience of compassion has implications on subsequent consequences of negative affect.

While some models of emotion argue that valence is negatively related (e.g. PA is negatively related to NA in the circumplex model, (Feldman Barrett & Russell, 1998; Watson & Tellegen, 1985), the Evaluative Space Model (ESM, Cacioppo & Berntson, 1994) argues that positive and negative affect can be uncorrelated or even positively correlated. Mainly, ESM suggests that co-activation of positive and negative affect can occur but that affective processes typically gravitate towards bipolarity across time (Cacioppo & Berntson). Some evidence of ambivalent emotions stem from our ability to subjectively report co-occurrence of happy and sad emotions during graduation day, dormitory move-out day (Larsen, Peter, & Cacioppo, 2001), during gambles when winning less than expected and when losing less than expected (Larsen, Peter, Mellers, & Cacioppo, 2004) and particularly after watching evocative films (e.g. Life is Beautiful in Larsen, McGraw & Cacioppo; Father of the Bride in (Fong, 2006)). Further evidence stems from neuroscience and psychobiology which suggests that the neural processes involved in positive and negative affect are partially distinct (for a brief review, see Larsen, McGraw & Cacioppo).

While it is uncommon for individuals to experience high PA while experiencing high NA, there are benefits of being able to experience high PA and NA concurrently. According to the co-activation model of health proposed by Larsen, Hemenover, Norris, and Cacioppo

(2003), ambivalent emotions benefit health because people can derive meaning from difficult situations by appreciating positive consequences of negative events, and as a result leads to resilience, which refers to an individual's ability to thrive despite adversity in adults. While positive affect and negative affect are typically weakly related, that is people feel high NA typically feel low PA (and vice versa), there is evidence that people who are highly resilient experience more affective synchrony, that is they experience positive covariation between positive and negative mood states and are more able to feel high PA even while feeling high NA (Coifman, Bonanno, & Rafaeli, 2006).Given this evidence of ambivalent emotions on resilience, compassion may through a similar mechanism to buffer the effects of stress. Particularly, I theorize that compassion especially provides a safe situation, in which the self is not directly threatened, to experience co-activation that can be later practiced when the self is under duress and experiencing high NA. Responding with compassion to the suffering of others allows an individual to make an association between positive affect and negative affect; frequently experiencing co-activation towards the suffering of others can lead to co-activation when it is the self who is suffering. Thus, both NA and PA can be accessed during self-relevant stressful situations of the focal actor.

While compassion is an emotional state in response to other suffering, resilience can be thought of as a response to own suffering. Given that compassion is an emotional state that is at once negative and positive, it suggests that such a state might strengthen co-activation of positive and negative affect. This in turn, suggests that experiences of compassion can lead to subsequent improved stress recovery by increased subsequent experiences of mixed emotions.

H7: Compassion improves stress recovery

H8: The relationship between compassion and stress recovery is mediated by the co-activation of positive and negative affect.

Note that outcomes described in H7 and H8 are temporally proximal to feelings of compassion in terms of hours and days (see Figure 1).

Taken together, I propose a model that examines how compassion can be depleting, and replenishing and improves stress recovery (see Figure 1). All hypotheses are listed in Table 1.

6. A PILOT STUDY EXAMINING THE FEASIBILITY OF A DAILY DIARY METHOD

6.1. Pilot study methodology

A pilot study was conducted to test the feasibility of a daily diary study on SMU students. The pilot study had 74 (M_{age} = 20.6, SD_{age} = 1.4; Male = 35) SMU students to recall incidents of compassion today as well as in the last ten days. They were provided with the definition of compassion and first asked to recall on a matrix if they experienced feelings of compassion "today", "one day ago", "two days ago", etc., till "ten days ago". They answered either "yes", "no" or "I do not remember". If they answered "yes", then on the next page, they were prompted to answer how frequently they felt compassion on that day as well as to describe the situation, who were the targets of compassion, and if they did something for the target of compassion.

The pilot also collected responses on mixed emotion (Beal & Ghandour, 2011), new generalized self-efficacy (e.g. a measure of self-efficacy, Chen, Gully, & Eden, 2001), state self-control capacity (SSCS, e.g. a measure of depletion; Ciarocco, Twenge, Muraven, & Tice, 2007) for the day, as well as compassion (Pommier, 2011) for the week (see Appendix A for measures, also these measures are discussed in more detail in the methods section of the daily diary study). The state self-control capacity scale is always reversed coded such that the higher the score, the more depletion is experienced, and is henceforth labelled as depletion throughout the dissertation. The compassion scale consisted of subscales such as kindness, indifference, common humanity, separation, mindfulness and disengagement. Not all participants responded for all the four scales (i.e. mixed emotion, self-efficacy, depletion and compassion) as participants either responded on measures of depletion for the day or

compassion for the week. 38 completed the Pommier compassion scale while out of the 36 assigned to complete the state self-control capacity scale, only 35 provided complete responses. In all, the pilot served as a preliminary foray into the whether these scales could be adapted for diary study.

6.2. Pilot study results and implications for the daily diary method

The following measures of compassion experience were calculated: 1) total days compassion was felt, 2) total times compassion was felt, 3) whether compassion was felt today, 4) whether compassion was felt yesterday, 5) number of times compassion was felt today and 6) number of times compassion was felt yesterday. Although participants were asked to compassion experiences up to 10 days prior, I only examined correlations with compassion experiences reported today and yesterday because I do not expect events further away to affect how participants feel at the moment (i.e. right now).

Table 2 presents descriptive results, correlations and scale reliabilities from the pilot survey data. The descriptive results of the measures of compassion show that there was considerable variation between students in terms of 1) the frequency of compassion felt over the 11 days (M = 3.61, SD = 3.23; i.e. people ranged from reporting not feeling compassion at all to feeling compassion every day), and 2) the mean frequency of compassion felt during each day ($M = 0.35$, SD = 0.33). The results also suggest that a number around 11 days is a suitable period to capture such variance of feelings of compassion.

The scale reliabilities of all the scales were adequate (all cronbach's alphas > .87). The cronbach's alphas for the scales measuring mixed emotions, self-efficacy and depletion were .91, .94 and . 96 respectively, demonstrating high reliability. The overall alpha for the compassion scale was .87, demonstrating adequate reliability. However, the reliabilities of its subscales are lacking, ranging from .53 (mindfulness subscale) to .73 (separation subscale; see Table 2 for the other subscale alphas). Given these poor reliabilities, I decided not to use this scale in the final study to measure trait compassion but instead the dispositional positive emotions compassion subscale which has been demonstrated previously to have a cronbach's alpha of .80 among a comparable sample of undergraduate psychology students (Shiota,

Keltner & John, 2006). The correlations for the compassion scale are provided in table 1 but not discussed further due to the weak alphas of subscales.

Multiple linear regressions were conducted to examine the relationship between compassion and depletion, compassion and self-efficacy, as well as compassion and mixed emotion. Although the statistical analysis implies that compassion is a cause of depletion, self-efficacy and mixed emotion, I do not make such claims as the methodology described for the pilot study does not allow me to do so. These analyses are meant to be exploratory and to illustrate the relationship between the variables controlling for age and gender. Also, I only examine the frequency of compassion experienced today and yesterday, as previous research suggests that the longer the delay for recalls of positive mood, the greater the underestimation of frequency (Thomas & Diener, 1990). The results of the regressions are described below and its implications. A summary of these regression results are also provided in Table 3 and Table 4.

A multiple linear regression was conducted with age and gender as control variables, and the frequency of compassion experienced today as a predictor of interest on depletion. Model 1 includes only age and gender as control variables while model 2 additionally includes frequency of compassion. In model 2, the frequency of compassion experienced today was significantly negatively related to depletion (B = -0.36, SE = 0.14, t = -2.49, p < .05, R_{change}^2 = .26, $F_{change}(1,31)$ = 6.18, p < .05); see Table 2 for model comparisons). In both models, no age and gender effects were observed. When participants report higher frequency of compassion felt today, they also report feeling less depleted, controlling for their age and gender. While this exploratory analysis is seems to be counter to Hypothesis 1, note that this analysis is at the between person level and does not examine the within person conceptualization of compassion as being depleting at its incidence. Given this reasoning, no

further regressions are conducted with compassion felt over the 11 days with depletion as outcome.

A multiple linear regression was conducted with age and gender as control variables, and the frequency of compassion experienced today as a predictor of interest on self-efficacy. Model 3 includes only age and gender as control variables while model 4 additionally includes frequency of compassion. In model 4, the frequency of compassion experienced today was positively related to self-efficacy, though this relationship is only marginally significant (B = 0.25, SE = 0.15, t = 1.71, p = .09, R_{change}^2 = .04, F_{change} (1,68) = 2.92, p = .09). In both models, no age and gender effects were observed. When participants report higher frequency of compassion felt today, they also report feeling more self-efficacy, controlling for their age and gender. This exploratory analysis is consistent with Hypothesis 2.

A multiple linear regression was conducted with age and gender as control variables, and the frequency of compassion experienced *yesterday* as a predictor of interest on mixed emotion. This differs from the previous 4 models which test the relationship between frequency of compassion experienced *today* with outcomes (e.g. depletion and self-efficacy). The reason for this is that mixed emotion is conceptualized as a distal temporal effect of compassion towards stress recovery, as described in chapter 5.5. The ability to experience mixed emotions at a later time, and not the concurrent experience of mixed emotions, is the effect of interest. Model 5 includes only age and gender as control variables while model 6 additionally includes frequency of compassion. In model 6, the frequency of compassion experienced today was not significantly related to mixed emotion (B = 0.10, SE = 0.17, t = 0.60, $p > .05$[2]). In both models, no age and gender effects were observed. The results suggest that compassion does not affect mixed emotions.

[2] p = .55

While these regression results suggest that compassion is not depleting but replenishing, these results of the pilot may be due to demand characteristics and common method error from the use of a single timed recall paradigm. Thus, they should be interpreted cautiously.

The pilot also revealed that students take on average 7 minutes to complete 36-37 items. This suggests that the 25 item scale measuring depletion should be reduced in number of items. A 10 item short form of the SSCS will be used in the actual study.

7. DAILY DIARY METHOD STUDY

7.1. Daily diary methodology

7.1.1. Participants and design

80 SMU undergraduates (36 male, *M*age = 21.1, *SD* = 1.2 years) participated in the study in exchange for course credit. One student dropped out after filling in the trait presurvey yielding a total of 571 matched morning, afternoon and evening responses out of the expected 729 from initial 81 participants who signed up (78% completed). Only matched responses were used so there were no missing data issues in the multilevel analyses. For the linear regression analyses using lagged variables, *N*s vary due to missing next day data.

Participants first completed a trait measure presurvey which include previously discussed controls that affect compassion such as trait measures of empathy, compassion, self-compassion affectivity, mindfulness, attachment style and controls that affect resources and stress recovery such as trait resilience, perceived social support, as well as demographic variables such as gender, age, measures of social economic status. Then approximately four days later, they started the daily surveys which consisted of short surveys three times a day over nine days. Daily surveys contain repeated measures of shortened scales and were kept to a duration of 5-7 minutes as recommended by Fraley and Hudson (2014) as well as Ohly, Sonnentag, Niessen, and Zapf (2010) on the diary method.

In the morning, participants were asked to self-report daily control variables such as the hours slept and the quality of sleep last night. They also reported that their state vitality. Participants could only answer this survey daily from 9-11am.

During the middle of the day, participants were asked to self-report whether they felt compassion in the first half of their day and to briefly describe the incident(s) (similar to the pilot), as well as any compassionate behaviours shown in that incident. They were given a maximum of 8 compassion episodes to report. Then, for each episode, they were asked to rate their self-coping ability and perceived constraints to behaviour during the compassion episode. They were also asked to rate a number of measures on how they feel in the past hour. These measures included: depletion (as assessed by a state self-control scale) , personal resources such as prosocial impact and self-efficacy, as well as state measures stress and 2affect. Participants could only answer this survey daily from 3-5pm.

At the end of the day, participants provided responses to the same questions asked in the middle of the day survey with the time frame for compassion between the last survey and end of the day and measures of depletion, personal resources and state stress and affect for the past hour. In addition, they rated their co-activation of positive and negative affect during their waking hours, as well as rate how stressful their most stressful event in the day was. Participants could only answer this survey daily from 9-11pm. See Figure 2 for an illustration of the daily survey schedule. All scales are listed in full in Appendix B.

7.1.2 Presurvey measures

Trait measures. Trait empathy. Empathy was assessed by the multidimensional 28 item Interpersonal Reactivity Index (IRI; Davis, 1983). This scale consists of subscales of empathic concern, fantasy, perspective taking and personal distress, with each subscale consisting of 7 items each. Sample items for the empathic concern subscale are “I often have tender, concerned feelings for people less fortunate than me” and “Sometimes I don't feel very sorry for other people when they are having problems” (reverse coded). Sample items for the fantasy subscale are “I daydream and fantasize, with some regularity, about things that might happen to me” and “Becoming extremely involved in a good book or movie is somewhat rare for me” (reverse coded). Sample items for the personal distress subscale are “In emergency situations, I feel apprehensive and ill-at-ease” and “I am usually pretty effective in dealing with emergencies” (reverse coded). Sample items for the perspective taking subscale are “I try to look at everybody's side of a disagreement before I make a decision” and “I sometimes find it difficult to see things from the "other guy's" point of view” (reverse coded). Items were rated on a scale from 0 = “does not describe me well” to 4 = “describes me very well”. Subscale scores were obtained by summing responses of items for each subscale. The cronbach’s alphas for these subscales were .74, .79, .78 and .67 for empathic concern, fantasy, personal distress and perspective taking respectively. These reliability measures were based on between person calculations.

Trait compassion. Compassion was assessed by the 5 item Dispositional Positive Emotion Scales (DPES) compassion subscale (Shiota, Keltner, & John, 2006). Sample items are “I am a very compassionate person” and “I often notice people who need help”; items were rated on a scale from 1 = “strongly disagree” to 7 = “strongly agree”. The cronbach’s

alphas for this scale was .86. This reliability measure was based on between person calculations.

Trait affectivity. Affectivity was assessed by the Positive and Negative Affectivity Schedule (PANAS; (Watson et al., 1999), temporally anchored to how participants feel in general. Positive affectivity (PA) was measured using the following 10 items: *attentive, alert, determined, excited, enthusiastic, strong, proud, inspired, active,* and *interested.* Negative affectivity (NA) was measured using the following 10 items: *afraid, nervous, jittery, scared, guilty, ashamed, irritable, hostile, upset,* and *distressed.* Items were rated on a scale from 1 = "very slightly or not at all" to 7 = "extremely". The cronbach's alphas was .88 for the PA subscale and .91 for the NA subscale. These reliability measures were based on between person calculations.

Trait mindfulness. Mindfulness was assessed by the 24 item Five Facet Mindfulness Questionnaire Short Form (FFMQSF; Bohlmeijer, ten Klooster, Fledderus, Veehof, & Baer, 2011). This scale consists of five subdimensions: attentional awareness, describing, non-judging, non-reactance and observing. All subscales consist of 5 items, with the exception of observing subscale which has 4 items. Sample items for the attentional awareness subscale are "I find it difficult to stay focused on what's happening in the present moment" and "It seems I am 'running on automatic' without much awareness of what I'm doing" (All items in this subscale are reverse coded). Sample items for the describing subscale are "I'm good at finding the words to describe my feelings" and "When I feel something in my body, it's hard for me to find the right words to describe it" (reverse coded). Sample items for the non-judging subscale are "I tell myself that I shouldn't be feeling the way I'm feeling" and "I make judgments about whether my thoughts are good or bad" (All items in this subscale are reverse coded). Sample items for the non-reactance subscale are "Usually when I have distressing thoughts or images I can just notice them without reacting" and "I watch my

feelings without getting carried away by them". Sample items for the observing subscale are "I pay attention to physical experiences, such as the wind in my hair or sun on my face" and "Generally, I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing". All items in the FFMQSF were rated on a scale from 1= "never or rarely true" to 5 = "very often or always true". The cronbach's alpha were .86, .80, .71, .77, .69 for the attentional awareness, describing, non-judging, non-reactance and observing. The overall alpha for the FFMQSF is .81. These reliability measures were based on between person calculations.

Trait resilience. Trait resilience was assessed by the 10 item Connor–Davidson Resilience Scale (Connor & Davidson, 2003). Sample items are "I am able to adapt to change" and "I can deal with whatever comes"; items were rated on a scale from 1 = "strongly agree" to 7 = "strongly disagree". The cronbach's alpha for this scale was .90. This reliability measure was based on between person calculations.

Trait self-compassion. Trait self-compassion was assessed by the 26 item Self-Compassion Scale (Neff, 2003). This scale consisted of several subscales: *common humanity*, *isolation, mindfulness, over-identified, self-judgement,* and *self-kindness*. These six subscales represent three main components which poles of compassionate versus uncompassionate behaviour: a sense of common humanity versus isolation, mindfulness versus over-identification and self-kindness versus self-judgment. Common humanity refers to the tendency to recognize the shared human experience, understanding that all humans fail and make mistakes, that all people lead imperfect lives. Self-isolation in contrast refers to the tendency to feel isolated by one's imperfection, feeling as if one is the only being suffering. Mindfulness refers to the tendency to be aware of one's present moment experience of suffering with clarity and balance, whereas over-identification refers to the tendency to be caught up in an exaggerated storyline about negative aspects of oneself or one's life experience. Self-kindness refers to the tendency to be gentle, supportive, and understanding

toward oneself whereas self-judgment refers to the tendency to harshly judge oneself for personal shortcomings. All subscales consisted of 4 items, with the exception of the self-judgment and self-kindness scales which consisted of 5 items. Sample items for the common humanity subscale are “When things are going badly for me, I see the difficulties as part of life that everyone goes through” and “When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am”. Sample items for the isolation subscale are “When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world” and “When I’m feeling down, I tend to feel like most other people are probably happier than I am”. (All items in this scale are reverse coded). Sample items for the mindfulness subscale are “When something upsets me I try to keep my emotions in balance” and “When something painful happens I try to take a balanced view of the situation”. Sample items for the over-identified subscale are “When I’m feeling down I tend to obsess and fixate on everything that’s wrong” and “When I fail at something important to me I become consumed by feelings of inadequacy”. Sample items for the self-kindness scale are “When I’m going through a very hard time, I give myself the caring and tenderness I need” and “I’m kind to myself when I’m experiencing suffering”. Sample items for the self-judgment subscale are “I’m intolerant and impatient towards those aspects of my personality I don't like” and “When times are really difficult, I tend to be tough on myself”. Items were rated on a scale from 1 = “almost never” to 5 = “almost always”. The cronbach’s alpha are .75, .80, .77, .80, .81, .85 and .89 for the common humanity subscale, isolation subscale, mindfulness subscale, over-identified subscale, self-judgment subscale, self-kindness subscale and the overall scale respectively. These reliability measures were based on between person calculations.

Perceived social support. Social support was measured using the 12 item version of the Interpersonal Support Evaluation List (Cohen, Mermelstein, Kamarck, & Hoberman,

1985). Sample items are “There is someone I can turn to for advice about handling problems with my family” and “If I wanted to have lunch with someone, I could easily find someone to join me”; items were rated on a scale from 1 = “definitely false” to 4 = “definitely true”. The cronbach’s alpha for this scale was .77. This reliability measure was based on between person calculations.

Demographic variables. Demographics of interest were: gender, age, measures of social economic status. To assess social economic status, participants were asked to self-report their family’s total gross household monthly income per capita. To minimize the sensitivity of the question, participants selected from a range, rather than report exact amounts. Categories included: 1) under $1,500; 2) $1,500 - $2,499; 3) $2,500 - $3,499; 4) $3,500 - $4,499; 5) $4,500 and above.

7.1.3 Daily measures

Daily scales. *Sleep quantity* and *sleep quality*. Sleep quantity was assessed by asking participants to report the time at which they slept and woke up. Sleep quality was assessed using an adapted daily 4 item Jenkins Sleep Questionnaire (JSQ; Jenkins, Stanton, Niemcryk, & Rose, 1988). Participants were asked if they experienced the following symptoms last night: *difficulty falling asleep, waking up, difficulty staying asleep (including waking up too early and waking up feeling tired* and *worn out after usual amount of sleep.* Items were rated either 0 = no or 1 = yes. A score was computed based on the sum of responses to these 4 items.

Vitality. Vitality was assessed using a 7 item state level Subjective Vitality Scale (Bostic, Rubio, & Hood, 2000). Sample items are "At this moment, I feel alive and vital" and "I don't feel very energetic right now" (reverse coded); items were rated on a scale from 1 = "strongly disagree" to 7 = "strongly agree". The cronbachs alpha was .80. This reliability measure was based on day-person values (i.e. $N = 571$).

Compassion feelings and compassionate behaviour. Compassion feelings and compassionate behaviour were assessed using a combination of multiple choice and open ended questions. Participants were provided with a definition of compassion and asked to indicate if they felt it in the first/last half of the day and how frequently they felt it during the specified time period. Then they were asked to provide a short description of the incidents that elicited compassion as well as report on the resulting behaviours if any for each incident. Based on the pilot, up to 8 spaces were provided for participants to describe each instance that elicited compassion. Thus if participants did not report feeling any compassion for the half-day, then behaviours were coded as none and not missing. From these measures, frequencies of *morning felt compassion, afternoon felt compassion, morning compassion*

behaviours, afternoon compassion behaviours were collected. From these, a composite measure of *day felt compassion* – sum of morning felt and afternoon felt compassion – and *day compassion behaviours* – sum of morning compassion behaviours and afternoon compassion behaviours – were formed. In addition, participants were asked to indicate whether felt compassion they listed occurred in the past hour. This allowed a measure of frequencies of *felt compassion in the past hour throughout the morning, felt compassion in the past hour throughout the afternoon,* and *felt compassion in the past hour throughout the day.* See Appendix B for the exact survey questions and formatting.

Perceived ability and constraints towards compassion action. *Perceived ability towards compassion action* was assessed using averaged daily responses to the following item: "To what extent did you feel you had the ability to help the person/living thing who was suffering?" and *perceived constraints towards compassion action* was assessed using averaged daily responses to the following item: "To what extent did you perceive constraints to helping the person/living thing who was suffering?" on a 7-point scale (1 = not at all, 7 = extremely). These questions were only asked for each incident the participant listed. Thus if participants did not report feeling and compassion for the half-day, this measure was coded as 1 (or 7 for constraints). From these items, *morning perceived ability towards compassion action, morning perceived constraints towards compassion action, afternoon perceived ability towards compassion action* and *afternoon constraints to compassion action* were measured. Similar to felt compassion and compassion behaviour measures, a composite measure of *day perceived ability and day constraints to compassion action* were also formed. Due to the scale consisting only of two items, the Spearman-Brown rho, a more appropriate reliability coefficient to report for a two-item scale (Eisinga, Grotenhuis, & Pelzer, 2013), is

reported here. Although the Spearman-rho statistics[3] for afternoon and evening composite measure was weak (rho = .37 and .55 respectively), a composite two-item measure of constraints was formed.

Depletion. A 10 item short form of the State Self-control Capacity Scale (SSCS; Ciarocco, Twenge, Muraven, & Tice, 2007) was used to assess regulatory resources. Participants were asked to rate the extent to which they agreed with items on how they felt "during the past hour". Sample items include "I felt drained" and "I felt sharp and focused" (reverse coded); items were rated on a scale from 1 = "strongly disagree" to 7 = "strongly agree". The cronbach's alphas for this scale were both .92 for afternoon and evening depletion.

Perceived prosocial impact. A 3 item measure was adapted from Grant (2008b) to assess prosocial impact and anchored in the past hour. Participants were asked to rate the extent to which they agreed with the items on how they felt "during the past hour". The items are "I was very conscious of the positive impact that my actions had on others", "I was very aware of the ways in which my actions were benefiting others", and "I felt that I could have a positive impact on others through my actions"; items were rated on a scale of 1 = "strongly disagree" to 5 = "strongly agree". The cronbach's alphas for this scale were .95 and .94 for afternoon and evening perceived prosocial impact.

Self-efficacy. Self-efficacy was assessed by the 8 item New Generalized Self-efficacy Scale (Chen, Gully, & Eden, 2001). Participants were asked to rate the extent to which they agreed with items on how they felt "during the past hour". Sample items include "I felt I will be able to achieve most of the goals that I have set for myself" and "I felt certain, when facing difficult tasks, that I will accomplish them"; items were rated on a scale from 1 =

[3] This was calculated based only off person-day cases where participants indicated they felt compassion. *N* = 112 for morning and *N* = 95 for afternoon composite measures.

"strongly disagree" to 5 = "strongly agree". The cronbach's alphas for this scale were both .95 for afternoon and evening self-efficacy.

Perceived stress. Stress was assessed by the 4 item Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983). Participants were asked to rate the extent to which they agreed with items on how they felt "during the past hour". Sample items include "I felt I was unable to control the important things in my life" and "I felt that things were going my way" (reverse coded); items were rated on a scale from 1 = "strongly disagree" to 5 = "strongly agree". The cronbach's alphas for this scale were .74 and .78 for afternoon and evening perceived stress respectively.

State affect. State positive and negative affect was assessed with 12 items (Bledow, Schmitt, Frese, & Kühnel, 2011). Participants were asked to rate the extent to which they felt "during the past hour". Positive affect was assessed with the following items: *proud, enjoying, happy, optimistic, content,* and *enthusiastic*. Negative affect was assessed with following items: *depressed, angry, unhappy, frustrated, disappointed*, and *worried*; items were rated on a scale from 1 = "very slightly or not at all" to 5 = "extremely". The cronbach's alphas for the subscales were .93 for afternoon and evening positive affect, as well as for afternoon and evening negative affect

Co-activation of positive and negative affect. Co-activation was assessed using a 4 item adapted mixed emotion scale (Beal & Ghandour, 2011). Participants were asked to rate the extent to which they "experienced mixed emotions - that is feeling both positive and negative emotions - in the entire day today". Sample items are "I felt a mixture of both positive and negative emotions" and "I felt a combination of different positive and negative emotions at the time"; items were rated on a scale from 1 = "not at all" to 5 = "very much". The cronbach's alphas for this scale was .92.

Stress. Stress was measured by a single item on the most stressful event of the day and then having participants rate their perceptions of how stressful the event was on a 5-point scale, ranging from 1 = "not very stressful" to 5 = "very stressful". This measure was adapted from Ong, Bergeman, Bisconti, and Wallace (2006).

7.2 Daily diary method results

7.2.1 Frequencies of compassion

The average number of days that compassion was felt was 1.73 (*SD* = 1.44) out of nine days. On average, participants also reported feeling compassion 0.36 times a day (SD= 0.35) (or 2.54times (*SD* = 2.32) over the nine days). Participants also reported an average of 0.16 (*SD* = .25) compassionate behaviours a day. These descriptive statistics corroborate with the pilot data that compassion is a relatively infrequently experienced emotion and that feelings of compassion do not always result in compassionate behaviours. Morning felt compassion was significantly and positively correlated to afternoon felt compassion (r = .16, p < . 01). This suggests that on days that compassion is felt in the morning, compassion is also likely to be felt in the afternoon. Table 5 displays the means, standard deviations, and correlations among the measured variables.

Further, the number of days (out of 571 days across 80 persons) during which morning felt compassion reported was reported totalled 86 and the number of days during which afternoon felt compassion was reported totalled 77. In sum, the number of days during which felt compassion was reported (i.e. participants reported feeling compassion at least once throughout the day) totalled 139. One participant reported feeling compassion up to 20 times during one evening survey. Given that the survey format only allowed follow-up questions up to eight events, the frequency of afternoon felt compassion was thus recoded as 8 for the purpose of the analyses. See Table 6 for the frequencies of felt compassion reported for the subsample of person-days during which felt compassion was reported.

7.2.2 Exploring the between and within individual predictors of compassion

Although not formally hypothesized, I present here some analyses showing which between individual and within individual variables which predict frequency of compassion. First, I examine between individual predictors of between individual differences in compassion. Then, I also examine some within individual predictors of within individual differences in compassion.

Multiple linear regressions were conducted to examine the effect of between individual level predictors of between individual day felt compassion (e.g. average of day felt compassion over nine days). All predictors, except gender which was dummy coded as female = 0 or 1, were centered. In model 1, only demographic variables were entered. In model 2, all between individual (e.g. level 2) predictors were entered. In model 3, the most parsimonious model controlling for demographic variables is presented. The results of model 3 show that perceived social support (B = 0.13, SE = 0.06, t = 2.23, $p < .05$), and self-compassion mindfulness subdimension (B = 0.29, SE = 0.09, t = 3.38, $p < .01$) positively predict day felt compassion, whereas resilience (B = -0.18, SE = 0.05, t = -3.53, $p < .01$) negatively predicts day felt compassion, after controlling for demographic variables such as age, gender and social economic status. Participants who reported higher perceived social support in the presurvey tended to experience on average higher daily felt compassion than participants who reported lower perceived social support. This is consistent with a resource perspective of compassion, such that if resources are depleted by feelings of compassion, then those who are more likely to feel compassion should have more resources, and one source of resources is social support. Participants who reported higher trait self-compassionate mindfulness in the presurvey tended to experience on average higher daily felt compassion than participants who reported lower self-compassionate mindfulness. This is

consistent with the emotion downregulation argument given that the items of self-compassionate mindfulness are specifically referring to reactions to unpleasant emotions (e.g. "When something upsets me I try to keep my emotions in balance", "When something painful happens I try to take a balanced view of the situation", etc.). Although one would expect the FFMQ non-reactance and IRI personal distress subscales to also predict felt compassion in line with the emotional downregulation perspective, it can be argued that non-reactance and personal distress refer to not being affected by distressing stimuli in the first place. Participants who reported lower resilience in the presurvey tended to experience on average higher daily felt compassion than participants who reported higher resilience, suggesting that people who are resilient feel less compassion for others. Interestingly, self-reported measures of empathic concern and dispositional positive feelings of compassion, did not predict average daily felt compassion; in other words, trait compassion did not predict state compassion, suggesting that the experience of felt compassion have some important contextual moderators. Table 7 provides a summary of linear regression models of compassion on between individual predictors.

Multiple linear regressions were conducted to examine the effect of between individual level predictors of between individual day compassion behaviours (e.g. average of day compassion behaviours over nine days). Predictors were centered and dummy coded similar in models 1 – 3. In model 4, only demographic variables were entered. In model 5, all between individual (e.g. level 2) predictors were entered. In model 6, the most parsimonious model controlling for demographic variables is presented. The results of model 6 show that age (B = -0.09, SE = 0.03, t = -2.82, $p < .01$) and gender (B = -0.23, SE = 0.08, t = -3.05, $p < .01$) negatively predict average daily compassion behaviours. Younger participants were more likely than older participants to enact compassionate behaviours, though extrapolation to the population is strongly cautioned against due to a narrow age range of the sample. Male

participants were more likely to enact compassionate behaviours than females. The results of model 6 also show that perceived social support (B = 0.16, SE = 0.06, t = 2.56, p < .05), and self-compassion mindfulness subdimension (B = 0.09, SE = 0.04, t =2.05, p < .05) positively predict day compassion behaviours, whereas resilience (B = -0.09, SE = 0.04, t = -2.48, p < .05) negatively predicts day compassion behaviours, after controlling for demographic variables such as age, gender and social economic status. Participants who reported higher perceived social support in the presurvey tended to enact on average higher daily compassion behaviours than participants who reported lower perceived social support. Participants who reported higher trait self-compassionate mindfulness in the presurvey tended to enact on average higher daily compassion behaviours than participants who reported lower self-compassionate mindfulness. Participants who reported lower resilience in the presurvey tended to enact on average higher daily compassion behaviours than participants who reported higher resilience, suggesting that people who are resilient feel less compassion for others.

The within-individual variance of day felt compassion and day compassion behaviours were examined via the results of null models via multilevel modelling (Raudenbush & Bryk, 2002) in MPLUS version 7.4 (Muthén & Muthén, 2015). Null models are used to estimate the within- and between-person variance in level 1 variables. The percentage of within-individual variance of day felt compassion and day compassion behaviours was high, 99% and 65% respectively (see Table 8).

To examine the within level predictors of day felt compassion, the following model 1 was tested. Only morning measured variables – amount of sleep in the last night, quality of sleep and state vitality – were entered into the multilevel model as level 1 predictors, because the other daily measures are co-occurring with day compassion measures. To account for time trends, study day was also controlled for in the model (Sonnentag & Starzyk, 2015) and

was entered uncentered. The model also contained the established between persons sources of variation from the linear regression analyses above, namely measures of perceived social support, resilience and self-compassionate mindfulness as level 2 predictors. In addition, the effects were modelled with level 1 predictors having fixed slopes and level 2 predictors also having fixed effects because there is no substantive reason why there would be cross level interactions and even when random effects were modelled none were found. All level 1 variables were centered at participants' means (e.g., group mean centering), whereas the level 2 variables were grand-mean centered, in accordance with recommendations by Hofmann, Griffin, and Gavin (2000). Group mean centering, or centering at participants' means, removes effects of between-person confounds from level 1 variables and such that the results of the multilevel regression show the relations among level 1 day variables more clearly (Raudenbush & Bryk, 2002).

The results of the multilevel analyses were consistent with the between persons analyses that level 2 predictors of individual predictors resilience and perceived social support predicted day felt compassion (summarized in Table 9). Resilience was negatively related to day felt compassion (B = -0.14, SE = 0.05, t = -2.50, p < .05) while perceived social support was positively related to day felt compassion (B = 0.20, SE = 0.10, t = 2.05, p < .05). Self-compassionate mindfulness failed to predict day felt compassion in the multilevel analysis (B = *0.08*, SE = 0.05, t = 1.60, p > .05). At within-individual, the quantity of sleep (B = 0.001, SE = 0.0001, t = 2.26, p < .05) was positively related day felt compassion, while days was negatively related to day felt compassion (B = *-0.11*, SE = 0.02, t = -7.64, p < .001). A second model, model 2, was also run without self-compassionate mindfulness, sleep quality and morning vitality as predictors, results mirror that of the previous model. Resilience was negatively related to day felt compassion (B = -0.10, SE = 0.04, t = -2.29, p < .05) while perceived social support was positively related to day felt compassion (B = 0.20,

SE = 0.10, *t* = 2.13, *p* < .05). At within-individual, the quantity of sleep (*B* = 0.001, *SE* = 0.0001, *t* = 2.38, *p* < .05) was positively related day felt compassion, while days was negatively related to day felt compassion (*B* = *-0.11*, *SE* = 0.02, *t* = -7.754, *p* < .001).Table 9 shows the results of these models in full. These results suggest that sleep quantity is an important predictor of day felt compassion, that is on days that participants have gotten more sleep than usual, they are more likely to feel compassion for others. This is again, consistent with a resource perspective. The results also show that participants report less day felt compassion with each passing day of the study and this result suggests there may be some artefacts of the daily diary method. For example, they may have found this format increasingly fatiguing and chose to report not feeling compassion.

To examine the within level predictors of day compassion behaviour, the following model 3 was tested. Similar to model 1, only morning measured variables – amount of sleep in the last night, quality of sleep and state vitality – and uncentered study day were entered into the multilevel model as level 1 predictors with fixed effects. Level 2 predictors included measures of perceived social support, resilience and self-compassionate mindfulness and were modelled as having fixed effects. All level 1 variables were centered at participants' means (e.g., group mean centering), and all level 2 variables were grand-mean centered. Results of this analysis show that the within-individual day compassion behaviours is negatively predicted by study day (*B* = -0.03, *SE* = 0.01, *t* = -5.23, *p* < . 001). Between-individual day compassion behaviour is positively predicted by perceived social support (*B* = 0.09, *SE* = 0.04, *t* = 2.12, *p* < . 05) and self-compassionate mindfulness (*B* = 0.05, *SE* = 0.02, *t* = 2.25, *p* < . 05) while negatively predicted by resilience (*B* = -0.07, *SE* = 0.03, *t* = -2.83, *p* < . 01). An additional model, model 4, was also run without sleep quality and morning vitality as predictors, results mirror that of the previous model. Perceived social support was positively related to day compassion behaviour (*B* = 0.09, *SE* = 0.04, *t* = 2.12, *p* < .05),

self-compassionate mindfulness was also positively related to day compassion behaviour (*B* = 0.05, *SE* = 0.02, *t* = 2.25, *p* < .05). . Resilience was negatively related to day compassion behaviour (*B* = -0.07, *SE* = 0.04, *t* = -2.83, *p* < .01) Table 9 shows the results of these models in full.

In addition, these residual within-individual variances in models 2 and 4 were significantly different from 0 (*B*s = 0.59 and 0.10, *SE*s = 0.13 and 0.01, *t*s = 4.29 and 6.88, respectively, *p*s < .001), suggesting that there is considerable variation in within-individual differences in daily compassion experiences that remains unexplained.

7.2.2 Testing H1: At its incidence, compassion reduces regulatory resources (increases depletion)

Attesting to the multilevel nature of the data, adequate variance in afternoon depletion, 57% and evening depletion 53% was attributable to within person variation (see Table 8 for within and between variance partition). For this reason, hypothesis 1 was tested via multilevel modelling in Mplus 7.4 (Muthén & Muthén, 2015).

To test hypothesis 1, the following analyses were conducted: 1) the main effects of morning felt compassion on afternoon depletion, 2) the main effects of afternoon felt compassion on evening depletion, and 3) main effects of day felt compassion on evening depletion. To control for between-person effects, level 1 predictors were person-mean centered. To account for likely time trends, study day was controlled for in the model, but not centered. All level 1 predictors of substantive interest were modelled as having random slopes. See Table 10 for a summary of results.

The main effects of morning felt compassion on afternoon depletion was modelled. In addition, because morning vitality was correlated with afternoon depletion (r = -.25, p < .01), and this was measured at a time prior to the compassion measures, morning vitality was also entered as a control variable. Results indicated that there was no statistically significant relationship between morning felt compassion and afternoon depletion (B = 0.08, p > .05). There was also no significant relationship between morning vitality and afternoon depletion (B = -0.14, p > .05), as well as study day and afternoon depletion (B = -0.03, p > .05). The results of this analysis did not support H1.

An additional analysis of the main effects of morning felt compassion on afternoon depletion was modelled without vitality as a control. Similarly to the model above, there was

no effects of morning felt compassion on afternoon depletion (B = 0.08, p > .05). Study day had no significant relationship with afternoon depletion (B = -0.03, p > .05).

To further test hypothesis 1, the main effects of afternoon felt compassion on evening depletion was also modelled. Similar to above study day was also controlled for. However, instead of vitality, afternoon depletion, which was moderately correlated to evening depletion (r = -.47, p < .01) and measured at a time prior to the compassion measures, was thus used as a control variable. Results indicated that there was no statistically significant relationship between afternoon felt compassion and evening depletion (B = 0.06, p > 05). Results indicated that there was a statistically significant relationship between afternoon depletion and evening depletion (B = 0.29, SE = 0.05, t = 6.16, p < .001) and a marginally significant relationship between study day and evening depletion (B = -0.03, SE = 0.02, t = -1.90, p = .058). The results of this analysis did not support H1.

An additional analysis of the main effects of afternoon felt compassion on evening depletion was modelled without afternoon depletion as a control. Similarly to the model above, there were no significant effects of afternoon felt compassion on evening depletion (B = 0.06, p > .05). There was however a significant effect of study day on evening depletion (B = -0.04, SE = 0.02, t = -2.20, p < .05). The results of this analysis did not support H1.

Finally, the main effects of day felt compassion on evening depletion was also modelled with similar controls as above (e.g. study day). However, instead of afternoon depletion, morning vitality was used as a control variable because it was correlated to evening depletion (r = -.23, p < .01) and was measured at a time prior to the compassion measures. Results indicated that there was no statistically significant relationship between day felt compassion and evening depletion (B = -.004, p > .05). Results indicated that there was a statistically significant relationship between morning vitality and evening depletion (B

= -0.13, *SE* = 0.05, *t* = -2.48, *p* < .05) and a significant relationship between study day and evening depletion (*B* = -0.05, *SE* = 0.02, *t* = -2.41, *p* < .05). The results of this analysis did not support H1.

An additional analysis of the main effects of day felt compassion on evening depletion was modelled without morning vitality as a control. Similarly to the model above, there were no significant effects of afternoon felt compassion on evening depletion (*B* = -0.004, *p* > .05). There was however a significant effect of study day on evening depletion (*B* = -0.04, *SE* = 0.02, *t* = -2.14, *p* < .05). The results of this analysis did not support H1.

Further analyses were performed to examine if felt compassion in the past hour had an effect on depletion. This constitutes a stricter test of hypothesis 1 which implies temporal proximity to feeling compassion leads to depletion. To test hypothesis 1, the following separate analyses were conducted: 1) the main effects of morning felt compassion in the past hour on afternoon depletion and 2) the main effects of evening felt compassion in the past hour compassion on evening depletion. The summary of these results can be found in Table 11.

The main effects of morning felt compassion in the past hour on afternoon depletion was modelled. In addition, because morning vitality was correlated with afternoon depletion (*r* = -.25, *p* < .01), and this was measured at a time prior to the compassion measures, morning vitality was also entered as a control variable. Results indicated that there was a marginally significant relationship between morning felt compassion in the past hour and afternoon depletion (*B* = 0.95, *SE* = 0.53, *t* = 1.81, *p* = .07). There was also a significant relationship between morning vitality and afternoon depletion (*B* = -0.21, *SE* = 0.06, *t* = -3.61, *p* < .001), but no significant relationship between study day and afternoon depletion (*B* = -0.03, *p* > .05). The results of this analysis did not support H1.

An additional analysis of the main effects of morning felt compassion in the past hour on afternoon depletion was modelled without vitality as a control. Similarly to the model above, there was no effects of morning felt compassion in the past hour on afternoon depletion (B = 0.81, p > .05). Study day had no significant relationship with afternoon depletion (B = -0.03, p > .05).

To further test hypothesis 1, the main effects of afternoon felt compassion in the past hour on evening depletion was also modelled. Similar to above study day was also controlled for. However, instead of vitality, afternoon depletion, which was moderately correlated to evening depletion (r = -.47, p < .01) and measured at a time prior to the compassion measures, was thus used as a control variable. Results indicated that there was no statistically significant relationship between afternoon felt compassion in the past and evening depletion (B = 0.07, p > 05). Results indicated that there was a statistically significant relationship between afternoon depletion and evening depletion (B = 0.29, SE = 0.05, t = 6.15, p < .001) and a marginally significant relationship between study day and evening depletion (B = -0.03, SE = 0.02, t = -1.76, p = .078). The results of this analysis did not support H1.

An additional analysis of the main effects of afternoon felt compassion in the past on evening depletion was modelled without afternoon depletion as a control. Similarly to the model above, there were no significant effects of afternoon felt compassion in the past on evening depletion (B = 0.64, p > .05). There was no significant effect of study day on evening depletion (B = -0.04, p > .05). The results of this analysis did not support H1.

In sum, hypothesis 1 does not seem to be supported given that the relationships between compassion and depletion at different times of day with corresponding controls were not statistically significant.

7.2.3 Testing H2: Compassion should lead to behaviours that relieve suffering of others.

To control for between-person effects, level 1 predictors were person-mean centered. To account for likely time trends, study day was controlled for in the model, but not centered. Level 1 predictors were modelled as having random slopes as individual differences are expected in how felt compassion translates to compassion behaviour.

To test hypotheses 2, the main effects of felt compassion on compassion behaviour were analysed for 1) morning compassion, 2) afternoon compassion and 3) day compassion. These analyses are summarized in Table 12. In addition, because compassion behaviour was imputed as zero when participants reported not feeling any compassion that morning, testing the entire sample of 571 days over 80 people would overestimate the relationship between felt compassion and compassion behaviour due to the large number of 0-0 imputations of felt compassion and compassion behaviour. Thus, hypothesis 2 was also tested based on analyses of the subsample consisting only of participants who reported feeling compassion (i.e. N = 86, N = 77, N = 139).

The main effects of morning felt compassion on morning compassion behaviour was modelled as a random slope with additional level 1fixed effect predictor of study day. In the sample of 571 days, morning felt compassion positively and significantly predicted morning compassion behaviour (B = 0.42, SE = 0.06, t = 7.47, p < .001). Study day did not significantly predict morning compassion behaviours (B = 0.00, p > .05). Results of the analysis also indicated that there was significant variance of the effect of felt compassion on compassion behaviours (B = 0.15, SE = 0.02, t = 6.92, p < .001), suggesting that there may be reliable individual differences in the relationship between felt compassion on compassion

behaviours left unexplained. Further analyses exploring these individual differences, trait variables were examined as possible cross-level moderators of the morning feeling-behaviour slopes. Of note, only perceived social support had a significant cross-level moderation effect (B = 0.24, SE = 0.11, t = 2.06, $p < .05$). Simple slopes tests revealed that the slope for low perceived social support (-1*SD*) was 0.09, 95% CI [-0.15, 0.33] and not significant, while the slope for high perceived social support (+1*SD*) was 0.56, 95% CI [0.30, 0.82] and significant. In other words, for people with high perceived social support, felt compassion is more strongly associated with compassionate behaviour, compared to people with low perceived social support where felt compassion is less strongly associated with compassionate behaviour.

The main effects of morning felt compassion on morning compassion behaviour was modelled as a random slope with additional level 1fixed effect predictor of study day. In the sample of 86 days, morning felt compassion was not significantly related to morning compassion behaviour (B = 0.09, $p > .05$). Study day did not significantly predict morning compassion behaviours (B = -0.04, $p > .05$). Results of the analysis also indicated that there was no significant variance of the effect of felt compassion on compassion behaviours (B = 0.06, $p > .05$), suggesting that there are no reliable individual differences in the relationship between felt compassion on compassion behaviours left unexplained. Further analyses exploring these individual differences were not conducted. An additional analysis with felt compassion modelled as a fixed effect was conducted, and in this model morning felt compassion similarly did not predict morning compassion behaviour (B = 0.18, $p > .05$). Hypothesis 2 not supported.

The main effects of afternoon felt compassion on afternoon compassion behaviour was modelled as a random slope with additional level 1fixed effect predictor of study day. In the sample of 571 days, afternoon felt compassion positively and significantly predicted

afternoon compassion behaviour (B = 0.35, SE = 0.06, t = 5.62, p < .001). Study day did not significantly predict afternoon compassion behaviours (B = 0.00, p > .05). Results of the analysis also indicated that there was significant variance of the effect of felt compassion on compassion behaviours (B = 0.17, SE = 0.02, t = 7.31, p < .001), suggesting that there may be reliable individual differences in the relationship between felt compassion on compassion behaviours left unexplained. Further analyses exploring these individual differences, trait variables were examined as possible cross-level moderators of the afternoon feeling-behaviour slopes. Of note, self-compassion isolation had a significant cross-level moderation effect (B = 0.13, SE = 0.06, t = 2.27, p < .05). Simple slopes tests revealed that the slope for low self-compassion isolation (-1SD) was 0.13, 95% CI [-0.03, 0.28] and not significant, while the slope for high self-compassion isolation (+1SD) was 0.41, 95% CI [0.23, 0.56] and significant. In other words for people with high self-compassion isolation (e.g. a negative pole of self-compassion), felt compassion is more strongly associated with compassionate behaviour.

The main effects of afternoon felt compassion on afternoon compassion behaviour was modelled as a random slope with additional level 1fixed effect predictor of study day. In the sample of 77 days, afternoon felt compassion was not significantly related to afternoon compassion behaviour (B = 0.53, p > .05). Study day did not significantly predict morning compassion behaviours (B = 0.01, p > .05). Results of the analysis also indicated that there was no significant variance of the effect of felt compassion on compassion behaviours (B = 0.02, p > .05), suggesting that there are no reliable individual differences in the relationship between felt compassion on compassion behaviours left unexplained. Further analyses exploring these individual differences were not conducted. An additional analysis with afternoon felt compassion modelled as a fixed effect was conducted, and in this model

afternoon felt compassion was significantly and positively related to afternoon compassion behaviour (B = 0.51, SE = 0.15, t = 3.40, p < .01). Hypothesis 2 supported

The main effects of day felt compassion on day compassion behaviour was modelled as a random slope with additional level 1fixed effect predictor of study day. In the sample of 571 days, day felt compassion positively and significantly predicted day compassion behaviour (B = 0.33, SE = 0.05, t = 7.31, p < .001). Study day did not significantly predict afternoon compassion behaviours (B = 0.00, p > .05). Results of the analysis also indicated that there was significant variance of the effect of felt compassion on compassion behaviours (B = 0.17, SE = 0.02, t = 7.31, p < .001), suggesting that there may be reliable individual differences in the relationship between felt compassion on compassion behaviours left unexplained. Further analyses exploring these individual differences, trait variables were examined as possible cross-level moderators of the afternoon feeling-behaviour slopes. Of note, perceived social support had a significant cross-level moderation effect (B = 0.20, SE = 0.09, t = 2.26, p < .05). Simple slopes tests revealed that the slope for low perceived social support (-1SD) was 0.10, 95% CI [-0.09, 0.29] and not significant, while the slope for high perceived social support (+1SD) was 0.41, 95% CI [0.30, 0.66] and significant. In other words for people with high perceived social support felt compassion is more strongly associated with compassionate behaviour. Here, when self-compassion isolation was modelled as the only level 2 variable, it did not interact with the slope.

The main effects of day felt compassion on day compassion behaviour was modelled as a random slope with additional level 1fixed effect predictor of study day. In the sample of 139 days, day felt compassion was not significantly related to afternoon compassion behaviour (B = 0.11, p > .05). Study day did not significantly predict morning compassion behaviours (B = -0.02, p > .05). Results of the analysis also indicated that there was no significant variance of the effect of felt compassion on compassion behaviours (B = 0.03,

$p > .05$), suggesting that there are no reliable individual differences in the relationship between felt compassion on compassion behaviours left unexplained. Further analyses exploring these individual differences were not conducted. An additional analysis with day felt compassion modelled as a fixed effect was conducted, and in this model day felt compassion was not significantly related to afternoon compassion behaviour ($B = 0.06$, $p > .01$).

The results provide some support hypothesis 2. While including imputed values gives significant results supporting the hypothesis, including non-imputed results greatly reduces the significance of the results. Particularly, comparing only the strictest test results which come from only participants who reported feeling compassion, that there is only fixed effects of afternoon compassion on afternoon behaviours of suggests there may be some time of day differences at home compassion unfolds.

7.2.4 Testing H3: The relationship between feelings of compassion and compassionate behaviour is moderated by perceived constraints to action

To test hypothesis 3, the main effect of felt compassion, the main effect of constraints to compassionate action and the interaction effect between felt compassion and constraints to compassion action on compassion behaviour were analysed for 1) morning compassion, 2) afternoon compassion and 3) day compassion. A summary of these results can be found in Table 13. Again, similar to testing hypothesis 2, because compassion behaviour and constraints were imputed with values when participants reported not feeling any compassion that morning, testing the entire sample of 571 days over 80 people could possibly overestimate the relationship between felt compassion, constraints to compassion action and compassion behaviour due to the large number of extreme value imputations of felt compassion, constraints to compassion action and compassion behaviour. Thus, hypothesis 3 was also tested based on analyses of the subsample consisting only of participants who reported feeling compassion (i.e. N = 86, N = 77, N = 139).

The main effects of morning felt compassion, morning constraints to action and interaction effects between morning felt compassion and morning constraints to action on morning compassion behaviour were all modelled as random slopes with additional level 1fixed effect predictor of study day. In the sample of 571 days, morning felt compassion and morning constraints to action did not significantly predict morning compassion behaviour (Bs = 0.12 and -0.07 respectively, ps > .05). The interaction term between morning felt compassion and morning constraints to action was significant (B = 0.05, SE = 0.12, t = 0.44, p < . 05). Study day did not significantly predict morning compassion behaviours (B = 0.00, p > .05). Results of the analysis also indicated that there were no significant variances of the effect predictors on compassion behaviours (all Bs < 0.15, ps > .05). Variables were examined as possible cross-level moderators of the morning predictor-behaviour slopes.

Simple slopes tests revealed significance at -1.5*SD*of compassion behaviour where $B = 0.20$, $SE = 0.10$, $z = 1.97$, $p < .05$ and no significance at +1.5*SD*of compassion behaviour ($B = 0.05$, $p > .05$). Using Preacher, Curan and Bauer's (2006) recommendation and tools, a graph showing the effects of morning felt compassion on morning compassion behaviour at different levels of morning constraints was plotted, see Figure 3a. As seen in Figure 3a, these results suggest that constraints weaken the relationship between felt compassion and compassion behaviour.

The main effects of morning felt compassion, morning constraints to action and interaction effects between morning felt compassion and morning constraints to action on morning compassion behaviour were all modelled as random slopes with additional level 1fixed effect predictor of study day. In the sample of 86 days, morning felt compassion did not significantly predict morning compassion behaviour ($B = 0.21$, $p > .05$). Morning constraints to action significantly and negatively predicted morning compassion behaviour ($B = -0.16$, $SE = 0.07$, $t = -2.35$, $p < .05$). The interaction term between morning felt compassion and morning constraints to action was significant ($B = 0.11$, $SE = 0.04$, $t = -2.66$, $p < .01$). Study day did not significantly predict morning compassion behaviours ($B = -0.03$, $p > .05$). Results of the analysis also indicated that there were no significant variances of the effect predictors on compassion behaviours (Bs < 0.09, ps > .05). Results of the analysis also indicated that there were no significant variances of the effect predictors on compassion behaviours (Bs < 0.15, ps > .05). Simple slopes tests revealed significant slopes at both -1SD, $B = 0.26$, $SE = 0.08$, $Z = 3.39$, $p < .001$, and +1SD, $B = 0.16$, $SE = 0.07$, $Z = 2.20$, $p < .05$. Using Preacher, Curan and Bauer's (2006) recommendation and tools, a graph showing the effects of morning felt compassion on morning compassion behaviour at different levels of morning constraints was plotted, see Figure 3b. As seen in Figure 3b, these results suggest that constraints weaken the relationship between felt compassion and compassion behaviour.

The main effects of afternoon felt compassion, afternoon constraints to action and interaction effects between afternoon felt compassion and afternoon constraints to action on afternoon compassion behaviour were all modelled as random slopes with additional level 1fixed effect predictor of study day. In the sample of 571 days, afternoon felt compassion and afternoon constraints to action did not significantly predict afternoon compassion behaviour (*B*s = 0.35 and 0.09 respectively, *p*s > .05). The interaction term between afternoon felt compassion and afternoon constraints to action was significant (*B* = -0.22, *SE* = 0.05, *t* = -4.49, *p* < . 001). Study day did not significantly predict afternoon compassion behaviours (*B* = 0.00, *p* > .05). Results of the analysis also indicated that there were significant variances of the effect the interaction on compassion behaviours (*B* = 0.09, *SE* = 0.03, *t* = 2.74, *p* < .01). Simple slopes tests revealed significance at -3*SD*of compassion constraints where *B* = 0.47, *SE* = 0.24, *z* = 1.98, *p* < .05 and but not at +3*SD*(*B* = 0.23, *p* > .05). Using Preacher, Curan and Bauer's (2006) recommendation and tools, a graph showing the effects of afternoon felt compassion on afternoon compassion behaviour at different levels of afternoon constraints was plotted, see Figure 3c. As seen in Figure 3c, these results suggest that constraints weaken the relationship between felt compassion and compassion behaviour.

The main effects of afternoon felt compassion, afternoon constraints to action and interaction effects between afternoon felt compassion and afternoon constraints to action on afternoon compassion behaviour were all modelled as random slopes with additional level 1fixed effect predictor of study day. In the sample of 77 days, afternoon felt compassion and afternoon constraints to action significantly predicted afternoon compassion behaviour (*B* = 0.47, *SE* = 0.12, *t* = 3.79, *p* < . 001 and *B* = -0.13, *SE* = 0.05, *t* = -2.70, *p* < . 01 respectively). The interaction term between afternoon felt compassion and afternoon constraints to action was not significant (*B* = 0.01, *p* > .05). Study day did not significantly predict afternoon compassion behaviours (*B* = 0.00, *p* > .05). Results of the analysis also indicated that there

were no significant variances of the effect the interaction on compassion behaviours (*B*s < .005, *p*s > .05).

The main effects of day felt compassion, day constraints to action and interaction effects between day felt compassion and day constraints to action on day compassion behaviour were all modelled as random slopes with additional level 1fixed effect predictor of study day. In the sample of 77 days, day felt compassion did not significantly predict day compassion behaviour (*B* = .09, *p* > .05). Day constraints to compassion action significantly predicted compassion behaviour , (*B* = -0.32, *SE* = 0.10, *t* = -3.30, *p* < .01). The interaction term between day felt compassion and day constraints to action was not significant (*B* = 0.02, *p* > .05). Study day did not significantly predict day compassion behaviours (*B* = 0.00, *p* > .05). Results of the analysis also indicated that there were significant variances of the effect of predictors on compassion behaviours (*B* = 0.22, *SE* = 0.11, *t* = 2.02; *B* = 0.16, *SE* = *0.07*, *t* = 2.29; s < .005, *B* = 0.14, *SE = 0.07*, *t* = 1.98, for main effect of felt compassion, main effect of constraint of compassion action and interaction effect respectively, all *p*s < .05).

The main effects of day felt compassion, day constraints to action and interaction effects between day felt compassion and day constraints to action on day compassion behaviour were all modelled as random slopes with additional level 1fixed effect predictor of study day. In the sample of 139 days, day felt compassion did not significantly predict day compassion behaviour (*B* = -0.04, *p* > .05). Day constraints to compassion action significantly predicted compassion behaviour (*B* = -0.30, *SE* = 0.06, *t* = -5.14, *p* < .001). The interaction term between day felt compassion and day constraints to action was not significant (*B* = - 0.05, *p* > .05). Study day did not significantly predict day compassion behaviours (*B* = -0.01, *p* > .05). Results of the analysis also indicated that there were no

significant variances of the effect of predictors on compassion behaviours (*B*s > . 004, all *p*s > .05).

Taken together, these findings lend partial support to hypothesis 3. Particularly, with the stricter analyses with subsamples, morning constraints to compassion action weaken the relationship between morning felt compassion and compassion behaviour among people who feel compassion, but unreliably in afternoon felt compassion. It also seems that constraints themselves also have a direct negative effect on behaviour among people who feel compassion, regardless of time of the day.

7.2.5 Testing H4a-b: Compassionate behaviour is positively related to personal resources such as (a) perceived prosocial impact and (b) self-efficacy.

To test hypothesis 4, the main effects of compassion behaviour on personal resources were analysed for 1) morning compassion behaviour, 2) afternoon compassion behaviour, and 3) day compassion behaviour on a) perceived prosocial impact and b) self-efficacy respectively. These main effects reported here are fixed effects because no random effects were found and there are no substantive reasons to expect that compassion behaviours would affect personal resources differently across people. A summary of these results can be found in Table 13 and 14. Morning, afternoon and day compassion behaviour have significant main effects on perceived prosocial impact. Morning compassion behaviour has a positive effect on afternoon perceived prosocial impact ($B = 0.30$, $SE = 0.12$, $t = 2.39$, $p < .05$). Afternoon compassion behaviour has a positive effect on evening perceived prosocial impact ($B = 0.57$, $SE = 0.10$, $t = 5.75$, $p < .01$). Day compassion behaviour also has a positive effect on evening perceived prosocial impact ($B = 0.28$, $SE = 0.07$, $t = 3.95$, $p < .01$). These findings are in support of hypothesis 4a.

Additional analyses were also conducted with the subsample of responses indicating felt compassion for the day. These followed the same rules as the analyses in the previous paragraph on perceived prosocial impact. Morning compassion behaviour had a positive and significant effect on afternoon perceived prosocial impact ($B = 0.32$, $SE = 0.11$, $t = 2.86$, $p < .01$) in the subsample of 86. Afternoon compassion behaviour had a positive and significant effect on evening perceived prosocial impact ($B = 0.53$, $SE = 0.18$, $t = 3.01$, $p < .01$) in the subsample of 77. However, day compassion behaviour did not have a significant effect on evening perceived prosocial impact ($B = 0.12$, $p > .05$). These findings provide partial support of hypothesis 4a.

In terms of self-efficacy as outcome, only afternoon compassion behaviour has a significant main effect on self-efficacy (B = 0.20, SE = 0.05, t = 3.67 , p < .01). Morning compassion behaviour and day compassion behaviour have no significant effects on self-efficacy (Bs < 0.10, ps > .05). These findings provide partial support for hypothesis 4b.

Additional analyses were also conducted with the subsample of responses indicating felt compassion for the day. These followed the same rules as the analyses in the previous paragraph on self-efficacy. Morning compassion behaviour had no significant effect on afternoon perceived prosocial impact (B = 0.09, p > .05) in the subsample of 86. Afternoon compassion behaviour had a positive and significant effect on evening perceived prosocial impact (B = 0.41, SE = 0.09, t = 4.73, p < .01) in the subsample of 77. However, day compassion behaviour did not have a significant effect on evening perceived prosocial impact (B = 0.03, p > .05). These findings provide partial support of hypothesis 4b.

7.2.6 Testing H5a-b: Compassionate behaviour mediates the relationship between feelings of compassion and personal resources such as (a) perceived prosocial impact and (b) self-efficacy

Hypotheses 5a and 5b were tested using multilevel mediation using Mplus version 7.4. To test hypothesis 5, a mediation, 1-1-1 multilevel SEM analyses were used, given that the independent variables, mediators and outcome variables of interest are all measured at level 1. The fixed slope 1-1-1 model was used. Table 15 and 16 provide a summary of the results. The indirect effects of felt compassion on prosocial impact via compassion behaviours were not significant in both morning and afternoon compassion; within level indirect effects = 0.074 and 0.003 respectively, both Cis contained 0. On the other hand, the indirect effects of felt compassion on self-efficacy via compassion behaviour was only significant in afternoon compassion (indirect effect = 0.114, CI [0.025, 0.111]), but not in morning compassion (CI includes 0). These results do not support hypothesis 5a but partially support hypothesis 5b.

Hypotheses 5a and 5b were additionally tested on the subsamples of only individuals who reported feeling compassion with the rest of the procedure same as outlined in the paragraph above. The indirect effects of morning felt compassion on afternoon perceived prosocial impact via morning compassion behaviours was not significant in morning compassion behaviour, within level indirect effect = 0.048, CI includes 0. The indirect effects of afternoon felt compassion on evening perceived prosocial impact via afternoon compassion behaviours was significant in afternoon compassion behaviour, within level indirect effect = 0.224, CI [0.022, 0.426]. Similarly, the indirect effects of morning felt compassion on afternoon self-efficacy via morning compassion behaviours was not significant in morning compassion behaviour, within level indirect effect = 0.015, CI includes 0. The indirect effects of afternoon felt compassion on evening self-esteem via afternoon compassion behaviours was significant in afternoon compassion behaviour, within

level indirect effect = 0.184, CI [0.023, 0.345]. These results partially support both hypotheses 5a and 5b. These results also suggests some time of day effects of how the effects of compassion behaviours unfold.

7.2.7 Testing H6: The relationship between compassionate feelings and (a) perceived prosocial impact and (b) self-efficacy is moderated by constraints to compassion action such that when constraints are low (high), compassion feelings lead compassion behaviours which build (do not build) personal resources.

Hypotheses 6a and 6b were tested using multilevel mediation using Mplus version 7.4. To test these hypotheses, multilevel mediated moderation analyses was used. The summary of results for these analyses can be found in Table 15 and 16.

No significant main and interaction effects were found for the model that examined morning felt compassion, morning constraints to compassion action and interaction between morning felt compassion and morning constraints to compassion action as predictors for the mediator of morning compassion action and outcome of afternoon perceived prosocial impact. The mediated moderation analyses were not significant, indirect effec*t* = -0.03, ns. This suggests that hypothesis 6a is not supported.

The same model was reanalysed with only subsamples of participants who reported feeling compassion (i.e. N = 86 for morning compassion). These findings are summarized in Table 17. There is a significant interaction effect of morning felt compassion and morning constraints on compassion action on afternoon perceived prosocial impact, $B = 0.31$, $SE = 0.14$, $t = -2.31$, $p < .05$. However the indirect effect was not significan*t* = 0.17, $p > .05$. Hypothesis 6a is not supported.

No significant main and interaction effects were found for the model that examined afternoon felt compassion, afternoon constraints to compassion action and interaction between afternoon felt compassion and afternoon constraints to compassion action as predictors for the mediator of afternoon compassion behaviour and outcome of evening

perceived prosocial impact. The mediated moderation analyses were not significant, indirect effect = 0.10, ns. This suggests that hypothesis 6a is not supported.

The same model was reanalysed with only subsamples of participants who reported feeling compassion (i.e. N = 77 for afternoon compassion). These findings are summarized in Table 18. There are a significant main effects of felt compassion on behaviour (B = 0.28, SE = 0.13, t = 2.18, $p < .05$) and constraints to compassion action (B = -0.09, SE = 0.05, t = -2.04, $p < .05$) on afternoon compassion behaviour as well as main effects of afternoon felt compassion (B = 0.16, SE = 0.07, t = 2.24, $p < .05$) and afternoon compassion behaviour (B = 0.35, SE = 0.14, t = 2.24, $p < .05$) on evening prosocial impact. This suggests that hypothesis 6a is not supported.

Only significant main effects of morning felt compassion on morning compassion action was found (B = 0.69, SE = 0.27, t = 3.04, $p < .01$) for the model that examined morning felt compassion, morning constraints to compassion action and interaction between morning felt compassion and morning constraints to compassion action as predictors for the mediator of morning compassion behaviour and outcome of afternoon self-efficacy. The mediated moderation analyses were not significant, indirect effect = 0.000, ns. This suggests that hypothesis 6b is not supported.

The same model was reanalysed with only subsamples of participants who reported feeling compassion (i.e. N = 86 for morning compassion). These findings are summarized in Table 17. No significant main and interaction effects were found and the indirect effect was not significant = -0.003, $p > .05$. Hypothesis 6b is not supported.

Only significant main effects of afternoon felt compassion on afternoon compassion behaviour was found (B = 0.26, SE = 0.09, t = 2.93, $p < .01$) for the model that examined afternoon felt compassion, afternoon constraints to compassion behaviour and interaction

between afternoon felt compassion and afternoon constraints to compassion behaviour as predictors for the mediator of afternoon compassion behaviour and outcome of evening self-efficacy. The mediated moderation analyses were not significant, indirect effec*t* = -0.071, ns. This suggests that hypothesis 6b is not supported.

The same model was reanalysed with only subsamples of participants who reported feeling compassion (i.e. N = 77 for morning compassion). These findings are summarized in Table 17. No significant main and interaction effects were found and the indirect effect was not significan*t* = 0.025, $p > .05$. Hypothesis 6b is not supported.

7.2.8 Testing H7: Compassion improves stress recovery

To test hypothesis 7, regressions with a 2-way interaction using PROCESS macro Model 1 (Hayes, 2012) were conducted to understand the moderating effect of compassion on the relationship between stress at $t = 0$ and $t = 1$.The PROCESS macro was used due to the time-lagged nature of the data, with which using multilevel modelling can potentially cause major estimation problems (Allison, 2015). Hypothesis 7 predicts that compassion would weaken the correlation between $t = 0$ and $t = 1$ stress. Time lagged stress was operationalized several ways: 1) peak stress and next day peak stress, 2) afternoon stress and evening stress, 3) next day afternoon stress and next day evening stress, and 4) evening stress and next day afternoon stress. Of these pairs of T0 and T1 stress relationships, T0 stress had a significant effect on T1 stress, all Bs > 0.44, all ps < .001. None of the pairs of T0 and T1 stress were significantly moderated by compassion, nor did felt compassion have a main effect on next time period stress (all ps > .05). The lagged analyses had Ns ranging from 420-521. These analyses suggest that feeling compassion do not aid stress recovery. Hypothesis 7 was not supported.

7.2.9 Testing H8: The relationship between compassion and stress recovery is mediated by the co-activation of positive and negative affect

Mediation analyses were conducted using PROCESS Model 4 and moderated mediation analyses were still conducted using PROCESS Model 14. For the mediation analyses, the effect of compassion on mixed emotions and stress are examined. That is, compassion should increase mixed emotion at a later time, and an increase in mixed emotion should be associated with less stress. For the mediated moderation analyses, the effect of compassion on changes in stress should be mediated by mixed emotions. That is, when felt compassion is high, the relationship between stress at $t = 0$ and stress at $t = 1$ will be weaker due to increased mixed emotions throughout $t = 1$ (e.g. the co-activation of positive and negative affect during self-relevant difficult situation; see Figure 4 for a visual representation of the relationship). These analyses are summarized in table 19 and 20.

The results of the mediation analysis with day felt compassion as predictor and next day mixed emotion as mediator with next day peak stress as outcome found that day felt compassion had a significant positive effect on next day mixed emotions ($B = 0.11$, $SE = 0.06$, $t = 2.02$, $p < .05$). Mixed emotion had a significant positive effect on next day stress ($B = 0.51$, $SE = 0.06$, $t = 9.10$, $p < .001$). Day felt compassion had no significant effect on next day stress ($B = -0.09$, $p > .05$). The indirect effect of day felt compassion on next day peak stress via next day mixed emotion was significant a$t = 0.056$, CI [0.005, 0.111].

The results of the mediation analysis with day felt compassion as predictor and this day mixed emotion as mediator with evening stress as outcome found that day felt compassion had a significant positive effect on next day mixed emotions ($B = 0.17$, $SE = 0.05$, $t = 3.39$, $p < .001$). Mixed emotion had a significant positive effect on evening stress ($B = 0.17$, $SE = 0.03$, $t = 5.64$, $p < .001$). Day felt compassion had a marginally significant

negative effect on evening stress (*B* = -0.07, *SE* = 0.04, *t* = -1.89, *p* = .058). The indirect effect of day felt compassion on evening stress via mixed emotion was significant a*t* = 0.029, CI [0.015, 0.050].

The results of the mediation analysis with day felt compassion as predictor and next day mixed emotion as mediator with next day evening stress as outcome found that day felt compassion had a significant positive effect on next day mixed emotions (*B* = 0.11, *SE* = 0.06, *t* = 2.02, *p* < .05). Mixed emotion had a significant positive effect on next day evening stress (*B* = 0.18, *SE* = 0.03, *t* = 5.11, *p* < .001). Day felt compassion had a significant negative effect on next day evening stress (*B* = -0.09, *SE* = 0.04, *t* = -2.26, *p* < .05). The indirect effect of day felt compassion on next day evening stress via next day mixed emotion was significant a*t* = 0.020, CI [0.005, 0.044].

The results of the mediation analysis with day felt compassion as predictor and this day mixed emotion as mediator with next day afternoon stress as outcome found that day felt compassion had a significant positive effect on mixed emotions (*B* = 0.16, *SE* = 0.05, *t* = 2.95, *p* < .001). Mixed emotion had a significant positive effect on next day afternoon stress (*B* = 0.14, *SE* = 0.03, *t* = 4.26, *p* < .001). Day felt compassion had a significant negative effect on next day afternoon stress (*B* = -0.09, *SE* = 0.04, *t* = -2.29, *p* < .05). The indirect effect of day felt compassion on next day peak stress via next day mixed emotion was significant a*t* = 0.023, CI [0.010, 0.042].

The results suggest that while felt compassion is associated with increased mixed emotions, or co-activation of both positive and negative feelings. However, contrary to the co-activation theory of health, the increased mixed emotions is also associated with increased stress. These results also suggest that compassion on its own has a paradoxically opposite direct effect on stress.

The results of the moderated mediation analyses with day felt compassion as predictor and next day mixed emotion as mediator with next day peak stress as moderator on next day peak stress as outcome found that day felt compassion had a significant positive effect on next day mixed emotions (B = 0.11, SE = 0.06, t = 2.02, p < .05). Mixed emotion had a significant positive effect on next day evening stress (B = 0.40, SE = 0.05, t = 7.43, p < .001). Day felt compassion had no significant effect on next day peak stress (B = -0.09, SE = 0.04, t = -2.26, p < .05). Peak stress had a significant positive effect on next day peak stress (B = 0.36, SE = 0.04, t = 8.51, p < .001). No interaction effect between mixed emotion and earlier stress was found (B = 0.00, p > .05). The index of moderated mediation was not significant at 0.000, CI [-0.011, 0.010]. This result does not support hypothesis 8.

The results of the moderated mediation analyses with day felt compassion as predictor and this day mixed emotion as mediator with afternoon stress as moderator on evening stress as outcome found that day felt compassion had a significant positive effect on this day mixed emotions (B = 0.17, SE = 0.05, t = 3.39, p < .001). Mixed emotion had a significant positive effect on evening stress (B = 0.10, SE = 0.03, t = 3.86, p < .001). Day felt compassion had a significant effect on evening stress (B = -0.07, SE = 0.03, t = -2.20, p < .05). Afternoon stress had a significant positive effect on evening stress (B = 0.60, SE = 0.04, t = 16.33, p < .001). A significant interaction effect between mixed emotion and earlier stress was found (B = -0.09, SE = 0.03, t = -2.71, p < .05). The index of moderated mediation was significant at -0.015, CI [-0.027, -0.002]. However this index indicates that that the conditional indirect effects of day felt compassion on evening stress differs at different levels of afternoon stress. It is not an indicator that the effect of compassion on changes in stress is mediated by mixed emotions. The conditional indirect effect of day felt compassion on evening stress was significant at 0.03, CI = [0.012, 0.051] when afternoon stress was low at -1SD, whereas the conditional indirect effect of day felt compassion on evening stress was insignificant at 0.01,

CI = [-0.007, 0.021] when afternoon stress was high at +1SD. To understand how the conditional indirect effects of earlier stress on later stress vary at different levels of mixed emotion, a regression with earlier stress, mixed emotion and an interaction effect between the two was carried out. The results reflect closely those of the mediated moderation analysis, afternoon stress positively predicted evening stress (B = 0.60, SE = 0.04, t = 16.35, p < .001), mixed emotion positively predicted evening stress (B = 0.09, SE = 0.03, t = 3.58, p < .001), and the interaction effect was significant (B = -0.10, SE = 0.03, t = -2.86, p < .01). The conditional effects of earlier stress on later stress when mixed emotion was at -1*SD*was 0.69, SE = 0.05, t = 15.14, p < . 001, while the conditional effects of earlier stress on later stress when mixed emotion was +1*SD*was 0.50, SE = 0.05, t = 9.54, p < .001. Figure 5 graphs the effects of earlier stress on later stress at different levels (e.g. -1*SD*to +1SD) of mixed emotion is. Thus these results suggest that compassion increases mixed emotion and when mixed emotion is high, the effects of earlier stress on later stress are weaker, even though mixed emotion has a positive relationship with later stress, providing some evidence in support of hypothesis 8.

The results of the moderated mediation analyses with day felt compassion as predictor and next day mixed emotion as mediator with next day afternoon stress as moderator on next day evening stress as outcome found that day felt compassion had a significant positive effect on next day mixed emotions (B = 0.11, SE = 0.06, t = 2.02, p < .05). Mixed emotion had a significant positive effect on next day evening stress (B = 0.10, SE = 0.03, t = 3.42, p < .001). Day felt compassion had no significant effect on next day evening stress (B = -0.04, p > .05). Next day afternoon stress had a significant positive effect on next day evening stress (B = 0.60, SE = 0.04, t = 14.35, p < .001). A significant interaction effect between mixed emotion and earlier stress was found (B = -0.10, SE = 0.04, t = -2.79, p < .01). The index of moderated mediation was significant at = -0.012, CI [-0.033, -0.001]. However this index

indicates that that the conditional indirect effects of day felt compassion on next day evening stress differs at different levels of next day afternoon stress. It is not an indicator that the effect of compassion on changes in stress is mediated by mixed emotions. The conditional indirect effect of day felt compassion on next day evening stress was significant at 0.019, CI = [0.005, 0.048] when next day afternoon stress was low at -1SD, whereas the conditional indirect effect of day felt compassion on evening stress was insignificant at 0.003, CI = [-0.007, 0.017] when next day afternoon stress was high at +1SD. To understand how the conditional indirect effects of earlier stress on later stress vary at different levels of mixed emotion, a regression with earlier stress, mixed emotion and an interaction effect between the two was carried out. The results reflect closely those of the mediated moderation analysis, next day afternoon stress positively predicted evening stress (B = 0.61, SE = 0.04, t = 14.52, p < .001), mixed emotion positively predicted next day evening stress (B = 0.09, SE = 0.03, t = 3.31, p < .01), and the interaction effect was significant (B = -0.10, SE = 0.04, t = -2.84, p < .01). The conditional effects of earlier stress on later stress when mixed emotion was at -1*SD*was 0.71, SE = 0.05, t = 13.75, p < . 001, while the conditional effects of earlier stress on later stress when mixed emotion was +1*SD*was 0.50, SE = 0.06, t = 8.34, p < .001. Figure 6 graphs the effects of earlier stress on later stress at different levels (e.g. -1*SD*to +1SD) of mixed emotion is. Thus these results suggest that compassion increases mixed emotion and when mixed emotion is high, the effects of earlier stress on later stress are weaker, even though mixed emotion has a positive relationship with later stress, providing some evidence in support of hypothesis 8.

The results of the moderated mediation analyses with day felt compassion as predictor and this day mixed emotion as mediator with this day evening stress as moderator on next day afternoon stress as outcome found that day felt compassion had a significant positive effect on this day mixed emotions (B = 0.16, SE = 0.05, t = 2.95, p < .01). Mixed emotion

had no significant effect on next day afternoon stress (B = 0.0, p > .05). Day felt compassion had no significant effect on next day afternoon stress (B = -0.05, p > .05). This day afternoon stress had a significant positive effect on next day evening stress (B = 0.56, SE = 0.04, t = 15.91, p < .001). A significant interaction effect between mixed emotion and earlier stress was found (B = -0.10, SE = 0.03, t = -3.08, p < .001). The index of moderated mediation was significant at = -0.016, CI [-0.033, -0.006]. However this index indicates that that the conditional indirect effects of day felt compassion on next day evening stress differs at different levels of this day afternoon stress. It is not an indicator that the effect of compassion on changes in stress is mediated by mixed emotions. The conditional indirect effect of day felt compassion on next day evening stress was significant at 0.018, CI = [0.006, 0.035] when afternoon stress was low at -1SD, whereas the conditional indirect effect of day felt compassion on evening stress was insignificant at -0.006, CI = [-0.02, 0.004] when afternoon stress was high at +1SD. To understand how the conditional indirect effects of earlier stress on later stress vary at different levels of mixed emotion, a regression with earlier stress, mixed emotion and an interaction effect between the two was carried out. The results reflect closely those of the mediated moderation analysis, this day evening stress positively predicted next day afternoon stress (B = 0.57, SE = 0.04, t = 16.07, p < .001), mixed emotion did not significantly predict next day afternoon stress (B = 0.03, p > .05), but the interaction effect was significant (B = -0.10, SE = 0.03, t = -3.07, p < .01). The conditional effects of earlier stress on later stress when mixed emotion was at -1$SD$was 0.66, SE = 0.04, t = 14.83, p < . 001, while the conditional effects of earlier stress on later stress when mixed emotion was +1$SD$was 0.47, SE = 0.05, t = 9.40, p < .001. Figure 7 graphs the effects of earlier stress on later stress at different levels (e.g. -1$SD$to +1SD) of mixed emotion is. While it may be tempting to conclude that these results suggest the same as above (e.g. that compassion increases mixed emotion and when mixed emotion is high, the effects of earlier

stress on later stress are weaker, even though mixed emotion has a positive relationship with later stress), the duration of mixed emotions in this analysis co-occurs with day compassion, and does not occur at a later time. Thus, the analyses in this paragraph should not be taken as strong evidence for support of hypothesis 8.

7.3 Supplemental analyses

The following section presents some analyses not formally hypothesized but as a post-hoc exploration of the data collected.

7.3.1. Effects of constraints to compassion action on depletion

To examine whether constraints to compassion action be depleting, a multilevel analysis with day constraints to compassion action as predictor of evening depletion was conducted on the subsample of 139 individuals who reported feeling compassion. To control for between-person effects, constraints were person-mean centered. To account for likely time trends, study day was controlled for, but not centered. The relationship between constraints and depletion may potentially be spurious, such that people may report more constraints and more depletion because of existing demands. To control for this, person centered afternoon depletion was also entered into the model. Constraints reported here were modelled as having fixed slopes because there is no substantive reason to expect that constraints deplete people differently and also no random effects were found. The results of the multilevel model found no significant effect of day on evening depletion (B = -0.05, $p > .05$), significant effects of afternoon depletion on evening depletion were found (B = 0.49, SE = 0.08, t = 5.90, $p < .001$), as well as significant effects of day constraints to compassion action on evening depletion were found (B = 0.26, SE = 0.08, t = 3.10, $p > .01$). These findings suggest that constraints to compassion action are depleting. However, this does not preclude the possibility that constraints of any kind are depleting. A future direction is to examine how constraints to compassion action versus constraints to other emotion-driven behaviours might be differentially depleting.

7.3.2. Effects of emotional dissonance on depletion

Emotional dissonance here can be defined as feeling compassion but not acting on it. To examine whether emotional dissonance when feeling compassion is depleting, a multilevel analysis was conducted with day compassion behaviour, day felt compassion and an interaction between the two as predictors of evening depletion. The interaction term here represents the effects of emotional dissonance such as when felt compassion is high but compassion behaviour is low. This analysis was carried out with the subsample of 139 individuals who reported feeling compassion. To control for between-person effects, constraints were person-mean centered. To account for likely time trends, study day was controlled for, but not centered. The relationship between dissonance and depletion may potentially be spurious, such that people may experience more dissonance and more depletion because of existing demands. To control for this, person centered afternoon depletion was also entered into the model. Level 1 predictors of substantive interest (e.g. compassion behaviour and felt compassion) reported here were modelled as having fixed slopes because there is no substantive reason to expect that they deplete people differently and also no random effects were found. The results of the multilevel model found no significant effect of day on evening depletion (B = -0.03, p > .05), significant effects of afternoon depletion on evening depletion were found (B = 0.48, SE = 0.09, t = 5.57, p < .001), no significant main effects of compassion behaviour and felt compassion (Bs = 0.12 and 0.20 respectively, all ps > .05), however there was a significant effects of the interaction term on evening depletion (B = -0.48, SE = 0.24, t = -1.99, p > .05). To understand this interaction effect better, a graph of the effects of day felt compassion on evening depletion at different levels of compassion behaviour was plotted using Preacher, Curan and Bauer's (2006) recommendation and tools, see Figure 8. The simple slope value at -1$SD$of day compassion behaviour was not significant at 0.25, p > .05, whereas the simple slope value at + 1$SD$of day compassion behaviour was

significant at -0.24, *SE* = 0.12, $z = -1.97$, $p < .05$. These results suggest that concordance (e.g. high felt compassion matched with high compassion behaviours) are the less depleting than when there is dissonance (e.g. high felt compassion with low compassion behaviours). However, it does not tell us whether compassion dissonance is more or less depleting than other kinds of emotional dissonance. A future direction is to examine how compassion dissonance other types of emotional dissonance might be differentially depleting.

8. DISCUSSION OF RESULTS

There has been a growing interest in compassion among organizational scholars. This body of literature consists of qualitative research, theoretical papers outlining the effects of compassion as well as compassion training studies that look at the effects of LKM at work interactions. This dissertation joins the nascent literature, with the contribution of examining some quantitative outcomes of compassion for the focal actor.

This dissertation sought to examine how compassion affects different kinds of resources – specifically regulatory and personal resources and how it might affect stress recovery. Specifically, this dissertation sought to examine these effects of compassion in individuals who feel compassion and act compassionately towards others. The results based on the analyses are telling of a picture of compassion as a complex phenomenon, being both depleting and replenishing. These findings suggest that compassion is a complex phenomenon and the distinction between feelings and behaviours of compassion is required. The implications and limitations of this study are discussed in the next sections.

8.1 Theoretical and practical implications

To summarize, it appears that to feel compassion for others, individuals should have regulatory resources but feeling compassion for others does not necessarily affect regulatory resources. When individuals perceive high social support and have more hours of sleep, they tend to feel compassion more often for others. Individuals who feel compassion more often for others also tend to have higher trait self-compassion (i.e. self-compassion mindfulness subdimension), and lower trait resilience. The findings on how social support and sleep quantity are positively related to feeling compassion for others aligns with the regulatory resource argument that feeling compassion for others possibly requires and expends regulatory resources. However, feelings of compassion appear to not affect regulatory resource directly. Instead, according to supplemental analyses, it appears that it is perceived constraints to compassion action that is depleting. It also appears that it is emotional dissonance, such that when feelings and behaviours of compassion do not align, that the experience of compassion becomes depleting for the focal actor.

Further, evidence of compassion dissonance where individuals reported feeling compassion for the plight of others but being unable to relieve others comes from the qualitative responses provided by participants. Some qualitative examples of compassion dissonance are where individuals reported feeling compassion for others but being unable to relieve include: watching videos about the suffering of disadvantaged groups such as the mistreatment of migrant workers in Singapore and North Koreans fleeing the war, knowing that someone has a serious medical condition such as terminal cancer or being in a coma, and even for perceived suffering or perceived suffering that has not yet happened such as receiving the news that Donald Trump won the presidential elections. Participants also

sometimes reported everyday situations feeling compassion for another where they are confronted with disadvantaged others such as handicapped persons or elderly persons, but not behaving compassionately because of the fleeting circumstance such as outside the washroom or presumably because they did not know how. Thus it seems that while compassion feelings motivate compassion behaviours, they seem to be distinct components of the experience of compassion which affect regulatory resources differentially.

It also appears that compassion behaviours do increase personal resources, such as perceived prosocial impact and self-efficacy, and that these effects of compassion feelings on personal resources is only mediated via compassion behaviour in the afternoon but not in the morning. The interaction effect of felt compassion and constraints to action was also not found to transmit via compassion behaviour on personal resources as outcomes. Possible post-hoc explanations include that compassion feelings motivate compassion behaviours differently during different the time of the day. The data supports that the relationship between morning felt compassion and morning compassion behaviour is stronger than afternoon felt compassion and afternoon felt behaviour (r_{morning} = .65 vs. $r_{\text{afternoon}}$ = .51 in N = 571 sample and r_{morning} = .29 vs. $r_{\text{afternoon}}$= .09 in N = 86 vs N = 77 subsamples) and that afternoon compassion is more constrained: M = 1.49, SD = 0.50 vs M = 4.08, SD = 0.24 in morning and afternoon constraints respectively. These descriptive statistics suggest that as the day progresses, more demands are experienced and can constrain our compassion feeling to behaviour response. Taken together, these findings suggest further that the distinction between feelings and behaviour is not a pedantic endeavour; they have different effects on our resources even though they are correlated.

Compassion was also theorized to improve stress recovery. There is some evidence to support the co-activation theory of health proposition that compassion can improve stress recovery. Feeling compassion is associated with decreased stress, but mixed emotion is

associated with increased stress. Yet as felt compassion increased, mixed emotion also increased. However, the increased mixed emotion in turn weakened the relationship between stress at $t = 0$ and stress at $t = 1$. These findings suggest that compassion itself has paradoxical effects on stress, and its effect on stress is not completely transmitted through the co-activation of positive and negative affect mechanism.

Compassion-motivated helping may greatly benefit organizations interested in increasing organizational citizenship behaviours (OCBs) at work. Although Lanaj, Johnson and Wang (2016) recently demonstrated that helping is depleting, in my supplemental analysis, I find that it is a mismatch between compassion feelings and compassion behaviour led to depletion and that compassionate behaviour itself had no significant main effect on depletion. It thus may be that compassion-elicited behaviours are motivationally different from typical organizational citizenship behaviours, and therefore compassion-elicited behaviours expend less resources than enacting an emotionally or cognitively dissonant behaviour such as helping when one does not want to but has to which may be the case for some instances of organizational citizenship behaviours. This distinction between compassion motivated behaviour and helping has some consequences for positive organizational scholarship as well as organizations interested in increasing OCBs. Although OCBs are desired aspects of job performance, one issue for organizations is how to promote helping without harming or depleting employees. This dissertation suggests that compassion motivated behaviour, which can be considered a class of helping behaviour, may be an answer to this issue. Organizations thus may want to build cultures of compassion and kindness where not only expressions of suffering are permissible but also where feelings of compassion and compassionate actions are permissible.

A key implication of this dissertation is that constraints to compassion and compassion dissonance can impede the replenishing effects of compassion. While hitherto

unexplored in my thesis, structural demands can be organizational level constraints that moderate the effects of compassion. Transposed onto the organizational context, constraints are abound. For example, structural demands such as rules, display rules, social distance at work place potential limits to compassionate actions. Another example of organization level constraints could be the idea of organizational time hurriedness. At an individual level, time hurriedness refers to the extent to which individuals do things quickly and tend to be in a hurry at work (Cojuharenco & Sguera, 2015; Jansen & Kristof-Brown, 2005). Taken to an organizational level, the extent to which organizations do things quickly may constrain compassion behaviours from developing into replenishing events.

With regards to personal resources, the present paper examines only two types of personal resources. To the extent that these personal resources seem to be differentially affected by compassion suggests that perhaps not all personal resources are applicable in the context of compassion. There are many others, for example positive affect, self-affirmation, self-esteem, psychological capital, resilience, thriving, etc. Echoing what was said in the introduction section of the dissertation, it would be fruitful to understand whether compassion also builds these kinds of resources (e.g. which personal resources are more affected by compassion?), so that compassion is not blindly accepted as wholly replenishing.

8.2 Limitations and future directions

One limitation of this study design is that frequency of compassion was asked instead of intensity of compassion. The study design was intended to differentiate between feelings and behaviours of compassion by having participants separately report if they felt compassion and what was done if they felt compassion. However, this presented some issues. First, there is low base rate of compassion. While the participants in this sample had high compliance (close to 78% completion rate), the frequency of reported compassion was low and the variance was also small. It may be that compassion is a low base rate emotion or it may be the case that first having participants list compassion is too demanding. One way to address this issue in future iterations of similar diary study designs is to extend the period of the diary study to include more than nine days. Another way to address the issue is to examine intensity of compassion felt in a specified period of time or intensity felt per event in addition to frequency of compassionate events experienced in the same period of time.

Related to using frequency as a measure of felt compassion, it appeared that felt compassion decreased as the study days went on. One explanation for this is that as the days increased, students had increased school demands due to the study being conducted late in the term, and thus were limited in their opportunities to be exposed to the suffering of others, or were limited in their attentional resources to observe that others around them were suffering. Another explanation is that they may have found the answering format fatiguing when reporting compassion experiences. Thus, having items assessing the intensity of compassion may be a more efficient way of assessing compassion which may be welcomed by participants. To conclude on the measure of compassion, it may be that due to the low base rate of felt compassion, the effects of feelings and behaviour that were expected may not be captured. In addition, testing of complex multilevel mediation and moderation models require

a much larger level 2 *N* for more stable and reliable estimates. Thus more data can be collected with more efficient measures over a longer period of time.

A second limitation in the current study is related to the imputation of lowest response for perceived constraints to compassion action and compassion behaviour whenever compassion was reported as not felt. This can be problematic for statistical reasons such as multicollinearity. To address this, additional analyses using only subsamples that reported compassion were examined. This led to greatly reduced sample sizes ranging from 77 to 139. This may also have limited the analyses as the experience of feeling compassion and perceiving constraints may be empirically different from the experience of not feeling compassion. Another way to address this is to conduct a follow-up study utilizing experimental designs in which it is a 2 (felt compassion vs control) x 2 (constraints vs no constraints) design.

A third limitation of this study is related to the temporal proximity of collecting these measures and feelings of compassion. In the study, no effects of feeling compassion on depletion were found. While one possible conclusion is that feeling compassion for others is not depleting, a more plausible explanation is that the temporal theorization of the feeling of compassion is not well captured by the current methodology. The temporal theorization of emotion regulation in feeling compassion is proposed to occur within moments of feeling compassion for others whereas the survey captures compassion happening anywhere from minutes to hours ago. Thus, having only 3 surveys about 5 hours apart from each other during the day may not fit the temporal theorization of how feelings of compassion can be depleting.

A fourth limitation of the study is related to the sample characteristics. Although it appears that compassion does not lead to depletion, a caveat is that this may be specific to a sample of university-going young adults. It may be that the events eliciting compassion were

not too unpleasant, unlike the kinds of difficult situations care-workers encounter (Lilius, 2012) or the kinds of difficult situations working adults face because they are sandwiched between responsibilities and anxieties towards their ageing parents and their young children. Examples of participant's descriptions broadly include observing peers and family feeling stressed, or observing the less fortunate in passing. Rarely are there intense episodes of compassion (e.g. own parent is ill and suffering). In addition, people who experience compassion and behave compassionately more frequently tend to have higher perceived social support and perceived social support is negatively correlated to depletion. While it is tempting to conclude that developing compassion for others can be beneficial for replenishing ourselves, it may also be that individuals who feel more compassion and behave more compassionately are have more resource at dealing with stressful situations in general. One way of unpacking this is to employ experimental methods to see if actual experiences of compassion versus a control condition have depleting effects by assessing depletion using real time state self-control capacity immediately after the manipulations of compassion or control or using performance on tasks requiring regulation.

Despite these limitations, the ability to model within-individual processes using an experience sampling method adds a new perspective to compassion research which so far has focused on between-individual differences in outcomes. This dissertation is the first to examine daily fluctuations of compassion. Compassion has often been examined as a trait, suggesting some stability in its experience, but state conceptualizations of compassion might be more impactful in that they show us compassion fluctuates. That is, we can become more compassionate people if we wanted to and organizations that care about compassion could become more compassionate.

It is hoped that this dissertation will inspire more scientific inquiry into the effects of compassion. Particularly, theories and beliefs that laud compassion surround this research

topic. However, it still remains that there is much work left in terms of empirically documenting how experiences of compassion occurring in the organizational context affect focal actors.

9. REFERENCES

Abendroth, M., & Flannery, J. (2006). Predicting the risk of compassion fatigue: A study of hospice nurses. *Journal of Hospice & Palliative Nursing*, *8*(6), 346–356.

Adams, R. E., Boscarino, J. A., & Figley, C. R. (2006). Compassion fatigue and psychological distress among social workers: a validation study. *American Journal of Orthopsychiatry*, *76*(1), 103.

Aldao, A., & Nolen-Hoeksema, S. (2013). One versus many: capturing the use of multiple emotion regulation strategies in response to an emotion-eliciting stimulus. *Cognition & Emotion*, *27*(4), 753–760. https://doi.org/10.1080/02699931.2012.739998

Allison, P. (2015). Don't put lagged dependent variables in mixed models.

Atkins, P. W. B., & Parker, S. K. (2012). Understanding Individual Compassion in Organizations: The Role of Appraisals and Psychological Flexibility. *Academy of Management Review*, *37*(4), 524–546. https://doi.org/10.5465/amr.2010.0490

Bakker, A. B., & Heuven, E. (2006). Emotional dissonance, burnout, and in-role performance among nurses and police officers. *International Journal of Stress Management*, *13*(4), 423–440. https://doi.org/10.1037/1072-5245.13.4.423

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*(2), 191–215. https://doi.org/10.1037/0033-295X.84.2.191

Batson, C. D., Duncan, B. D., Ackerman, P., Buckley, T., & Birch, K. (1981). Is empathic emotion a source of altruistic motivation? *Journal of Personality and Social Psychology*, *40*(2), 290.

Batson, C. D., Fultz, J., & Schoenrade, P. A. (1987). Distress and Empathy: Two Qualitatively Distinct Vicarious Emotions with Different Motivational Consequences. *Journal of Personality*, *55*(1), 19–39. https://doi.org/10.1111/j.1467-6494.1987.tb00426.x

Batson, C. D., & Shaw, L. L. (1991). Encouraging Words concerning the Evidence for Altruism. *Psychological Inquiry*, *2*(2), 159–168.

Beal, D. J., & Ghandour, L. (2011). Stability, change, and the stability of change in daily workplace affect. *Journal of Organizational Behavior*, *32*(4), 526–546. https://doi.org/10.1002/job.713

Bledow, R., Schmitt, A., Frese, M., & Kühnel, J. (2011). The affective shift model of work engagement. *Journal of Applied Psychology*, *96*(6), 1246–1257. https://doi.org/10.1037/a0024532

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. https://doi.org/10.1177/1073191111408231

Bostic, T. J., Rubio, D. M., & Hood, M. (2000). A Validation of the Subjective Vitality Scale Using Structural Equation Modeling. *Social Indicators Research*, *52*(3), 313–324. https://doi.org/10.1023/A:1007136110218

Boyatzis, R. E., Smith, M. L., & Blaize, N. (2006). Developing Sustainable Leaders through Coaching and Compassion. *Academy of Management Learning & Education*, *5*(1), 8–24.

Cacioppo, J. T., & Berntson, G. G. (1994). Relationship between attitudes and evaluative space: A critical review, with emphasis on the separability of positive and negative substrates. *Psychological Bulletin*, *115*(3), 401–423. https://doi.org/10.1037/0033-2909.115.3.401

Caza, B. B., & Caza, A. (2008). Positive Organizational Scholarship: A Critical Theory Perspective. *Journal of Management Inquiry*, *17*(1), 21–33. https://doi.org/10.1177/1056492607305907

Chen, G., Gully, S. M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational Research Methods*, *4*(1), 62–83. https://doi.org/10.1177/109442810141004

Ciarocco, N., Twenge, J. M., Muraven, M., & Tice, D. M. (2007). The state self-control capacity scale: Reliability, validity, and correlations with physical and psychological stress. *Unpublished Manuscript*.

Clark, C. (1987). Sympathy biography and sympathy margin. *American Journal of Sociology*, 290–321.

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A Global Measure of Perceived Stress. *Journal of Health and Social Behavior*, *24*(4), 385–396. https://doi.org/10.2307/2136404

Cohen, S., Mermelstein, R., Kamarck, T., & Hoberman, H. M. (1985). Measuring the Functional Components of Social Support. In I. G. Sarason & B. R. Sarason (Eds.), *Social Support: Theory, Research and Applications* (pp. 73–94). Springer Netherlands. Retrieved from http://link.springer.com/chapter/10.1007/978-94-009-5115-0_5

Coifman, K. G., Bonanno, G. A., & Rafaeli, E. (2006). Affect dynamics, bereavement and resilience to loss. *Journal of Happiness Studies*, *8*(3), 371–392. https://doi.org/10.1007/s10902-006-9014-5

Cojuharenco, I., & Sguera, F. (2015). When Empathic Concern and Perspective Taking Matter for Ethical Judgment: The Role of Time Hurriedness. *Journal of Business Ethics*, *130*(3), 717–725. https://doi.org/10.1007/s10551-014-2259-8

Condon, P., Desbordes, G., Miller, W. B., & DeSteno, D. (2013). Meditation increases compassionate responses to suffering. *Psychological Science*, *24*(10), 2125–2127.

Condon, P., & Feldman Barrett, L. (2013). Conceptualizing and experiencing compassion. *Emotion*, *13*(5), 817–821. https://doi.org/10.1037/a0033747

Connor, K. M., & Davidson, J. R. T. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety*, *18*(2), 76–82. https://doi.org/10.1002/da.10113

Cosley, B. J., McCoy, S. K., Saslow, L. R., & Epel, E. S. (2010). Is compassion for others stress buffering? Consequences of compassion and social support for physiological reactivity to stress. *Journal of Experimental Social Psychology*, *46*(5), 816–823. https://doi.org/10.1016/j.jesp.2010.04.008

Craig, K. D. (1968). Physiological arousal as a function of imagined, vicarious, and direct stress experiences. *Journal of Abnormal Psychology*, *73*(6), 513–520. https://doi.org/10.1037/h0026531

Dalgleish, T., Yiend, J., Schweizer, S., & Dunn, B. D. (2009). Ironic effects of emotion suppression when recounting distressing memories. *Emotion*, *9*(5), 744–749. https://doi.org/10.1037/a0017290

Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, *44*(1), 113–126. https://doi.org/10.1037/0022-3514.44.1.113

Dutton, J. E., Worline, M. C., Frost, P. J., & Lilius, J. (2002). The organizing of compassion. *Administrative Science Quarterly*.

Dutton, J. E., Worline, M. C., Frost, P. J., & Lilius, J. (2006). Explaining compassion organizing. *Administrative Science Quarterly*, *51*(1), 59–96.

Dutton, J., Lilius, J. M., & Kanov, J. (2007). The transformative potential of compassion at work. *Handbook of Transformative Cooperation: New Designs and Dynamics*, 107–126.

Eisenberg, N., & Eggum, N. D. (2009). Empathic Responding: Sympathy and Personal Distress. In J. Decety & W. Ickes (Eds.), *The Social Neuroscience of Empathy* (pp. 71–84). The MIT Press. Retrieved from http://mitpress.universitypressscholarship.com/view/10.7551/mitpress/9780262012973.001.0001/upso-9780262012973-chapter-7

Eisenberg, N., Fabes, R. A., Bustamante, D., Mathy, R. M., Miller, P. A., & Lindholm, E. (1988). Differentiation of vicariously induced emotional reactions in children. *Developmental Psychology*, *24*(2), 237.

Eisenberg, N., Fabes, R. A., Miller, P. A., Fultz, J., Shell, R., Mathy, R. M., & Reno, R. R. (1989). Relation of sympathy and personal distress to prosocial behavior: A multimethod study. *Journal of Personality and Social Psychology*, *57*(1), 55–66. https://doi.org/10.1037/0022-3514.57.1.55

Eisenberg, N., Fabes, R. A., Schaller, M., Carlo, G., & Miller, P. A. (1991). The relations of parental characteristics and practices to children's vicarious emotional responding. *Child Development*, *62*(6), 1393–1408.

Eisenberg, N., & Miller, P. A. (1987). The relation of empathy to prosocial and related behaviors. *Psychological Bulletin*, *101*(1), 91.

Eisenberg, N., Schaller, M., Fabes, R. A., Bustamante, D., Mathy, R. M., Shell, R., & Rhodes, K. (1988). Differentiation of personal distress and sympathy in children and adults. *Developmental Psychology*, *24*(6), 766.

Eisinga, R., Grotenhuis, M. te, & Pelzer, B. (2013). The reliability of a two-item scale: Pearson, Cronbach, or Spearman-Brown? *International Journal of Public Health*, *58*(4), 637–642. https://doi.org/10.1007/s00038-012-0416-3

Ekman, P. (1992). An argument for basic emotions. *Cognition & Emotion*, *6*(3-4), 169–200.

Ellsworth, P. C., & Smith, C. A. (1988). Shades of Joy: Patterns of Appraisal Differentiating Pleasant Emotions. *Cognition and Emotion*, *2*(4), 301–331. https://doi.org/10.1080/02699938808412702

Feldman Barrett, L., & Russell, J. A. (1998). Independence and bipolarity in the structure of current affect. *Journal of Personality and Social Psychology*, *74*(4), 967–984. https://doi.org/10.1037/0022-3514.74.4.967

Figley, C. R. (1995). Compassion fatigue: Toward a new understanding of the costs of caring. Retrieved from http://psycnet.apa.org/psycinfo/1996-97172-001

Figley, C. R. (2002). Compassion fatigue: Psychotherapists' chronic lack of self care. *Journal of Clinical Psychology*, *58*(11), 1433–1441. https://doi.org/10.1002/jclp.10090

Fong, C. T. (2006). The effects of emotional ambivalence on creativity. *Academy of Management Journal*, *49*(5), 1016–1030.

Fraley, R. C., & Hudson, N. W. (2014). Review of *Intensive Longitudinal Methods: An Introduction to Diary and Experience Sampling Research*. *The Journal of Social Psychology*, *154*(1), 89–91. https://doi.org/10.1080/00224545.2013.831300

Fredrickson, B. L. (2013). Positive Emotions Broaden and Build. *Advances in Experimental Social Psychology*, *47*, 1–53. https://doi.org/10.1016/B978-0-12-407236-7.00001-2

Fredrickson, B. L., Cohn, M. A., Coffey, K. A., Pek, J., & Finkel, S. M. (2008). Open hearts build lives: Positive emotions, induced through loving-kindness meditation, build consequential personal resources. *Journal of Personality and Social Psychology*, *95*(5), 1045–1062. https://doi.org/10.1037/a0013262

Frijda, N. H. (1988). The laws of emotion. *American Psychologist*, *43*(5), 349–358. https://doi.org/10.1037/0003-066X.43.5.349

Frost, P. J. (1999). Why Compassion Counts! *Journal of Management Inquiry*, *8*(2), 127–133. https://doi.org/10.1177/105649269982004

Frost, P. J. (2003). *Toxic emotions at work: How compassionate managers handle pain and conflict*. Harvard Business Press.

Frost, P. J., Dutton, J. E., Maitlis, S., Lilius, J. M., Kanov, J. M., & Worline, M. C. (2006). Seeing organizations differently: Three lenses on compassion. *The Sage Handbook of Organization Studies*, *2*, 843–866.

Frost, P. J., Dutton, J. E., Worline, M. C., & Wilson, A. (2000). Narratives of compassion in organizations. *Emotion in Organizations*, *2*, 25–45.

George, J. M. (2014). Compassion and Capitalism: Implications for Organizational Studies. *Journal of Management*, *40*(1), 5–15. https://doi.org/10.1177/0149206313490028

George, J. M., & Jones, G. R. (2000). The role of time in theory and theory building. *Journal of Management*, *26*(4), 657–684.

Gini, A. (1998). Work, Identity and Self: How We Are Formed by The Work We Do. *Journal of Business Ethics*, *17*(7), 707–714. https://doi.org/10.1023/A:1017967009252

Goetz, J. L., Keltner, D., & Simon-Thomas, E. (2010). Compassion: An evolutionary analysis and empirical review. *Psychological Bulletin*, *136*(3), 351–374. https://doi.org/10.1037/a0018807

Goubert, L., Craig, K. D., Vervoort, T., Morley, S., Sullivan, M. J. L., de C Williams, A. C., … Crombez, G. (2005). Facing others in pain: the effects of empathy. *Pain*, *118*(3), 285–288. https://doi.org/10.1016/j.pain.2005.10.025

Grant, A. M. (2007). Relational job design and the motivation to make a prosocial difference. *Academy of Management Review*, *32*(2), 393–417.

Grant, A. M. (2008a). Does intrinsic motivation fuel the prosocial fire? Motivational synergy in predicting persistence, performance, and productivity. *Journal of Applied Psychology*, *93*(1), 48–58. https://doi.org/10.1037/0021-9010.93.1.48

Grant, A. M. (2008b). The significance of task significance: Job performance effects, relational mechanisms, and boundary conditions. *Journal of Applied Psychology*, *93*(1), 108–124. https://doi.org/10.1037/0021-9010.93.1.108

Grant, A. M., & Sonnentag, S. (2010). Doing good buffers against feeling bad: Prosocial impact compensates for negative task and self-evaluations. *Organizational Behavior and Human Decision Processes*, *111*(1), 13–22. https://doi.org/10.1016/j.obhdp.2009.07.003

Gross, J. J., & Levenson, R. W. (1993). Emotional suppression: Physiology, self-report, and expressive behavior. *Journal of Personality and Social Psychology*, *64*(6), 970–986. https://doi.org/10.1037/0022-3514.64.6.970

Gyurak, A., Gross, J. J., & Etkin, A. (2011). Explicit and implicit emotion regulation: A dual-process framework. *Cognition & Emotion*, *25*(3), 400–412. https://doi.org/10.1080/02699931.2010.544160

Hofmann, D. A., Griffin, M. A., & Gavin, M. B. (2000). The application of hierarchical linear modeling to organizational research. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions* (pp. 467–511). San Francisco, CA, US: Jossey-Bass.

Hooper, C., Craig, J., Janvrin, D. R., Wetsel, M. A., & Reimels, E. (2010). Compassion satisfaction, burnout, and compassion fatigue among emergency nurses compared with nurses in other selected inpatient specialties. *Journal of Emergency Nursing*, *36*(5), 420–427.

Jansen, K. J., & Kristof-Brown, A. L. (2005). Marching to the beat of a different drummer: Examining the impact of pacing congruence. *Organizational Behavior and Human Decision Processes*, *97*(2), 93–105. https://doi.org/10.1016/j.obhdp.2005.03.005

Jazaieri, H., McGonigal, K., Jinpa, T., Doty, J. R., Gross, J. J., & Goldin, P. R. (2014). A randomized controlled trial of compassion cultivation training: Effects on mindfulness, affect, and emotion regulation. *Motivation and Emotion*, *38*(1), 23–35. https://doi.org/10.1007/s11031-013-9368-z

Jenkins, C. D., Stanton, B.-A., Niemcryk, S. J., & Rose, R. M. (1988). A scale for the estimation of sleep problems in clinical research. *Journal of Clinical Epidemiology*, *41*(4), 313–321. https://doi.org/10.1016/0895-4356(88)90138-2

Kahn, W. A. (1993). Caring for the Caregivers: Patterns of Organizational Caregiving. *Administrative Science Quarterly*, *38*(4), 539–563. https://doi.org/10.2307/2393336

Kang, Y., Gray, J. R., & Dovidio, J. F. (2014). The nondiscriminating heart: Lovingkindness meditation training decreases implicit intergroup bias. *Journal of Experimental Psychology: General*, *143*(3), 1306–1313. https://doi.org/10.1037/a0034150

Kanov, J. M., Maitlis, S., Worline, M. C., Dutton, J. E., Frost, P. J., & Lilius, J. M. (2004). Compassion in Organizational Life. *American Behavioral Scientist*, *47*(6), 808–827. https://doi.org/10.1177/0002764203260211

Keltner, D., & Haidt, J. (1999). Social Functions of Emotions at Four Levels of Analysis. *Cognition and Emotion*, *13*(5), 505–521. https://doi.org/10.1080/026999399379168

Klimecki, O. M., Leiberg, S., Lamm, C., & Singer, T. (2013). Functional Neural Plasticity and Associated Changes in Positive Affect After Compassion Training. *Cerebral Cortex*, *23*(7), 1552–1561. https://doi.org/10.1093/cercor/bhs142

Lanaj, K., Johnson, R. E., & Wang, M. (2016). When lending a hand depletes the will: The daily costs and benefits of helping. *Journal of Applied Psychology*, *101*(8), 1097–1110. https://doi.org/10.1037/apl0000118

Larsen, J. T., Hemenover, S. H., Norris, C. J., & Cacioppo, J. T. (2003). Turning adversity to advantage: On the virtues of the coactivation of positive and negative emotions. *A Psychology of Human Strengths: Fundamental Questions and Future Directions for a Positive Psychology*, 211–225.

Larsen, J. T., Peter, A., & Cacioppo, J. T. (2001). Can people feel happy and sad at the same time? *Journal of Personality and Social Psychology*, *81*(4), 684–696. https://doi.org/10.1037/0022-3514.81.4.684

Larsen, J. T., Peter, A., Mellers, B. A., & Cacioppo, J. T. (2004). The Agony of Victory and Thrill of Defeat: Mixed emotional reactions to disappointing wins and relieving losses. *Psychological Science*, *15*(5), 325–330. https://doi.org/10.1111/j.0956-7976.2004.00677.x

Leiberg, S., Klimecki, O., & Singer, T. (2011). Short-Term Compassion Training Increases Prosocial Behavior in a Newly Developed Prosocial Game. *PLoS ONE*, *6*(3), e17798. https://doi.org/10.1371/journal.pone.0017798

Lilius, J. M. (2012). Recovery at Work: Understanding the Restorative Side of "Depleting" Client Interactions. *Academy of Management Review*, *37*(4), 569–588. https://doi.org/10.5465/amr.2010.0458

Lilius, J. M., Kanov, J., Dutton, J. E., Worline, M. C., & Maitlis, S. (2011). Compassion revealed: What we know about compassion at work (and where we need to know more). *Ann Arbor*, *1001*, 48109.

Lim, D., Condon, P., & DeSteno, D. (2015). Mindfulness and compassion: an examination of mechanism and scalability. *PloS One*, *10*(2), e0118221.

Lutz, A., Brefczynski-Lewis, J., Johnstone, T., & Davidson, R. J. (2008). Regulation of the Neural Circuitry of Emotion by Compassion Meditation: Effects of Meditative Expertise. *PLoS ONE*, *3*(3), e1897. https://doi.org/10.1371/journal.pone.0001897

Madden, L. T., Duchon, D., Madden, T. M., & Plowman, D. A. (2012). Emergent Organizational Capacity for Compassion. *Academy of Management Review*, *37*(4), 689–708. https://doi.org/10.5465/amr.2010.0424

Melwani, S., Mueller, J. S., & Overbeck, J. R. (2012). Looking down: The influence of contempt and compassion on emergent leadership categorizations. *Journal of Applied Psychology*, *97*(6), 1171–1185. https://doi.org/10.1037/a0030074

Middleton, D. R. (1989). Emotional style: The cultural ordering of emotions. *Ethos*, *17*(2), 187–201. https://doi.org/10.1525/eth.1989.17.2.02a00030

Mitchell, T. R., & James, L. R. (2001). Building Better Theory: Time and the Specification of When Things Happen. *The Academy of Management Review*, *26*(4), 530. https://doi.org/10.2307/3560240

Muraven, M., Tice, D. M., & Baumeister, R. F. (1998). Self-control as a limited resource: Regulatory depletion patterns. *Journal of Personality and Social Psychology*, *74*(3), 774–789. https://doi.org/10.1037/0022-3514.74.3.774

Muthén, L. K., & Muthén, B. O. (2015). Mplus User's Guide. Seventh Edition. Los Angeles, CA: Muthén & Muthén.

Neff, K. D. (2003). The development and validation of a scale to measure self-compassion. *Self and Identity*, *2*(3), 223–250.

O'Donohoe, S., & Turley, D. (2006). Compassion at the counter: Service providers and bereaved consumers. *Human Relations*, *59*(10), 1429–1448. https://doi.org/10.1177/0018726706071648

Ohly, S., Sonnentag, S., Niessen, C., & Zapf, D. (2010). Diary Studies in Organizational Research: An Introduction and Some Practical Recommendations. *Journal of Personnel Psychology*, *9*(2), 79–93. https://doi.org/10.1027/1866-5888/a000009

Ong, A. D., Bergeman, C. S., Bisconti, T. L., & Wallace, K. A. (2006). Psychological resilience, positive emotions, and successful adaptation to stress in later life. *Journal of Personality and Social Psychology*, *91*(4), 730–749. https://doi.org/10.1037/0022-3514.91.4.730

Oveis, C., Cohen, A. B., Gruber, J., Shiota, M. N., Haidt, J., & Keltner, D. (2009). Resting respiratory sinus arrhythmia is associated with tonic positive emotionality. *Emotion*, *9*(2), 265–270. https://doi.org/10.1037/a0015383

Oveis, C., Horberg, E. J., & Keltner, D. (2010). Compassion, pride, and social intuitions of self-other similarity. *Journal of Personality and Social Psychology*, *98*(4), 618–630. https://doi.org/10.1037/a0017628

Pace, T. W. W., Negi, L. T., Adame, D. D., Cole, S. P., Sivilli, T. I., Brown, T. D., … Raison, C. L. (2009). Effect of compassion meditation on neuroendocrine, innate immune and behavioral responses to psychosocial stress. *Psychoneuroendocrinology*, *34*(1), 87–98. https://doi.org/10.1016/j.psyneuen.2008.08.011

Powley, E. H. (2009). Reclaiming resilience and safety: Resilience activation in the critical period of crisis. *Human Relations*, *62*(9), 1289–1326.

Preacher, K. J., Curran, P. J., & Bauer, D. J. (2006). Computational tools for probing interaction effects in multiple linear regression, multilevel modeling, and latent curve analysis. *Journal of Educational and Behavioral Statistics, 31*, 437-448.

Raudenbush, S., & Bryk, A. (2002). *Hierarchical Linear Models: Applications and Data Analysis Methods (Advanced Quantitative Techniques in the Social Sciences)*. Sage Publications, Inc. Retrieved from http://www.amazon.ca/exec/obidos/redirect?tag=citeulike09-20&path=ASIN/076191904X

Rein, G., Atkinson, M., & McCraty, R. (1995). The physiological and psychological effects of compassion and anger. *Journal of Advancement in Medicine*, *8*(2), 87–105.

Ritter, S. M., Karremans, J. C., & van Schie, H. T. (2010). The role of self-regulation in derogating attractive alternatives. *Journal of Experimental Social Psychology*, *46*(4), 631–637. https://doi.org/10.1016/j.jesp.2010.02.010

Roe, R. A. (2008). Time in Applied Psychology: The Study of “What Happens” Rather Than “What Is.” *European Psychologist*, *13*(1), 37–52. https://doi.org/10.1027/1016-9040.13.1.37

Ruttan, R. L., McDonnell, M.-H., & Nordgren, L. F. (2015). Having "been there" doesn't mean I care: When prior experience reduces compassion for emotional distress. *Journal of Personality and Social Psychology*, *108*(4), 610–622. https://doi.org/10.1037/pspi0000012

Rynes, S. L., Bartunek, J. M., Dutton, J. E., & Margolis, J. D. (2012). Care and Compassion Through an Organizational Lens: Opening Up New Possibilities. *Academy of Management Review*, *37*(4), 503–523. https://doi.org/10.5465/amr.2012.0124

Sabo, B. M. (2006). Compassion fatigue and nursing work: can we accurately capture the consequences of caring work? *International Journal of Nursing Practice*, *12*(3), 136–142.

Salzberg, S. (1995). *Lovingkindness: TheRevolutionaryArtofHappiness*. Shambala: Boston.

Shaver, P., Schwartz, J., Kirson, D., & O'Connor, C. (1987). Emotion knowledge: Further exploration of a prototype approach. *Journal of Personality and Social Psychology*, *52*(6), 1061–1086. https://doi.org/10.1037/0022-3514.52.6.1061

Shiota, M. N., Keltner, D., & John, O. P. (2006). Positive emotion dispositions differentially associated with Big Five personality and attachment style. *The Journal of Positive Psychology*, *1*(2), 61–71. https://doi.org/10.1080/17439760500510833

Simon, H. A. (1967). Motivational and emotional controls of cognition. *Psychological Review*, *74*(1), 29.

Simpson, A. V., Clegg, S., & Pina e Cunha, M. (2013). Expressing Compassion in the Face of Crisis: Organizational Practices in the Aftermath of the Brisbane Floods of 2011. *Journal of Contingencies and Crisis Management*, *21*(2), 115–124. https://doi.org/10.1111/1468-5973.12016

Simpson, A. V., Clegg, S., & Pitsis, T. (2014a). "I Used to Care but Things Have Changed" A Genealogy of Compassion in Organizational Theory. *Journal of Management Inquiry*, *23*(4), 347–359.

Simpson, A. V., Clegg, S., & Pitsis, T. (2014b). Normal Compassion: A Framework for Compassionate Decision Making. *Journal of Business Ethics*, *119*(4), 473–491. https://doi.org/10.1007/s10551-013-1831-y

Simpson, A. V., Clegg, S. R., & Freeder, D. (2013). Compassion, power and organization. *Journal of Political Power*, *6*(3), 385–404. https://doi.org/10.1080/2158379X.2013.846558

Singer, T., & Lamm, C. (2009). The social neuroscience of empathy. *Annals of the New York Academy of Sciences*, *1156*(1), 81–96.

Stellar, J. E., Cohen, A., Oveis, C., & Keltner, D. (2015). Affective and physiological responses to the suffering of others: Compassion and vagal activity. *Journal of Personality and Social Psychology*, *108*(4), 572–585. https://doi.org/10.1037/pspi0000010

Stellar, J. E., Manzo, V. M., Kraus, M. W., & Keltner, D. (2012). Class and compassion: socioeconomic factors predict responses to suffering. *Emotion*, *12*(3), 449.

Thomas, D. L., & Diener, E. (1990). Memory accuracy in the recall of emotions. *Journal of Personality and Social Psychology*, *59*(2), 291.

Toi, M., & Batson, C. D. (1982). More evidence that empathy is a source of altruistic motivation. *Journal of Personality and Social Psychology*, *43*(2), 281.

Tsui, A. S. (2013). 2012 Presidential Address—On Compassion In Scholarship: Why Should We Care? *Academy of Management Review*, *38*(2), 167–180.

Valdesolo, P., & DeSteno, D. (2011). Synchrony and the social tuning of compassion. *Emotion*, *11*(2), 262.

Watkins, M. B., Ren, R., Umphress, E. E., Boswell, W. R., Triana, M. del C., & Zardkoohi, A. (2015). Compassion organizing: Employees' satisfaction with corporate philanthropic disaster response and reduced job strain. *Journal of Occupational and Organizational Psychology*, *88*(2), 436–458. https://doi.org/10.1111/joop.12088

Watson, D., & Clark, L. A. (1999). *Positive and Negative Affect Schedule- Expanded Form*.

Watson, D., & Tellegen, A. (1985). Toward a consensual structure of mood. *Psychological Bulletin*, *98*(2), 219–235. https://doi.org/10.1037/0033-2909.98.2.219

Weng, H. Y., Fox, A. S., Shackman, A. J., Stodola, D. E., Caldwell, J. Z. K., Olson, M. C., … Davidson, R. J. (2013). Compassion Training Alters Altruism and Neural Responses to Suffering. *Psychological Science*, *24*(7), 1171–1180. https://doi.org/10.1177/0956797612469537

Yagil, D. (2015). Display rules for kindness: Outcomes of suppressing benevolent emotions. *Motivation and Emotion*, *39*(1), 156–166. https://doi.org/10.1007/s11031-014-9418-1

10.TABLES AND FIGURES

Table 1. Summary of support for hypotheses.

Hypothesis	**Support from *N* = 571 analyses**	**Relevant figures and tables**	**Support from subsample analyses**	**Relevant figures and tables**
H1: At its incidence, compassion reduces regulatory resources (increases depletion)	Not supported	Table 10 and 11	N/A	N/A
H2: Compassion should lead to behaviours that relieve suffering of others.	**Supported**	Table 12	***Partially supported: aftternoon compassion***	None
H3: The relationship between feelings of compassion and compassionate behaviour is moderated perceived constraints to action.	***Partially supported: morning and afternoon compassion***	Table 13, Figure 3a and 3c	***Partially supported: morning compassion***	Figure 3b
H4a & H4b: Compassionate behaviour is positively related to personal resources such as (a) perceived prosocial impact and (b) self-efficacy.	**Supported for H4a** ***Partially supported for H4b: afternoon compassion***	Table 13 and 14	***Partially supported for H4a: Morning and afternoon compassion*** ***Partially supported for H4b: Afternoon compassion***	None
H5: Compassionate behaviour mediates the relationship between feelings of compassion and personal resources such as (a) perceived prosocial impact and (b) self-efficacy.	Not supported for H5a ***Partially support for H5b: afternoon compassion***	Table 15 and 16	***Partially supported for H5a: Afternoon compassion*** ***Partially supported for H5b: Afternoon compassion***	Table 17 and 18
H6a & 6b: The relationship between compassionate feelings and (a) perceived prosocial impact and (b) self-efficacy is moderated by constraints to compassion action such that when constraints are low (high), compassion feelings lead compassion behaviours which build (do not build) personal resources.	Not supported	Table 15 and 16	Not supported	None
H7: Compassion improves stress recovery.	Not supported	None	N/A	N/A
H8: The relationship between compassion and stress recovery is mediated by the co-activation of positive and negative affect.	***Some evidence for H8***	Table 19 and 20, Figure 4, 5, 6, 7	N/A	N/A

Table 2. Correlation table of pilot study.

	M	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Age	20.58	1.37	(-)																	
2. Male	-	-	.61^{**a}	(-)																
3. Total days compassion felt	3.61	3.23	-.06^{a}	-.04	(-)															
4. Total times compassion felt	3.89	3.62	-.08^{a}	-.10	.96**	(-)														
5. Compassion felt today	0.54	0.50	.07^{a}	.00	.54**	.52**	(-)													
6. Compassion felt yesterday	0.65	0.48	.03^{a}	-.04	.53**	.51**	.51**	(-)												
7. No. times compassion felt today	0.68	0.72	.09^{a}	-.02	.53**	.58**	.87**	.46**	(-)											
8. No. times compassion felt yesterday	0.72	0.61	-.07^{a}	-.18	.47**	.54**	.42**	.87**	.38**	(-)										
9. Compassion Scale (CS)	3.97	0.43	-.07^{b}	-.24	.08	.10	.03	.19	.04	.23	(.87)									
10. CS – Kindness	4.11	0.48	-.07^{b}	-.20	.19	.18	.04	.25	.06	.26	.79**	(.59)								
11. CS – Indifference	2.16	0.64	.09^{b}	.23	-.07	-.12	-.14	-.15	-.10	-.26	-.81**	-.48**	(.67)							
12. CS – Common Humanity	4.06	0.53	.09^{b}	-.13	.00	.01	.10	.35*	.11	.35*	.56**	.62**	-.31	(.60)						
13. CS – Separation	2.03	0.65	.04^{b}	.19	-.22	-.22	-.02	-.13	-.12	-.16	-.78**	-.47**	.68**	-.18	(.73)					
14. CS – Mindfulness	3.95	0.54	-.09^{b}	-.04	-.20	-.19	-.18	-.12	-.18	-.15	.56**	.43**	-.25	.20	-.27†	(.53)				
15. CS – Disengagement	2.09	0.69	.08^{b}	.23	-.06	-.05	.00	-.10	.04	-.12	-.85**	-.57**	.69**	-.29†	.68**	-.37*	(.67)			
16. Mixed Emotion	3.23	1.04	.09^{a}	-.08	.04	.11	.02	-.10	.09	.06	.31†	.15	-.29†	.01	-.26	.13	-.43**	(.91)		
17. Self-efficacy	5.12	0.90	-.05^{a}	.04	.21†	.24*	.16	.22	.21†	.25*	.29	.29†	-.17	.09	-.22	.26	-.24	.17	(.94)	
18. Depletion	2.87	0.69	-.08^{c}	-.14	-.32†	-.34*	-.27	-.38*	-.40*	-.20	-	-	-	-	-	-	-	-.13	-.69**	(.96)

a. N = 72 due to missing data; b. N = 36 due to missing data; c. N = 35 due to missing data; N = 38 for remaining CS and CS subscale correlations and N = 74 for all other remaining correlations.

† $p < .10$, * $p < .05$, ** $p < .01$. Off-diagonals values in parentheses are cronbach alpha values where applicable.

Table 3. Linear Regression Results for Frequency of Compassion Felt Today on Depltion and Self-efficacy.

	DV: Depletion						DV: Self-efficacy					
	Model 1			Model 2			Model 3			Model 4		
Predictor	*B*	*SE*	*T*	*B*	*SE*	*t*	*B*	*SE*	*t*	*B*	*SE*	*t*
Intercept	2.35	2.77	0.85	3.46	2.61	1.33	7.06	2.28	3.09**	7.39	2.26	3.27**
Age	0.01	0.12	0.08	-0.03	0.11	-0.25	-0.08	0.10	-0.80	-0.10	0.10	-1.02
Gender	0.21	0.32	0.66	0.15	0.30	0.50	-0.22	0.27	-0.81	-0.26	0.26	-0.97
Frequency of compassion felt				-0.36	0.14	-2.49				0.25	0.14	1.71t
						R_{change}^2= 0.16						R_{change}^2= 0.04
						Fchange (1,31) = 6.18*						Fchange = 2.92†

Table 4. Linear Regression Results for Frequency of Compassion Felt Yesterday on Mixed emotion.

	DV: Mixed emotion					
	Model 5			Model 6		
Predictor	*B*	*SE*	*T*	*B*	*SE*	*t*
Intercept	-0.91	2.68	-0.34	-0.90	2.70	-0.33
Age	0.17	0.11	1.47	0.17	0.12	1.45
Gender	0.43	0.31	1.38	0.41	0.32	1.29
Compassion felt yesterday				0.07	0.21	0.32
				$R_{change}^2 = .00$		
				$F_{change}(1,68) = 0.11$		

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

Table 5. Within- and Between-Individual Descriptive Statistics and Correlations.

	N	*M*	*SD*	1	2	3	4	5	6	7	8	9	10
1. Morning felt compassion	80	0.20	0.21	(-)	.17	.72**	.66**	.09	.46**	-.72**	-.24*	-.62**	-.07
2. Afternoon felt compassion	80	0.17	0.25	.15**	(-)	.80**	.24*	.72**	.64**	-.21†	-.71**	-.54**	-.11
3. Day felt compassion	80	0.37	0.35	.77**	.75**	(-)	.57**	.56**	.72**	-.58**	-.64**	-.75**	-.12
4. Morning compassion behaviour	80	0.07	0.11	.65**	.15**	.54**	(-)	.28*	.71**	-.74**	-.35**	-.69**	-.03
5. Afternoon compassion behaviour	80	0.07	0.18	.09*	.51**	.39**	.13**	(-)	.85**	-.23*	-.68**	-.54**	-.06
6. Day behaviour	80	0.16	0.25	.44**	.37**	.53**	.75**	.66**	(-)	-.54**	-.69**	-.75**	-.05
7. Morning constraints to compassion action	80	6.60	0.51	-.70**	-.12**	-.55**	-.66**	-.06	-.54**	(.37)	.30**	.84**	.11
8. Afternoon constraints to compassion action	80	6.67	0.43	-.17**	-.58**	-.48**	-.24**	-.63**	-.53**	.13**	(.55)	.77**	.12
9. Constraints to compassion action	80	6.63	0.38	-.59**	-.45**	-.69**	-.61**	-.44**	-.71**	.78**	.72**	(.46)	.14
10. Afternoon depletion	80	3.69	0.91	.03	.00	.02	.01	-.03	-.03	.02	.06	.05	(.92)
11. Evening depletion	80	3.74	0.98	-.02	-.03	-.03	.00	-.02	.00	.04	.09*	.09*	.60**
12. Next day afternoon depletion	79	3.66	0.95	.00	-.07	-.04	-.03	-.04	-.06	.04	.04	.05	.48**
13. Afternoon perceived prosocial impact	80	3.20	0.63	.15**	.07†	.15**	.15**	.05	.15**	-.20**	-.11**	-.21**	-.36**
14. Evening perceived prosocial impact	80	3.18	0.63	.08*	.12**	.14**	.06	.14**	.11**	-.08†	-.15**	-.15**	-.28**
15. Next day afternoon perceived prosocial impact	79	3.17	0.66	.08	.07	.10*	.10*	.07	.12*	-.07	-.06	-.09†	-.26**
16. Afternoon self-efficacy	80	3.42	0.55	.00	-.02	-.01	.01	-.02	-.01	-.04	-.02	-.04	-.65**
17. Evening self-efficacy	80	3.41	0.59	.06	.02	.05	.01	.04	.01	-.06	-.05	-.07†	-.41**
18. Next day afternoon self-efficacy	79	3.44	0.56	.04	.02	.04	.06	.01	.06	-.07	.03	-.03	-.38**
19. Afternoon positive affect	80	2.61	0.79	.07†	.00	.05	.11**	-.02	.06	-.13**	-.05	-.12**	-.48**
20. Evening positive affect	80	2.58	0.84	.09*	.05	.09*	.12**	-.02	.05	-.12**	-.04	-.11**	-.34**
21. Next day afternoon positive affect	79	2.58	0.81	.04	.09†	0.08†	.12*	.00	.09†	-.09†	-.05	-.09†	-.28**
22. Afternoon negative affect	80	1.85	0.68	.15**	.03	.12**	.10*	-.05	.02	-.05	.00	-.04	.51**
23. Evening negative affect	80	1.92	0.74	.00	.03	.02	.02	-.05	-.02	.01	.03	.02	.38**
24. Next day negative affect	79	1.83	0.71	.02	-.02	.00	.00	-.03	-.04	.01	-.03	-.01	.30**
25. Afternoon stress	80	2.68	0.51	.04	.00	.03	.01	-.01	-.02	.03	.06	.06	.70**
26. Evening stress	80	2.72	0.57	-.03	-.04	-.05	.00	-.06	-.02	.04	.08†	.08†	.48**
27. Next day afternoon stress	79	2.67	0.53	-.02	-.10*	-.08†	-.06	-.05	-.08	.06	.06	.08	.45**
28. Day mixed emotion	80	2.65	0.72	.10*	.12**	.14**	.08*	.07	.09*	-.05	-.05	-.07	.19**
29. Next day mixed emotion	79	2.63	0.73	.09†	.06	.10*	.06	-.03	.01	.00	-.04	-.03	.16**
30. Next next day mixed emotion	64	2.66	0.48	-.05	-.03	-.05	-.07	-.03	-.07	.09	.09†	.12*	.04

	N	*M*	*SD*	1	2	3	4	5	6	7	8	9	10
31. Peak stress	80	3.10	0.85	.05	.03	.05	.06	.02	.06	-.06	.01	-.03	.31**
32. Next day peak stress	79	3.09	0.92	.06	-.09†	-.02	.03	-.07	-.03	.01	.02	.02	.27**
33. Next next day peak stress	64	3.10	0.58	-.10†	.01	-.06	-.06	-.03	-.09	.12*	.04	.11*	.01
34. Last night sleep quantity (minutes)	80	412.06	71.89	.08†	.12**	.13**	.04	.06	.07	-.04	-.10*	-.10*	-.10*
35. Sleep quantity (minutes)	72	412.87	48.97	.03	.04	.04	.04	.07	.05	.02	-.03	-.01	-.07
36. Last night sleep quality	80	1.42	0.84	-.05	-.03	-.05	-.01	.02	.01	.04	.06	.06	.19**
37. Sleep quality	79	1.37	0.89	-.02	.00	-.01	-.02	-.01	-.02	.02	.06	.05	.15**
38. Morning vitality	80	3.72	0.81	.11*	-.01	.07	.06	-.01	.03	-.09*	-.07†	-.11*	-.25**
39. Next day morning vitality	79	3.69	0.85	.06	.11*	.11*	.05	.11*	.08†	-.08	-.16**	-.15**	-.17**
40. Study day	-	-	-	-.31**	-.21**	-.35**	-.25**	-.13**	-.25**	.30**	.15**	.30**	-.07†
41. Trait negative affect	80	2.37	0.82	-.03	.00	-.02	-.01	-.06	-.05	.08*	.02	.07	.25**
42. Trait positive affect	80	3.30	0.73	.01	-.02	-.01	-.02	-.08†	-.08†	-.02	.04	.01	-.28**
43. Trait resilience	80	5.47	0.86	-.02	-.12**	-.09*	-.05	-.09*	-.10*	-.01	.09*	.05	-.20**
44. Trait perceived social support	80	3.00	0.42	.03	.12**	.10*	.04	.13**	.10*	-.07†	-.08†	-.10*	-.24**
45. Trait mindfulness - Acting with awareness	80	3.14	0.77	.07†	-.01	.04	.00	.04	.02	-.07†	.03	-.03	-.16**
46. Trait mindfulness - Describing	80	3.23	0.75	.10*	.01	.07†	.02	.01	-.01	-.07†	-.03	-.07†	-.22**
47. Trait mindfulness - Non-judging	80	2.54	0.68	-.01	.02	.00	.00	.01	.01	.00	.00	.00	-.20**
48. Trait mindfulness - Non-reactance	80	3.14	0.72	.01	-.09*	-.05	.01	.02	.01	-.04	.04	.00	-.21**
49. Trait mindfulness - Observing	80	3.28	0.80	-.04	.02	-.01	-.04	-.05	-.07†	.02	-.01	.01	-.07
50. Trait self-compassion - Common humanity	80	3.37	0.83	.02	.01	.02	.01	-.03	-.01	-.09*	-.04	-.09*	-.07
51. Trait self-compassion - Isolation	80	3.16	0.93	-.05	.01	-.03	-.02	-.02	-.02	.09*	-.01	.06	.28**
52. Trait self-compassion - Mindfulness	80	3.49	0.76	.02	-.01	.00	.02	.02	.02	-.06	.00	-.04	-.20**
53. Trait self-compassion - Over-identification	80	3.18	0.92	-.03	.02	-.01	-.02	.00	-.01	.06	-.03	.02	.38**
54. Trait self-compassion - Self-judgment	80	3.42	0.83	.00	.01	.01	-.04	.01	-.03	.05	-.03	.02	.25**
55. Trait self-compassion - Kindness	80	3.06	0.87	.01	-.02	-.01	.04	-.03	.01	-.07†	.00	-.05	-.13**
56. Trait empathic concern	80	18.06	4.24	-.02	.08†	.04	-.01	.04	.01	-.01	-.07†	-.05	-.12**
57. Trait fantasy	80	16.45	5.20	-.03	.06	.02	-.08†	-.03	-.10*	.06	.02	.05	.06
58. Trait personal distress	80	13.29	4.78	-.04	.06	.01	-.01	.00	.01	.04	-.01	.02	.21**
59. Trait perspective taking	80	19.01	3.65	.00	.03	.02	.01	.07	.05	-.04	-.02	-.04	-.09*
60. Trait compassion	80	5.32	0.88	-.02	.08†	.04	.01	.05	.03	.01	-.06	-.03	-.10*
61. Age	80	21.09	1.19	-.02	-.03	-.04	-.01	-.06	-.05	.02	-.03	-.01	-.04
62. Female	80	0.55	0.50	-.02	.01	-.01	-.04	.00	-.01	-.01	.05	.02	.04
63. Socioeconomic status	80	2.94	1.51	.06	.02	.06	.02	-.04	-.05	.00	.03	.02	-.15**

Table 5. Within- and Between-Individual Descriptive Statistics and Correlations cont'd.

	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1. Morning felt compassion	-.09	-.10	.20†	.17	.17	.01	.10	-.02	.09	.13	.09	.06	.02	.00
2. Afternoon felt compassion	-.21†	-.12	.10	.16	.12	.02	.15	.06	-.02	.05	.01	-.05	-.14	-.07
3. Day felt compassion	-.20†	-.14	.19†	.22†	.20†	.02	.17	.03	.04	.11	.06	.00	-.09	-.05
4. Morning compassion behaviour	.06	-.07	.12	.07	.18	-.04	-.02	.00	.06	.04	.14	.09	.10	.02
5. Afternoon compassion behaviour	-.09	-.08	.02	.04	.05	-.06	.04	-.04	-.17	-.16	-.20†	-.08	-.11	-.10
6. Day behaviour	-.04	-.09	.10	.09	.16	-.06	.03	-.02	-.06	-.06	.00	.00	-.01	-.02
7. Morning constraints to compassion action	.15	.11	-.23*	-0.19†	-0.21†	-.16	-.20†	-.14	-.14	-.17	-.14	.00	.09	.03
8. Afternoon constraints to compassion action	.21†	.12	-.12	-.17	-.15	.02	-.08	-.02	-.02	-.06	-.01	.03	.14	.05
9. Constraints to compassion action	.22*	.15	-.22*	-.23*	-.23*	-.09	-.18	-.11	-.11	-.15	-.10	.02	.14	.05
10. Afternoon depletion	.87**	.97**	-.54**	-.44**	-.51**	-.71**	-.64**	-.72**	-.54**	-.54**	-.55**	.64**	.58**	.61**
11. Evening depletion	(.92)	.85**	-.55**	-.52**	-.49**	-.70**	-.73**	-.69**	-.59**	-.64**	-.55**	.61**	.67**	.58**
12. Next day afternoon depletion	.57**	(-)	-.54**	-.44**	-.52**	-.63**	-.57**	-.66**	-.52**	-.51**	-.51**	.62**	.55**	.62**
13. Afternoon perceived prosocial impact	-.28**	-.23**	(.95)	.89**	.94**	.67**	.65**	.67**	.57**	.57**	.57**	-.19	-.26*	-.17
14. Evening perceived prosocial impact	-.34**	-.28**	.57**	(.94)	.85**	.61**	.67**	.61**	.51**	.59**	.51**	-.12	-.23*	-.11
15. Next day afternoon perceived prosocial impact	-.31**	-.36**	.38**	.46**	(-)	.62**	.59**	.66**	.52**	.49**	.56**	-.16	-.22†	-.15
16. Afternoon self-efficacy	-.47**	-.29**	.52**	.39**	.31**	(.95)	.91**	.97**	.65**	.64**	.61**	-.41**	-.48**	-.39**
17. Evening self-efficacy	-.59**	-.41**	.37**	.51**	.40**	.59**	(.95)	.89**	.68**	.71**	.65**	-.30**	-.41**	-.28*
18. Next day afternoon self-efficacy	-.44**	-.63**	.31**	.34**	.53**	.50**	.60**	(-)	.61**	.59**	.61**	-.40**	-.46**	-.38**
19. Afternoon positive affect	-.38**	-.22**	.43**	.32**	.26**	.54**	.43**	.32**	(.93)	.92**	.97**	-.09	-.14	-.10
20. Evening positive affect	-.54**	-.33**	.36**	.45**	.30**	.40**	.57**	.40**	.65**	(.93)	.88**	-.13	-.23*	-.12
21. Next day afternoon positive affect	-.37**	-.48**	.31**	.33**	.43**	.33**	.43**	.54**	.52**	.59**	(-)	-.06	-.06	-.07
22. Afternoon negative affect	.45**	.34**	-.14**	-.11*	-.03	-.38**	-.22**	-.20**	-.15**	-.10*	.00	(.93)	.89**	.97**
23. Evening negative affect	.56**	.35**	-.13**	-.18**	-.09†	-.30**	-.34**	-.23**	-.10*	-.25**	-.04	.63**	(.93)	.85**
24. Next day negative affect	.38**	.48**	-.09†	-.07	-.09†	-.16**	-.24**	-.35**	.03	-.11*	-.13*	.54**	.57**	(-)
25. Afternoon stress	.52**	.37**	-.38**	-.28**	-.25**	-.67**	-.47**	-.37**	-.52**	-.41**	-.31**	.49**	.37**	.29**
26. Evening stress	.68**	.47**	-.30**	-.40**	-.31**	-.51**	-.70**	-.46**	-.44**	-.58**	-.42**	.37**	.53**	.33**
27. Next day afternoon stress	.51**	.69**	-.22**	-.25**	-.42**	-.37**	-.52**	-.66**	-.30**	-.43**	-.52**	.33**	.37**	.47**
28. Day mixed emotion	.32**	.28**	.04	-.01	.04	-.09*	-.10*	-.15**	-.02	-.10*	.03	.29**	.39**	.32**
29. Next day mixed emotion	.27**	.22**	-.03	-.05	.03	-.09†	-.11*	-.11*	.05	-.02	-.02	.30**	.26**	.31**
30. Next next day mixed emotion	.07	.04	-.16**	-.09†	-.09	-.03	-.06	-.08	-.07	-.07	-.11†	.04	.01	.11†

	11	12	13	14	15	16	17	18	19	20	21	22	23	24
31. Peak stress	.43**	.31**	-.20**	-.18**	-.19**	-.30**	-.27**	-.27**	-.25**	-.29**	-.21**	.36**	.40**	.32**
32. Next day peak stress	.30**	.33**	-.18**	-.14**	-.19**	-.22**	-.23**	-.32**	-.16**	-.21**	-.24**	.24**	.26**	.40**
33. Next next day peak stress	-.03	.01	-.14**	-.08	-.11†	-.03	-.01	-.04	.03	.04	-.05	.00	-.09†	-.03
34. Last night sleep quantity (minutes)	-.10*	-.01	-.08†	-.02	-.04	.03	.00	.02	.02	.08†	.04	.00	-.05	.04
35. Sleep quantity (minutes)	-.07	.01	.00	.06	-.03	.07	-.01	.07	.05	.08†	.03	.04	-.04	.08
36. Last night sleep quality	.20**	.17**	-.10*	-.15**	-.12*	-.13**	-.15**	-.11*	-.07†	-.11**	-.08	.15**	.13**	.16**
37. Sleep quality	.22**	.22**	-.09	-.10*	-.14**	-.04	-.16**	-.13**	-.03	-.10*	-.07	.10*	.13**	.21**
38. Morning vitality	-.23**	-.12*	.28**	.27**	.23**	.29**	.25**	.14**	.34**	.29**	.22**	-.05	-.08†	.04
39. Next day morning vitality	-.23**	-.25**	.20**	.24**	.30**	.21**	.25**	.29**	.30**	.32**	.32**	.02	-.09†	-.06
40. Study day	-.09*	-.04	-.07†	-.02	-.04	.02	.02	.02	-.10*	-.07†	-.08	-.16**	-.12**	-.12*
41. Trait negative affect	.27**	.21**	-.03	.04	.01	-.11**	-.12**	-.07	-.03	-.03	.03	.34**	.36**	.33**
42. Trait positive affect	-.32**	-.24**	.24**	.25**	.22**	.38**	.43**	.35**	.40**	.40**	.37**	-.02	-.04	.03
43. Trait resilience	-.21**	-.16**	.12**	.05	.10*	.26**	.27**	.20**	.21**	.18**	.19**	-.15**	-.11**	-.15**
44. Trait perceived social support	-.28**	-.20**	.05	.04	.05	.14**	.18**	.11*	.12**	.11**	.06	-.24**	-.27**	-.23**
45. Trait mindfulness - Acting with awareness	-.19**	-.13**	.07	.06	.07	.08†	.12**	.03	.05	.07†	.01	-.17**	-.20**	-.13**
46. Trait mindfulness – Describing	-.30**	-.19**	.22**	.26**	.20**	.22**	.31**	.17**	.28**	.30**	.24**	-.02	-.06	.03
47. Trait mindfulness - Non-judging	-.17**	-.21**	.15**	.06	.14**	.09*	.07†	.08	.08*	.05	.08†	-.16**	-.17**	-.15**
48. Trait mindfulness - Non-reactance	-.17**	-.16**	.21**	.10*	.20**	.23**	.20**	.18**	.23**	.16**	.21**	-.12**	-.10*	-.08†
49. Trait mindfulness - Observing	-.13**	-.04	.15**	.19**	.18**	.18**	.23**	.19**	.18**	.20**	.18**	.05	-.04	.07
50. Trait self-compassion - Common humanity	-.13**	-.04	.13**	.15**	.17**	.21**	.23**	.22**	.09*	.12**	.09†	-.06	-.16**	-.07
51. Trait self-compassion - Isolation	.24**	.25**	-.16**	-.15**	-.16**	-.21**	-.23**	-.19**	-.15**	-.19**	-.13**	.15**	.19**	.12*
52. Trait self-compassion - Mindfulness	-.26**	-.17**	.15**	.10*	.18**	.29**	.30**	.28**	.22**	.19**	.22**	-.18**	-.20**	-.17**
53. Trait self-compassion - Over-identification	.38**	.37**	-.27**	-.21**	-.26**	-.29**	-.32**	-.28**	-.29**	-.29**	-.31**	.24**	.23**	.22**
54. Trait self-compassion - Self-judgment	.19**	.27**	-.13**	-.11**	-.15**	-.15**	-.14**	-.17**	-.21**	-.21**	-.22**	.18**	.19**	.20**
55. Trait self-compassion - Kindness	-.13**	-.13**	.14**	.11**	.17**	.21**	.18**	.22**	.20**	.18**	.18**	-.04	-.09*	-.05
56. Trait empathic concern	-.15**	-.11*	.04	.06	.04	.10*	.06	.11*	-.03	.02	-.03	-.17**	-.23**	-.21**
57. Trait fantasy	-.01	.04	-.03	.00	-.03	-.05	-.01	-.06	.06	.04	.03	.02	-.02	.02
58. Trait personal distress	.24**	.18**	-.14**	-.07†	-.11*	-.13**	-.19**	-.07	-.21**	-.19**	-.18**	.08†	.07	.05
59. Trait perspective taking	-.13**	-.06	.05	.10*	.07	.17**	.13**	.18**	-.03	-.01	-.03	-.16**	-.23**	-.16**
60. Trait compassion	-.16**	-.08†	.05	.08†	.10*	.14**	.14**	.16**	.09*	.09*	.10*	-.09*	-.14**	-.10*
61. Age	-.02	-.02	.02	-.03	.01	-.03	-.11*	-.08	-.02	-.01	-.01	.06	.02	.04
62. Female	.00	.01	.02	.04	.03	.06	.06	.10*	-.05	-.05	-.08	-.16**	-.15**	-.17**
63. Socioeconomic status	-.11**	-.14**	.16**	.10*	.13**	.14**	.16**	.12*	.12**	.12**	.15**	.01	.04	.04

Table 5. Within- and Between-Individual Descriptive Statistics and Correlations cont'd.

	25	26	27	28	29	30	31	32	33	34	35	36	37	38
1. Morning felt compassion	-.01	-.04	-.05	.35**	.33**	-.25*	.20†	.22†	-.47**	.07	-.06	-.11	-.14	.17
2. Afternoon felt compassion	-.10	-.27*	-.13	.16	.11	.20	-.05	-.09	.10	.27*	-.03	.04	-.09	.10
3. Day felt compassion	-.08	-.21†	-.11	.32**	.29*	-.03	.09	.09	-.23†	.23*	-.06	-.04	-.16	.17
4. Morning compassion behaviour	.05	.03	-.04	.23*	.20†	-.25*	.16	.16	-.25*	-.02	-.04	-.05	-.16	.03
5. Afternoon compassion behaviour	.01	-.14	.01	.07	-.03	.06	.05	-.01	.01	.18	-.07	.19	.02	-.07
6. Day behaviour	.03	-.09	-.01	0.19†	.16	-.17	.12	.11	-.21	.13	-.06	.10	-.08	-.01
7. Morning constraints to compassion action	.08	.13	.08	-.17	-.13	.20	-.05	-.04	.27*	-.11	.10	.06	.13	-.12
8. Afternoon constraints to compassion action	.08	.21†	.07	-.05	-.03	.14	.02	.01	.04	-.30**	.01	-.04	.07	-.11
9. Constraints to compassion action	.10	.21†	.10	-.14	-.11	.22†	-.02	-.03	.22†	-.24*	.07	.01	.13	-.14
10. Afternoon depletion	.83**	.74**	.84**	.40**	.42**	.18	.58**	.53**	.03	.00	-.10	.36**	.33**	-.39**
11. Evening depletion	.77**	.81**	.75**	.42**	.44**	.23†	.60**	.55**	.04	-.06	-.14	.35**	.33**	-.39**
12. Next day afternoon depletion	.77**	.66**	.81**	.43**	.43**	.16	.59**	.52**	.00	.00	-.09	.37**	.34**	-.37**
13. Afternoon perceived prosocial impact	-.51**	-.53**	-.52**	.00	-.05	-.30*	-.41**	-.41**	-.23†	-.14	.03	-.22†	-.18	.43**
14. Evening perceived prosocial impact	-.41**	-.49**	-.40**	-.03	-.08	-.25†	-.34**	-.34**	-.21	-.11	.11	-.27*	-.23*	.45**
15. Next day afternoon perceived prosocial impact	-.49**	-.49**	-.52**	-.01	-.06	-.29*	-.36**	-.36**	-.22†	-.15	-.06	-.25*	-.22*	.45**
16. Afternoon self-efficacy	-.76**	-.77**	-.73**	-.22*	-.26*	-.23†	-.50**	-.50**	-.13	-.05	.13	-.26*	-.18	.48**
17. Evening self-efficacy	-.70**	-.82**	-.68**	-.15	-.22†	-.24†	-.42**	-.44**	-.10	-.03	.06	-.28*	-.24*	.44**
18. Next day afternoon self-efficacy	-.74**	-.74**	-.74**	-.24*	-.28*	-.21†	-.49**	-.50**	-.10	-.06	.08	-.27*	-.19†	.46**
19. Afternoon positive affect	-.64**	-.66**	-.64**	.01	-.01	-.21†	-.40**	-.36**	-.05	.06	.11	-.20†	-.15	.52**
20. Evening positive affect	-.62**	-.71**	-.62**	-.04	-.07	-.27*	-.42**	-.36**	-.03	.09	.15	-.21†	-.16	.49**
21. Next day afternoon positive affect	-.61**	-.62**	-.65**	.03	-.03	-.22†	-.37**	-.35**	-.06	-.01	.10	-.19†	-.18	.47**
22. Afternoon negative affect	.56**	.51**	.53**	.52**	.49**	.10	.53**	.48**	-.07	-.01	.03	.22†	.19†	-.11
23. Evening negative affect	.56**	.61**	.50**	.47**	.43**	.11	.53**	.48**	-.07	-.12	.04	.23*	.19	-.22†
24. Next day negative affect	.54**	.48**	.53**	.51**	.49**	.09	.53**	.47**	-.09	-.01	.01	.25*	.24*	-.14
25. Afternoon stress	(.93)	.88**	.97**	.33**	.34**	.12	.51**	.48**	-.09	.04	-.04	.36**	.34**	-.45**
26. Evening stress	.59**	(.74)	.85**	.27*	.31**	.19	.49**	.47**	-.10	-.01	.00	.34**	.33**	-.44**
27. Next day afternoon stress	.51**	.64**	(.78)	.31**	.33**	.15	.49**	.46**	-.09	.06	-.04	.38**	.38**	-.44**
28. Day mixed emotion	.18**	.22**	.19**	(.92)	.98**	.15	.50**	.43**	-.08	.06	-.19	.28*	.25*	.00
29. Next day mixed emotion	.17**	.17**	.19**	.53**	(-)	.18	.49**	.45**	-.06	.11	-.14	.27*	.28*	.02
30. Next next day mixed emotion	.04	.07	.10	.05	.08	(-)	.12	.17	.53**	-.05	-.11	.00	.02	.00

	25	26	27	28	29	30	31	32	33	34	35	36	37	38
31. Peak stress	.36**	.32**	.41**	.24**	.01	(-)	.95**	-.10	-.04	-.05	.33**	.26*	-.30**	.36**
32. Next day peak stress	.25**	.32**	.25**	.40**	.18**	.44**	(-)	-.09	.02	.00	.27*	.22†	-.25*	.25**
33. Next next day peak stress	-.03	-.03	-.06	.04	.39**	-.09†	.00	(-)	-.06	-.24†	-.12	-.14	-.04	-.03
34. Last night sleep quantity (minutes)	-.02	.01	-.02	.02	.00	-.07	.00	.03	(-)	.10	.18	.16	.11	-.02
35. Sleep quantity (minutes)	.03	.04	-.12*	-.03	-.05	.01	-.04	-.04	.00	(-)	.01	.02	.01	.03
36. Last night sleep quality	.22**	.18**	.17**	.17**	.08	.18**	.17**	-.04	-.03	.03	(-)	.96**	-.44**	.22**
37. Sleep quality	.22**	.25**	.14**	.16**	.03	.18**	.19**	.04	.07	.03	.52**		-.35**	.22**
38. Morning vitality	-.25**	-.19**	.02	.04	-.01	-.14**	-.13**	.01	.12**	-.08	-.31**	-.16**	(.80)	-.25**
39. Next day morning vitality	-.26**	-.28**	.01	.04	.02	-.16**	-.13**	-.02	.12*	-.02	-.15**	-.27**	.49**	-.26**
40. Study day	-.04	-.02	-.10*	-.11*	.03	-.11**	-.10*	-.01	.01	.02	-.05	-.09†	.03	-.04
41. Trait negative affect	.21**	.21**	.22**	.21**	-.01	.15**	.12*	.03	-.07	-.03	.15**	.18**	-.05	.21**
42. Trait positive affect	-.34**	-.34**	-.08†	-.08†	-.08	-.12**	-.11*	.00	-.11**	.10*	-.01	.05	.15**	-.34**
43. Trait resilience	-.20**	-.23**	-.21**	-.21**	-.02	-.20**	-.23**	-.01	-.22**	.06	-.22**	-.20**	.10*	-.20**
44. Trait perceived social support	-.29**	-.21**	-.08*	-.08	.02	-.07†	-.06	.01	-.05	-.01	-.02	-.04	.04	-.29**
45. Trait mindfulness - Acting with awareness	-.18**	-.12*	-.11**	-.11*	-.04	-.01	.02	-.02	-.07	-.07	-.04	-.07	.02	-.18**
46. Trait mindfulness - Describing	-.28**	-.23**	-.06	-.06	-.05	-.06	-.03	-.10†	-.07†	.07	-.08*	-.09†	.19**	-.28**
47. Trait mindfulness - Non-judging	-.15**	-.20**	-.12**	-.11*	-.02	-.13**	-.09†	.02	-.04	.00	-.11**	-.12*	.03	-.15**
48. Trait mindfulness - Non-reactance	-.19**	-.24**	-.08†	-.05	-.05	-.18**	-.15**	-.05	-.08*	.02	-.05	-.04	.18**	-.19**
49. Trait mindfulness - Observing	-.18**	-.13**	-.03	.01	.00	-.09*	-.11*	.07	-.01	.02	-.11**	-.08†	.20**	-.18**
50. Trait self-compassion - Common humanity	-.19**	-.16**	-.05	-.03	.03	-.03	-.04	-.03	-.05	.02	-.05	-.05	.14**	-.19**
51. Trait self-compassion - Isolation	.26**	.23**	.04	.04	.06	.12**	.09†	.04	.02	-.02	.27**	.25**	-.22**	.26**
52. Trait self-compassion - Mindfulness	-.29**	-.28**	-.08*	-.05	.00	-.16**	-.17**	-.01	-.08†	-.05	-.12**	-.14**	.15**	-.29**
53. Trait self-compassion - Over-identification	.37**	.42**	.12**	.13**	.09†	.17**	.14**	.02	.02	-.06	.14**	.12*	-.14**	.37**
54. Trait self-compassion - Self-judgment	.21**	.26**	.07†	.08†	.01	.15**	.14**	.02	-.17**	-.04	.15**	.15**	-.08*	.21**
55. Trait self-compassion - Kindness	-.15**	-.21**	-.08†	-.08	.01	-.14**	-.12*	-.06	.08†	.08	-.09*	-.11*	.15**	-.15**
56. Trait empathic concern	-.10*	-.08†	-.10*	-.11*	.00	-.05	-.06	-.02	.10*	.03	-.04	-.04	.00	-.10*
57. Trait fantasy	-.02	.04	.08†	.09†	.12*	.13**	.11*	.03	.14**	-.03	.10*	.10*	-.05	-.02
58. Trait personal distress	.23**	.25**	.15**	.14**	.12*	.08†	.05	.07	.18**	-.04	.16**	.19**	-.08†	.23**
59. Trait perspective taking	-.10*	-.08†	-.16**	-.15**	-.03	-.07†	-.09†	-.12*	.02	.04	-.09*	-.12*	.07†	-.10*
60. Trait compassion	-.11**	-.10*	-.10*	-.10*	.01	-.04	-.06	-.01	.04	.07	.07†	.08	.08†	-.11**
61. Age	-.01	-.06	-.11*	-.09†	-.06	-.11**	-.08	-.04	-.06	.14**	-.11*	-.15**	-.02	-.01
62. Female	.00	.01	-.01	-.01	.07	.07	.05	.02	.00	-.11*	.01	.01	.03	.00
63. Socioeconomic status	-.15**	-.19**	.05	.03	-.05	-.02	-.01	.00	-.11**	-.04	-.08†	-.10*	.06	-.15**

Table 5. Within- and Between-Individual Descriptive Statistics and Correlations cont'd.

	39	40	41	42	43	44	45	46	47	48	49	50	51	52
1. Morning felt compassion	.17	-	-.08	.02	-.05	.10	.17	.27*	-.05	.04	-.09	.06	-.10	.07
2. Afternoon felt compassion	.27*	-	-.06	-.07	-.20†	.36**	.01	.05	-.01	-.14	.08	.07	-.05	.01
3. Day felt compassion	.29*	-	-.09	-.04	-.17	.31**	.11	.19†	-.04	-.08	.00	.08	-.10	.05
4. Morning compassion behaviour	.07	-	-.02	-.12	-.10	.15	.03	.00	-.03	.02	-.09	.04	-.05	.06
5. Afternoon compassion behaviour	.10	-	-.14	-.17	-.08	.31**	.10	.06	-.08	.10	-.02	.01	-.09	.07
6. Day behaviour	.12	-	-.10	-.16	-.11	.29*	.07	.08	-.07	.08	-.07	.01	-.08	.08
7. Morning constraints to compassion action	-.17	-	0.19†	-.03	-.03	-.21†	-.17	-	.04	-.11	.04	-.23*	.20†	-.14
8. Afternoon constraints to compassion action	-.21†	-	.08	.11	.18	-.24*	.06	-.08	.03	.08	-.06	-.12	.03	-.03
9. Constraints to compassion action	-.24*	-	.17	.04	.08	-.28*	-.08	-.17	.04	-.03	-.01	-.22*	.15	-.11
10. Afternoon depletion	-.38**	-	.38**	-.42**	-.32**	-.33**	-.25*	-.33**	-.31**	-.35**	-.11	-.11	.42**	-.33**
11. Evening depletion	-.44**	-	.42**	-.47**	-.32**	-.38**	-.30**	-.44**	-.24*	-.31**	-.21†	-.22†	.39**	-.39**
12. Next day afternoon depletion	-.37**	-	.35**	-.39**	-.28*	-.32**	-.23*	-.31**	-.34**	-.33**	-.08	-.07	.38**	-.30**
13. Afternoon perceived prosocial impact	.42**	-	-.10	.37**	.21†	.08	.16	.34**	.23*	.35**	.24*	.21†	-.27*	.26*
14. Evening perceived prosocial impact	.43**	-	-.01	.37**	.12	.07	.13	.38**	.10	.20†	.30**	.25*	-.25*	.18
15. Next day afternoon perceived prosocial impact	.42**	-	-.05	.33**	.19†	.08	.20†	.29*	.24*	.33**	.27*	.20†	-.26*	.27*
16. Afternoon self-efficacy	.48**	-	-.23*	.54**	.39**	.21†	.16	.36**	.16	.38**	.27*	.32**	-.35**	.43**
17. Evening self-efficacy	.48**	-	-.23*	.56**	.38**	.25*	.19†	.44**	.10	.34**	.33**	.34**	-.36**	.42**
18. Next day afternoon self-efficacy	.46**	-	-.19	.50**	.34**	.19†	.15	.31**	.17	.34**	.28*	.31**	-.33**	.41**
19. Afternoon positive affect	.50**	-	-.08	.55**	.29**	.14	.09	.40**	.13	.34**	.23*	.14	-.22†	.30**
20. Evening positive affect	.48**	-	-.09	.53**	.24*	.14	.11	.41**	.08	.25*	.26*	.20†	-.26*	.26*
21. Next day afternoon positive affect	.44**	-	-.02	.51**	.28*	.11	.08	.37**	.13	.32**	.21†	.11	-.21†	.28*
22. Afternoon negative affect	-.14	-	.50**	-.07	-.25*	-.33**	-.26*	-.06	-.23*	-.21†	.05	-.11	.24*	-.29**
23. Evening negative affect	-.28*	-	.53**	-.12	-.21†	-.37**	-.29**	-.14	-.24*	-.20†	-.10	-.28*	.31**	-.32**
24. Next day negative affect	-.18	-	.47**	-.04	-.25*	-.35**	-.23*	-.05	-.23*	-.19†	.06	-.12	.20†	-.29**
25. Afternoon stress	-.44**	-	.36**	-.50**	-.40**	-.32**	-.25*	-.40**	-.29**	-.44**	-.19†	-.22*	.38**	-.44**
26. Evening stress	-.49**	-	.34**	-.49**	-.32**	-.39**	-.27*	-.42**	-.20†	-.34**	-.27*	-.30**	.41**	-.44**
27. Next day afternoon stress	-.42**	-	.31**	-.49**	-.37**	-.29**	-.22†	-.34**	-.31**	-.40**	-.17	-.18	.34**	-.40**
28. Day mixed emotion	-.02	-	.31**	-.13	-.29**	-.10	-.16	-.08	-.21	-.10	-.04	-.07	.08	-.13
29. Next day mixed emotion	-.01	-	.28*	-.14	-.30**	-.14	-.19	-.09	-.21†	-.10	-.03	-.05	.11	-.12
30. Next next day mixed emotion	.03	-	.00	-.19	-.04	.10	-.15	-.12	-.04	-.14	.01	.02	.18	-.04

	39	40	41	42	43	44	45	46	47	48	49	50	51	52
31. Peak stress	-.30**	-	.26*	-.24*	-.31**	-.09	-.06	-.12	-.23*	-.30**	-.14	-.07	.22†	-.26*
32. Next day peak stress	-.23*	-	.20†	-.23*	-.32**	-.09	-.06	-.10	-.18	-.30**	-.15	-.08	.19†	-.27*
33. Next next day peak stress	-.01	-	.04	-.03	.01	.05	-.07	-.21	.04	-.12	.16	-.08	.13	-.02
34. Last night sleep quantity (minutes)	.16	-	-.12	-.18	-.34**	-.08	-.12	-.13	-.08	-.14	-.02	-.04	.04	-.12
35. Sleep quantity (minutes)	.01	-	-.09	.23†	.16	.02	-.14	.16	.00	.04	.03	.09	-.07	-.09
36. Last night sleep quality	-.42**	-	.19†	-.06	-.31**	.01	-.05	-.11	-.17	-.06	-.16	-.04	.36**	-.16
37. Sleep quality	-.35**	-	.20†	.00	-.27*	-.03	-.08	-.10	-.16	-.05	-.11	-.04	.34**	-.17
38. Morning vitality	.97**	-	-.12	.26*	.18	.08	.06	.29**	.06	.26*	.28*	.19†	-.32**	.23*
39. Next day morning vitality	(-)	-	-.19	.24*	.18	.16	.10	.30**	.07	.26*	.34**	.25*	-.35**	.26*
40. Study day	.06	(-)	-	-	-	-	-	-	-	-	-	-	-	-
41. Trait negative affect	-.06	.03	(.91)	-.03	-.33**	-.18	-.41**	-.22*	-.39**	-.43**	.03	-.15	.52**	-.32**
42. Trait positive affect	.09†	-.02	.01	(.88)	.41**	.32**	.16	.48**	.06	.32**	.33**	.29**	-.15	.35**
43. Trait resilience	.05	.01	-.30**	.40**	(.90)	.18	.19†	.31**	.00	.62**	.20†	.37**	-.27*	.55**
44. Trait perceived social support	.04	-.04	-.14**	.34**	.15**	(.77)	.27*	.26*	.09	.16	.20†	.13	-.13	.13
45. Trait mindfulness - Acting with awareness	.01	.00	-.40**	.16**	.16**	.24**	(.86)	.36**	.18	.20†	.12	.09	-.30**	.19†
46. Trait mindfulness - Describing	.17**	-.02	-.19**	.48**	.27**	.23**	.34**	(.80)	-.01	.38**	.39**	.25*	-.11	.33**
47. Trait mindfulness - Non-judging	.05	-.02	-.39**	.04	-.01	.11**	.19**	.00	(.71)	.14	-.17	-.21†	-.34**	-.04
48. Trait mindfulness - Non-reactance	.15**	-.02	-.40**	.29**	.61**	.12**	.18**	.33**	.15**	(.77)	.10	.33**	-.40**	.64**
49. Trait mindfulness - Observing	.22**	.02	.05	.33**	.19**	.20**	.11**	.37**	-.16**	.09*	(.69)	.31**	-.12	.19†
50. Trait self-compassion - Common humanity	.16**	.02	-.12**	.29**	.36**	.13**	.09*	.23**	-.19**	.33**	.29**	(.75)	-.17	.60**
51. Trait self-compassion - Isolation	-.19**	.01	.48**	-.11**	-.22**	-.09*	-.28**	-.06	-.36**	-.35**	-.10*	-.14**	(.80)	-.17
52. Trait self-compassion - Mindfulness	.16**	.00	-.27**	.34**	.53**	.11**	.15**	.30**	-.05	.62**	.19**	.61**	-.12**	(.77)
53. Trait self-compassion - Over-identification	-.12*	.01	.46**	-.32**	-.32**	-.10*	-.31**	-.16**	-.42**	-.44**	.00	-.15**	.64**	-.22**
54. Trait self-compassion - Self-judgment	-.09†	-.01	.35**	.05	.01	-.02	-.16**	.08†	-.40**	-.19**	.02	-.08*	.51**	-.08†
55. Trait self-compassion - Kindness	.17**	.02	-.13**	.21**	.29**	.13**	-.01	.20**	.01	.48**	.23**	.49**	-.12**	.62**
56. Trait empathic concern	.03	.05	.00	-.10*	-.15**	.12**	-.06	-.07	-.06	-.12**	.30**	.20**	.04	.19**
57. Trait fantasy	-.03	.01	.16**	.04	-.25**	.19**	-.05	.11**	-.12**	-.32**	.25**	.01	.24**	-.15**
58. Trait personal distress	-.04	.03	.48**	-.31**	-.63**	-.18**	-.45**	-.45**	-.22**	-.59**	.02	-.20**	.38**	-.38**
59. Trait perspective taking	.11*	.04	-.15**	.00	.11*	.10*	.11*	.15**	-.03	.16**	.26**	.32**	.01	.39**
60. Trait compassion	.14**	.02	.10*	.15**	.04	.29**	-.07†	.12**	-.02	.05	.31**	.26**	.16**	.24**
61. Age	-.04	-.02	-.03	.04	.18**	-.03	-.07	-.06	.13**	.11*	-.06	.05	-.10*	.11**
62. Female	.06	.04	.02	-.11*	-.20**	-.02	.08†	-.01	-.14**	-.09*	.05	.06	.17**	-.01
63. Socioeconomic status	.04	-.01	.03	.23**	.17**	.11*	.14**	.13**	.25**	-.01	.13**	-.05	-.11*	-.03

Table 5. Within- and Between-Individual Descriptive Statistics and Correlations cont'd.

	53	54	55	56	57	58	59	60	61	62	63
1. Morning felt compassion	-.07	-.01	.04	-.04	-.05	-.11	.03	-.02	-.06	-.06	.15
2. Afternoon felt compassion	-.03	-.02	-.02	.23*	.16	.07	.13	.20†	-.13	-.02	.06
3. Day felt compassion	-.07	-.02	.01	.14	.08	-.02	.11	.13	-.13	-.05	.13
4. Morning compassion behaviour	-.06	-.15	.11	.04	-.18	-.06	.09	.10	-.06	-.10	.00
5. Afternoon compassion behaviour	-.09	-.04	-.01	.14	.00	-.08	.19	.13	-.18	-.06	-.03
6. Day behaviour	-.08	-.07	.05	.10	-.09	-.08	.16	.13	-.15	-.11	.01
7. Morning constraints to compassion action	.14	.14	-.18	-.05	.07	.10	-.11	-.01	.09	-.02	.00
8. Afternoon constraints to compassion action	-.03	-.04	-.01	-.22†	.02	.00	-.11	-.16	-.04	.13	.07
9. Constraints to compassion action	.08	.07	-.13	-.16	.06	.07	-.14	-.10	.04	.06	.04
10. Afternoon depletion	.56**	.33**	-.20†	-.16	.12	.34**	-.14	-.14	-.07	.07	-.21†
11. Evening depletion	.56**	.26*	-.20†	-.19†	.01	.35**	-.19†	-.20†	-.02	.00	-.14
12. Next day afternoon depletion	.55**	.34**	-.19†	-.13	.12	.33**	-.12	-.13	-.03	.02	-.21†
13. Afternoon perceived prosocial impact	-.43**	-.19	.22†	.07	-.09	-.23*	.10	.06	.03	.02	.24*
14. Evening perceived prosocial impact	-.33**	-.16	.17	.10	-.05	-.13	.17	.10	-.03	.05	.14
15. Next day afternoon perceived prosocial impact	-.42**	-.18	.22†	.06	-.15	-.21†	.13	.11	.05	.01	.23*
16. Afternoon self-efficacy	-.46**	-.21†	.30**	.15	-.08	-.22†	.24*	.16	-.04	.08	.18
17. Evening self-efficacy	-.47**	-.19†	.24*	.11	-.03	-.27*	.19†	.17	-.14	.07	.19†
18. Next day afternoon self-efficacy	-.46**	-.20†	.27*	.15	-.15	-.18	.26*	.19	-.08	.09	.18
19. Afternoon positive affect	-.40**	-.27*	.27*	-.05	.05	-.28*	-.06	.08	-.02	-.04	.14
20. Evening positive affect	-.40**	-.27*	.24*	.02	.03	-.26*	-.01	.08	-.02	-.04	.13
21. Next day afternoon positive affect	-.45**	-.28*	.24*	-.06	-.03	-.30**	-.07	.09	-.01	-.11	.19†
22. Afternoon negative affect	.36**	.26*	-.07	-.21†	.02	.14	-.23*	-.12	.08	-.23*	.00
23. Evening negative affect	.35**	.27*	-.15	-.30**	-.04	.11	-.32**	-.17	.04	-.22†	.04
24. Next day negative affect	.34**	.26*	-.09	-.23*	-.01	.13	-.22†	-.14	.06	-.22†	-.02
25. Afternoon stress	.58**	.30**	-.28*	-.08	.08	.43**	-.11	-.10	-.11	.03	-.22†
26. Evening stress	.54**	.28*	-.21†	-.13	-.01	.35**	-.16	-.14	.00	.01	-.18
27. Next day afternoon stress	.59**	.31**	-.26*	-.09	.12	.41**	-.10	-.13	-.10	.04	-.25*
28. Day mixed emotion	.16	.09	-.09	-.11	.12	.21†	-.21†	-.13	-.18	-.02	.04
29. Next day mixed emotion	.21†	.10	-.08	-.13	.14	.25*	-.21†	-.16	-.17	.02	-.03
30. Next next day mixed emotion	.29*	.08	.01	.01	.25*	.26*	-.09	.03	-.09	.16	-.10

	53	54	55	56	57	58	59	60	61	62	63
31. Peak stress	-.30**	-	.26*	-.24*	-.31**	-.09	-.06	-.12	-.23*	-.30**	-.14
32. Next day peak stress	-.23*	-	.20†	-.23*	-.32**	-.09	-.06	-.10	-.18	-.30**	-.15
33. Next next day peak stress	-.01	-	.04	-.03	.01	.05	-.07	-.21	.04	-.12	.16
34. Last night sleep quantity (minutes)	.16	-	-.12	-.18	-.34**	-.08	-.12	-.13	-.08	-.14	-.02
35. Sleep quantity (minutes)	.01	-	-.09	.23†	.16	.02	-.14	.16	.00	.04	.03
36. Last night sleep quality	-.42**	-	.19†	-.06	-.31**	.01	-.05	-.11	-.17	-.06	-.16
37. Sleep quality	-.35**	-	.20†	.00	-.27*	-.03	-.08	-.10	-.16	-.05	-.11
38. Morning vitality	.97**	-	-.12	.26*	.18	.08	.06	.29**	.06	.26*	.28*
39. Next day morning vitality	(-)	-	-.19	.24*	.18	.16	.10	.30**	.07	.26*	.34**
40. Study day	.06	(-)	-	-	-	-	-	-	-	-	-
41. Trait negative affect	-.06	.03	(.91)	-.03	-.33**	-.18	-.41**	-.22*	-.39**	-.43**	.03
42. Trait positive affect	.09†	-.02	.01	(.88)	.41**	.32**	.16	.48**	.06	.32**	.33**
43. Trait resilience	.05	.01	-.30**	.40**	(.90)	.18	.19†	.31**	.00	.62**	.20†
44. Trait perceived social support	.04	-.04	-.14**	.34**	.15**	(.77)	.27*	.26*	.09	.16	.20†
45. Trait mindfulness - Acting with awareness	.01	.00	-.40**	.16**	.16**	.24**	(.86)	.36**	.18	.20†	.12
46. Trait mindfulness - Describing	.17**	-.02	-.19**	.48**	.27**	.23**	.34**	(.80)	-.01	.38**	.39**
47. Trait mindfulness - Non-judging	.05	-.02	-.39**	.04	-.01	.11**	.19**	.00	(.71)	.14	-.17
48. Trait mindfulness - Non-reactance	.15**	-.02	-.40**	.29**	.61**	.12**	.18**	.33**	.15**	(.77)	.10
49. Trait mindfulness - Observing	.22**	.02	.05	.33**	.19**	.20**	.11**	.37**	-.16**	.09*	(.69)
50. Trait self-compassion - Common humanity	.16**	.02	-.12**	.29**	.36**	.13**	.09*	.23**	-.19**	.33**	.29**
51. Trait self-compassion - Isolation	-.19**	.01	.48**	-.11**	-.22**	-.09*	-.28**	-.06	-.36**	-.35**	-.10*
52. Trait self-compassion - Mindfulness	.16**	.00	-.27**	.34**	.53**	.11**	.15**	.30**	-.05	.62**	.19**
53. Trait self-compassion - Over-identification	-.12*	.01	.46**	-.32**	-.32**	-.10*	-.31**	-.16**	-.42**	-.44**	.00
54. Trait self-compassion - Self-judgment	-.09†	-.01	.35**	.05	.01	-.02	-.16**	.08†	-.40**	-.19**	.02
55. Trait self-compassion - Kindness	.17**	.02	-.13**	.21**	.29**	.13**	-.01	.20**	.01	.48**	.23**
56. Trait empathic concern	.03	.05	.00	-.10*	-.15**	.12**	-.06	-.07	-.06	-.12**	.30**
57. Trait fantasy	-.03	.01	.16**	.04	-.25**	.19**	-.05	.11**	-.12**	-.32**	.25**
58. Trait personal distress	-.04	.03	.48**	-.31**	-.63**	-.18**	-.45**	-.45**	-.22**	-.59**	.02
59. Trait perspective taking	.11*	.04	-.15**	.00	.11*	.10*	.11*	.15**	-.03	.16**	.26**
60. Trait compassion	.14**	.02	.10*	.15**	.04	.29**	-.07†	.12**	-.02	.05	.31**
61. Age	-.04	-.02	-.03	.04	.18**	-.03	-.07	-.06	.13**	.11*	-.06
62. Female	.06	.04	.02	-.11*	-.20**	-.02	.08†	-.01	-.14**	-.09*	.05
63. Socioeconomic status	.04	-.01	.03	.23**	.17**	.11*	.14**	.13**	.25**	-.01	.13**

Table 6. Frequencies of Felt Compassion Reported for the Subsample.

Frequency of felt compassion	Morning	Afternoon	Day
1	72	67	101
2	7	6	22
3	4	3	8
4	1	0	5
5	2	0	2
8	0	1	0
9	0	0	1
Total number of days during which felt compassion was reported	86	77	139

Table 7. Linear Regression of Compassion on Between Individual Predictors.

	DV: Day felt compassion												DV: Day compassion behaviours					
	Model 1:			Model 2:			Model 3:			Model 4:			Model 5:			Model 6:		
Predictor	*B*	*SE*	*t*	*B*	*SE*	*t*	*B*	*SE*	*t*	*B*	*SE*	*t*	*B*	*SE*	*t*	*B*	*SE*	*t*
Intercept	0.44	0.07	6.06***	0.43	0.08	5.66**	0.45	0.07	6.88***	0.27	0.05	5.37***	0.26	0.06	4.53***	0.28	0.05	5.79***
age	-0.08	0.05	-1.77†	-0.05	0.05	-0.98	-0.07	0.04	-1.57	-0.09	0.03	-2.91**	-0.08	0.04	-2.17*	-0.09	0.03	-2.82**
female	-0.15	0.11	-1.30	-0.13	0.12	-1.06	-0.17	0.10	-1.63	-0.22	0.08	-2.75*	-0.19	0.09	-2.04*	-0.23	0.08	-3.05**
SES	0.02	0.03	0.60	0.03	0.03	1.22	0.03	0.02	1.04	-0.01	0.02	-0.50	0.01	0.02	0.41	0.00	0.02	-0.25
NA				-0.05	0.07	-0.70							-0.01	0.05	-0.24			
PA				-0.12	0.08	-1.66							-0.10	0.06	-1.81†			
Resilience				-0.15	0.07	-2.16*	-0.18	0.05	-3.53**				-0.09	0.05	-1.69†	-0.09	0.04	-2.48*
Perceived social support				0.31	0.11	2.90**	0.13	0.06	2.23*				0.22	0.08	2.73**	0.16	0.06	2.56*
FFMQ - Attentional awareness				-0.04	0.06	-0.62							-0.02	0.05	-0.34			
FFMQ - Describing				0.15	0.07	2.03*							0.05	0.05	0.89			
FFMQ - Non-judging				-0.08	0.07	-1.17							-0.07	0.05	-1.25			
FFMQ - Non-reactance				-0.13	0.09	-1.39							0.01	0.07	0.16			
FFMQ - Observing				-0.06	0.06	-0.96							-0.04	0.04	-0.89			
SC - Common humanity				0.02	0.06	0.28							-0.01	0.05	-0.22			
SC - Isolation				-0.07	0.06	-1.23							-0.01	0.04	-0.24			
SC - Mindfulness				0.11	0.09	1.24	0.29	0.09	3.38**				0.06	0.07	0.88	0.09	0.04	2.05*
SC - Over-identified				-0.07	0.08	-0.84							-0.03	0.06	-0.40			
SC - Self-judging				0.06	0.08	0.77							0.00	0.06	-0.04			
SC - Self-kindness				0.04	0.08	0.53							0.01	0.06	0.21			
IRI - Empathic concern				0.00	0.02	-0.18							0.00	0.01	0.12			
IRI - Fantasy				0.00	0.01	-0.16							-0.01	0.01	-1.10			
IRI - Personal distress				0.01	0.02	0.39							0.00	0.01	0.03			
IRI - Perspective taking				0.00	0.01	0.26							0.01	0.01	0.56			
Compassion				0.03	0.06	0.45							0.01	0.05	0.26			
				R_{change}^2 = .36					R_{change}^2 = .22						R_{change}^2 = .26			R_{change}^2 = .20
				F_{change} (20,56) = 1.69†					F_{change} (3, 73) = 7.37***						F_{change} (20, 56) = 1.18**			F_{change} (4, 72) = 5.20**

† $p < .10$. * $p < .05$. ** p < .01. Model 1&3 : Demographic predictors only. Model 2 & 4: All predictors. Model 3 & 6: Final most parsimonious model

Table 8. Parameter Estimates and Variance Partitioning of Null Models for Level 1 Variables.

Variable	Intercept b_{00}	Within-individual variance (e^2)	Between-individual variance (r^2)	ICC	Percentage of within-individual variance
Afternoon depletion	3.69	0.91	0.68	0.43	57%
Evening depletion	3.74	0.9	0.8	0.47	53%
Afternoon prosocial impact	3.2	0.47	0.31	0.40	60%
Evening prosocial impact	3.18	0.39	0.34	0.46	53%
Afternoon self-efficacy	3.42	0.305	0.246	0.45	55%
Evening self-efficacy	3.41	0.245	0.301	0.55	45%
Afternoon positive affect	2.61	0.519	0.537	0.51	49%
Evening positive affect	2.58	0.493	0.584	0.56	46%
Afternoon negative affect	1.85	0.498	0.391	0.44	56%
Evening negative affect	1.91	0.563	0.438	0.43	56%
Afternoon stress	2.68	0.267	0.221	0.45	55%
Evening stress	2.73	0.294	0.272	0.48	52%
Daily mixed emotions	2.65	0.568	0.422	0.43	57%
Daily mixed emotions - next day	2.64	0.59	0.43	0.42	58%
Daily peak stress	3.1	1	0.55	0.35	65%
Daily peak stress - next day	3.07	0.987	0.557	0.36	64%
Daily vitality	3.72	0.618	0.549	0.47	53%
Daily vitality - next day	3.71	0.639	0.524	0.45	55%
Daily sleep quality last night	1.42	0.781	0.575	0.42	58%
Daily sleep quality - this night	2.32	0.549	0.357	0.46	61%
Day felt compassion	0.36	0.69	0.01	0.01	99%
Day compassion behaviours	0.12	0.11	0.01	0.10	65%

Table 9. Path Model Results for Relationship Between Felt Compassion and Compassion Behaviour.

	DV : Day felt compassion						DV : Day compassion behaviour					
	Model 1			Model 2			Model 3			Model 4		
Predictor	*B*	*SE*	*t*	*B*	*SE*	*t*	*B*	*SE*	*t*	*B*	*SE*	*t*
Intercept (b00)	0.93	0.10	9.59***	0.92	0.10	9.65***	0.28	0.04	6.77***	0.28	0.04	6.78***
Level 2 predictors												
Perceived social support	0.20	0.10	2.05*	0.20	0.10	2.13*	0.09	0.04	2.12*	0.09	0.04	2.12*
Resilience	-0.14	0.05	-2.50*	-0.10	0.04	-2.29*	-0.07	0.03	-2.83**	-0.07	0.03	-2.83**
Self-compassionate mindfulness	0.08	0.05	1.60				0.05	0.02	2.25*	0.05	0.02	2.25*
Level 1 predictors												
Study day	-0.11	0.02	-7.64***	-0.11	0.02	-7.75***	-0.03	0.01	-5.23***	-0.03	0.01	-5.24***
Sleep quantity	0.001	0.001	2.26*	0.001	0.001	2.38*	0.00	0.00	0.90			
Sleep quality	-0.04	0.04	-0.98				0.00	0.02	0.06			
Morning state vitality	-0.01	0.06	-0.14				0.01	0.02	0.50			
* $p < .05$. ** $p < .01$				Residual within individual variance *B* =0.59, *SE* = 0.13, *t* = 4.39***						Residual within individual variance *B* = 0.10, *SE* = 0.01, *t* = 6.88***		

Table 10. Path Model Results for Relationship Between Felt Compassion and Depletion.

	DV : Afternoon depletion			DV: Evening depletion			DV: Evening depletion		
Predictor	*B*	*SE*	*t*	*B*	*SE*	*T*	*B*	*SE*	*t*
Intercept	3.69	0.10	36.614**	3.74	0.11	34.76**	3.74	0.11	34.77**
Study day	-0.03	0.02	-1.43	-0.03	0.02	-1.93	-0.05	0.02	-2.28*
Morning vitality	-0.17	0.06	-2.73**				-0.13	0.06	-2.33*
Afternoon depletion				0.29	0.04	7.72**			
Morning felt compassion	0.08	0.07	1.08						
Afternoon felt compassion				0.07	0.06	1.22			
Day felt compassion							-0.01	0.05	-0.12

* $p < .05$. ** $p < .01$.

Table 11. Path Model Results for Relationship Between Felt Compassion in the Past Hour and Depletion.

	DV : Afternoon depletion			DV: Evening depletion		
Predictor	*B*	*SE*	*t*	*B*	*SE*	*t*
Intercept	3.69	0.10	36.614**	3.74	0.11	34.76**
Study day	-0.03	0.02	-1.528	-0.03	0.02	-2.04*
Morning vitality	-0.17	0.06	-2.76**			
Afternoon depletion				0.29	0.04	7.74**
Morning felt compassion in the past hour	0.18	0.10	1.79†			
Afternoon felt compassion in the past hour				0.14	0.17	0.87

† $p < .10$. * $p < .05$. ** $p < .01$.

Table 12. Path Model Results for Relationship Between Felt Compassion, Constraints to Compassion Action and Compassion Behaviour.

	DV : Morning compassion behaviour			DV: Afternoon compassion behaviour			DV: Day compassion behaviour		
Predictor	*B*	*SE*	*t*	*B*	*SE*	*t*	*B*	*SE*	*t*
Intercept	0.14	0.03	4.41**	0.08	0.02	3.62**	0.16	0.02	7.00**
Study day	-0.01	0.01	-1.38	0.00	0.00	-0.46	-0.01	0.01	-1.56
Morning felt compassion	0.66	0.13	5.08**						
Afternoon felt compassion				0.39	0.06	6.53**			
Day felt compassion							0.33	0.04	7.69**
Morning constraints to compassion action	-0.01	0.03	-0.33						
Afternoon constraints to compassion action				-0.03	0.03	-0.85			
Day constraints to compassion action							0.03	0.03	0.78
Felt compassion X Constraints	-0.12	0.04	-2.80**	-0.16	0.03	-5.25**	-0.12	0.02	-6.56**

* $p < .05$. ** $p < .01$.

Table 13. Path Model Results for Relationship Compassion Behaviour and Prosocial Impact.

	DV : Afternoon prosocial impact			DV : Evening prosocial impact			DV : Evening prosocial impact		
Predictor	*B*	*SE*	*t*	*B*	*SE*	*t*	*B*	*SE*	*t*
Intercept	3.29	0.09	38.38***	3.19	0.09	36.45***	3.17	0.06	35.45***
Study day	-0.02	0.01	-1.57	0.00	0.01	-0.06	0.00	0.01	0.13
Morning compassion behaviour	0.30	0.12	2.39*						
Afternoon compassion behaviour				0.57	0.10	5.75**			
Day compassion behaviour							0.28	0.07	3.95**

$p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 14. Path Model Results for Relationship Compassion Behaviour and Self-efficacy.

	DV : Afternoon self-esteem			DV : Evening self-esteem			DV : Evening self-esteem		
Predictor	*B*	*SE*	*t*	*B*	*SE*	*t*	*B*	*SE*	*t*
Intercept	3.41	0.09	39.03***	3.37	0.09	39.25***	3.36	0.09	38.75***
Study day	0.00	0.01	0.18	0.01	0.01	0.82	0.01	0.01	0.88
Morning compassion behaviour	0.03	0.07	0.45						
Afternoon compassion behaviour				0.20	0.05	3.67***			
Day compassion behaviour							0.10	0.08	1.28

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

Table 15. Results of Mediation Test and Moderated Mediation Test for Morning Felt Compassion on Afternoon Personal Resources.

	Mediation Test[a] DV: Afternoon prosocial impact			Mediated Moderation Test[b] DV: Afternoon prosocial impact			Mediation Test[c] DV: Afternoon self-efficacy			Mediated Moderation Test[d] DV: Afternoon self-efficacy		
	B	*SE*	*t*	*B*	*SE*	*t*	*B*	*SE*	*t*	*B*	*SE*	*t*
Predicting Morning compassion behaviour												
Day	-0.01	0.00	-1.95	0.00	0.00	-1.28	-0.01	0.00	-1.94	0.00	0.00	-1.23
Felt compassion	0.35	0.07	4.77**	0.67	0.37	1.80	0.35	0.07	4.77**	0.69	0.27	3.04**
Constraints to compassion action				-0.09	0.08	-1.06				-0.10	0.09	-1.41
Compassion x Constraints				0.01	0.07	0.11				0.02	0.04	0.35
Predicting Afternoon DVs												
Day	-0.02	0.01	-1.20	-0.01	0.02	-0.81	0.00	0.01	0.09	0.02	0.01	0.15
Felt compassion	0.07	0.10	0.46	0.51	0.56	0.91	-0.03	0.04	-0.65	-0.03	0.26	-0.11
Constraints to compassion action				0.00	0.06	-0.01				-0.02	0.07	-0.32
Compassion x Constraints				-0.17	0.14	-1.21				0.03	0.09	0.29
Morning compassion behaviour	0.20	0.14	1.53	-0.01	0.05	-0.12	0.06	0.08	0.69	0.00	0.20	0.02

* $p < .05$. ** $p < .01$.

a. within level indirect effect = 0.074, ns. b. within level indirect effects = -0.03, ns. c. within level indirect effect 0.003, ns.

d. within level indirect effects = 0.000, ns.

Table 16. Results of Mediation Test and Moderated Mediation Test for Morning Felt Compassion on Afternoon Personal Resources.

	Mediation Test[a] DV: Evening prosocial impact			Mediated Moderation Test[b] DV: Evening prosocial impact			Mediation Test[c] DV: Evening self-efficacy			Mediated Moderation Test[d] DV: Evening self-efficacy		
	B	*SE*	*t*	*B*	*SE*	*t*	*B*	*SE*	*t*	*B*	*SE*	*t*
Predicting Afternoon compassion behaviour												
Day	0.00	0.00	-0.52	0.00	0.00	0.42	0.00	0.00	-0.52	0.00	0.00	0.69
Felt compassion	0.21	0.10	2.22*	0.27	0.32	0.83	0.21	0.10	2.21*	0.26	0.09	2.93**
Constraints to compassion action				-0.09	0.29	-0.31				-0.10	0.29	-0.35
Compassion x Constraints				0.09	0.61	0.15				0.09	0.08	1.15
Predicting Evening DV												
Day	0.00	0.01	-0.01	0.00	0.01	0.15	0.01	0.01	0.55	0.01	0.04	0.23
Felt compassion	0.01	0.06	0.22	0.14	0.11	1.21	-0.10	0.05	-1.85†	0.02	0.10	0.20
Constraints to compassion action				-0.02	0.12	-0.20				-0.12	0.91	-0.13
Compassion x Constraints				0.07	0.14	0.50				0.20	1.24	0.15
Afternoon compassion behaviour	0.56	0.12	4.60**	0.29	0.59	0.49	0.30	0.08	4.01**	0.05	4.02	0.01

† $p < .10$. * $p < .05$. ** $p < .01$.

a. within level indirect effect = 0.119, CI [0.027, 0.210]. b. within level indirect effects = 0.10, ns. c. indirect effect = 0.065, CI [0.016, 0.113].

d. within level indirect effects = -0.071, ns.

Table 17. Results of Mediation Test and Moderated Mediation Test for Morning Felt Compassion on Afternoon Personal Resources, subsample analyses.

	Mediation Test[a] DV: Afternoon prosocial impact			Mediated Moderation Test[b] DV: Afternoon prosocial impact			Mediation Test[c] DV: Afternoon self-efficacy			Mediated Moderation Test[d] DV: Afternoon self-efficacy		
	B	*SE*	*t*	*B*	*SE*	*t*	*B*	*SE*	*t*	*B*	*SE*	*t*
Predicting Morning compassion behaviour												
Day	-0.03	0.03	-1.20	-0.03	0.05	-0.64	-0.03	0.03	-1.20	-0.03	0.04	-0.60
Felt compassion	0.18	0.13	1.42	0.15	0.24	0.63	0.18	0.12	1.43	0.12	1.81	0.07
Constraints to compassion action				-0.24	0.13	-1.85†				-0.21	0.45	-0.47
Compassion x Constraints				-0.17	0.36	-0.47				-0.25	0.41	-0.60
Predicting Afternoon DVs												
Day	0.03	0.03	0.85	0.03	0.03	0.99	0.00	0.03	0.12	0.01	0.15	0.03
Felt compassion	-0.06	0.23	-0.24	0.12	0.42	0.28	0.05	0.13	0.39	-0.04	0.97	-0.04
Constraints to compassion action				-0.26	0.22	-1.19				0.81	0.11	0.72
Compassion x Constraints				-0.31	0.14	-2.31*				0.28	0.83	0.34
Morning compassion behaviour	0.26	0.15	1.77†	0.47	0.46	1.01	0.08	0.14	0.58	0.08	0.59	0.13

† $p < .10$. * $p < .05$. ** $p < .01$.

a. within level indirect effect = 0.048, ns. b. within level indirect effects = 0.17, ns. c. within level indirect effect 0.015, ns.

d. within level indirect effects = -0.003, ns.

Table 18. Results of Mediation Test and Moderated Mediation Test for Morning Felt Compassion on Afternoon Personal Resources, subsample analyses.

	Mediation Test[a] DV: Evening prosocial impact			Mediated Moderation Test[b] DV: Evening prosocial impact			Mediation Test[c] DV: Evening self-efficacy			Mediated Moderation Test[d] DV: Evening self-efficacy		
	B	*SE*	*t*	*B*	*SE*	*t*	*B*	*SE*	*t*	*B*	*SE*	*t*
Predicting Afternoon compassion behaviour												
Day	0.02	0.03	0.57	0.02	0.04	0.46	0.01	0.03	0.50	0.02	0.06	0.26
Felt compassion	0.48	0.14	3.41**	0.28	0.13	2.18*	0.48	0.15	3.27**	0.28	0.79	0.36
Constraints to compassion action				-0.09	0.05	-2.04*				-0.09	0.13	-0.70
Compassion x Constraints				0.16	0.18	0.88				0.12	0.41	0.30
Predicting Evening DV												
Day	0.03	0.03	0.94	0.03	0.05	0.53	-0.01	0.02	-0.51	0.03	0.03	0.11
Felt compassion	0.20	0.14	1.40	0.16	0.07	2.24*	0.08	0.14	0.60	0.18	0.24	0.72
Constraints to compassion action				0.04	0.05	0.74				-0.01	0.07	-0.18
Compassion x Constraints				0.20	0.33	0.74				-0.01	2.06	-0.00
Afternoon compassion behaviour	0.47	0.22	2.17*	0.35	0.14	2.24*	0.39	0.11	3.42**	0.08	0.62	0.13

† $p < .10$. * $p < .05$. ** $p < .01$.

a. within level indirect effect = 0.224, CI [0.022, 0.426]. b. within level indirect effects = 0.103, ns. c. indirect effect = 0.184, CI [0.023, 0.345].

d. within level indirect effects = 0.025, ns.

Table 19. Linear Regression Analyses of T0 Stress, Felt Compassion and T1 Stress.

	DV: Next day stress[a]			DV: Evening stress[b]			DV: Next day evening stress[c]			DV: Next day afternoon stress[d]		
	B	*SE*	*t*	*B*	*SE*	*t*	*B*	*SE*	*t*	*B*	*SE*	*t*
constant	3.08	0.06	55.99***	2.73	0.03	108.33***	2.72	0.03	95.15***	2.70	0.03	104.24***
Felt compassion	-0.06	0.06	-0.91	-0.06	0.03	-1.79	-0.04	0.03	-1.05	-0.04	0.03	-1.48
T0 Stress	0.44	0.04	9.94***	0.64	0.04	17.64***	0.65	0.04	15.55***	0.59	0.03	17.02***
Felt compassion x T0 Stress	0.03	0.06	0.48	0.00	0.04	0.14	-0.03	0.04	-0.74	0.04	0.04	0.87

*** $p < .001$. a. T0 stress: peak stress. b. T0 stress: afternoon stress. c. T0 stress: next day afternoon stress. d. T0 stress = evening stress.

Table 20. Results of Mediation Test for Day Felt Compassion, Stress and Mixed Emotions.

	DV: Next day stress[a]			DV: Evening stress[b]			DV: Next day evening stress[c]			DV: Next day afternoon stress[d]		
	B	*SE*	*t*	*B*	*SE*	*t*	*B*	*SE*	*t*	*B*	*SE*	*t*
Predicting mixed emotions throughout t = 1												
Constant	2.61	0.05	48.33***	2.59	0.05	57.41***	2.61	0.05	48.33***	2.59	0.05	48.85***
Day felt compassion	0.11	0.06	2.02*	0.17	0.05	3.39***	0.11	0.06	2.02*	0.16	0.05	2.95***
Predicting stress at t = 1												
Constant	1.78	0.16	11.29***	2.29	0.09	26.44***	2.29	0.10	23.41***	2.36	0.09	25.19***
Mixed emotions throughout *t* = 1	0.51	0.06	9.10***	0.17	0.03	5.64***	0.18	0.03	5.11***	0.14	0.03	4.26***
Day felt compassion	-0.09	0.06	-1.34	-0.07	0.04	-1.89†	-0.09	0.04	-2.26*	-0.09	0.04	-2.29*

† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$. a, c. Mediator: Mixed emotions next day. b, d. Mediator: Mixed emotions today. a. indirect effect = 0.056; CI [0.005, 0.111]; N = 420. b. indirect effect = 0.029; CI [0.015, 0.050]; N = 571. c. indirect effect = 0.020; CI [0.005, 0.044]; N = 420. d. indirect effect = 0.023; CI [0.010, 0.042]; N = 420.

Table 21. Results of Moderated Mediation Test for Day Felt compassion, Stress and Mixed Emotions.

	DV: Next day stress[a]			DV: Evening stress[b]			DV: Next day evening stress[c]			DV: Next day afternoon stress[d]		
	B	*SE*	*t*	*B*	*SE*	*t*	*B*	*SE*	*t*	*B*	*SE*	*T*
Predicting Mixed emotion throughout T = 1												
constant	-0.04	0.05	-0.83	-0.06	0.05	-1.36	-0.04	0.05	-0.83	-0.06	0.05	-1.21
Day felt compassion	0.11	0.06	2.02*	0.17	0.05	3.39***	0.11	0.06	2.02*	0.16	0.05	2.95**
Predicting Stress at t = 1												
constant	3.12	0.06	53.94***	2.76	0.03	101.38***	2.75	0.03	88.75***	2.73	0.03	95.35***
Mixed emotion	0.40	0.05	7.43***	0.10	0.03	3.86***	0.10	0.03	3.42***	0.04	0.03	1.41
Day felt compassion	-0.09	0.06	-1.57	-0.07	0.03	-2.20*	-0.04	0.03	-1.16	-0.05	0.03	-1.55
Stress at $t = 0$	0.36	0.04	8.51***	0.60	0.04	16.44***	0.60	0.04	14.35***	0.56	0.04	15.91***
Mixed emotion x Stress at $t = 0$	0.00	0.04	-0.08	-0.09	0.03	-2.71*	-0.10	0.04	-2.79**	-0.10	0.03	-3.08***

* $p < .05$. ** $p < .01$. *** $p < .001$. a, c. Mediator: Mixed emotions next day. b, d. Mediator: Mixed emotions today. a. index of moderated mediation = 0.00, CI [-0.011, 0.010]. b. index of moderated mediation = -0.015, CI [-0.027, -0.002] . c. index of moderated mediation = -0.012, CI [-0.033, -0.001]. d. index of moderated mediation = -0.016, CI [-0.033, -0.006]

Figure 1. Relationship between Compassion, Compassionate Behaviour, Resources, Co-Activation of PANA, Stress Recovery, Self-Coping Ability and Perceived Constraints.

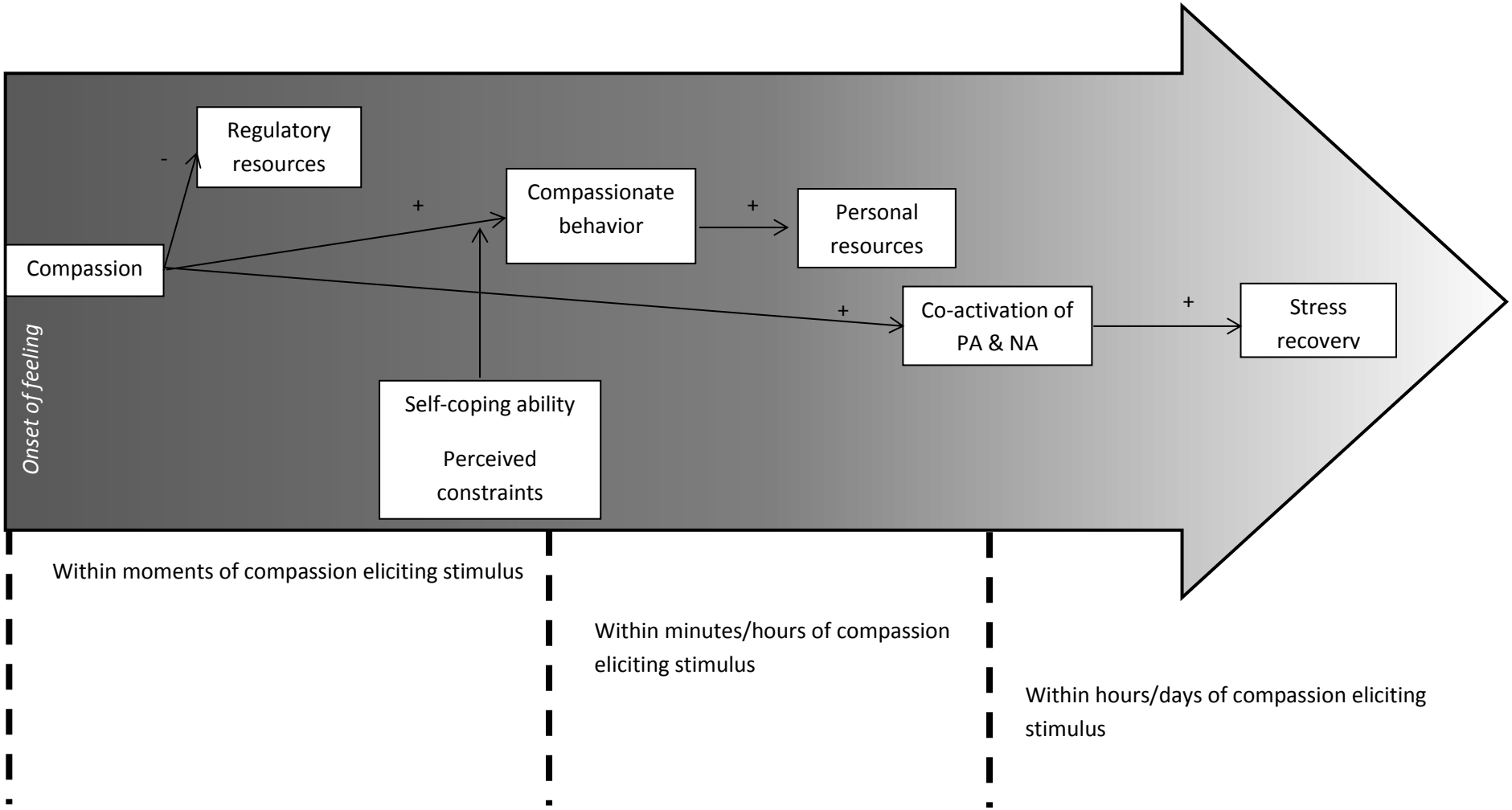


Figure 2. Schedule of Daily Surveys and Measure.

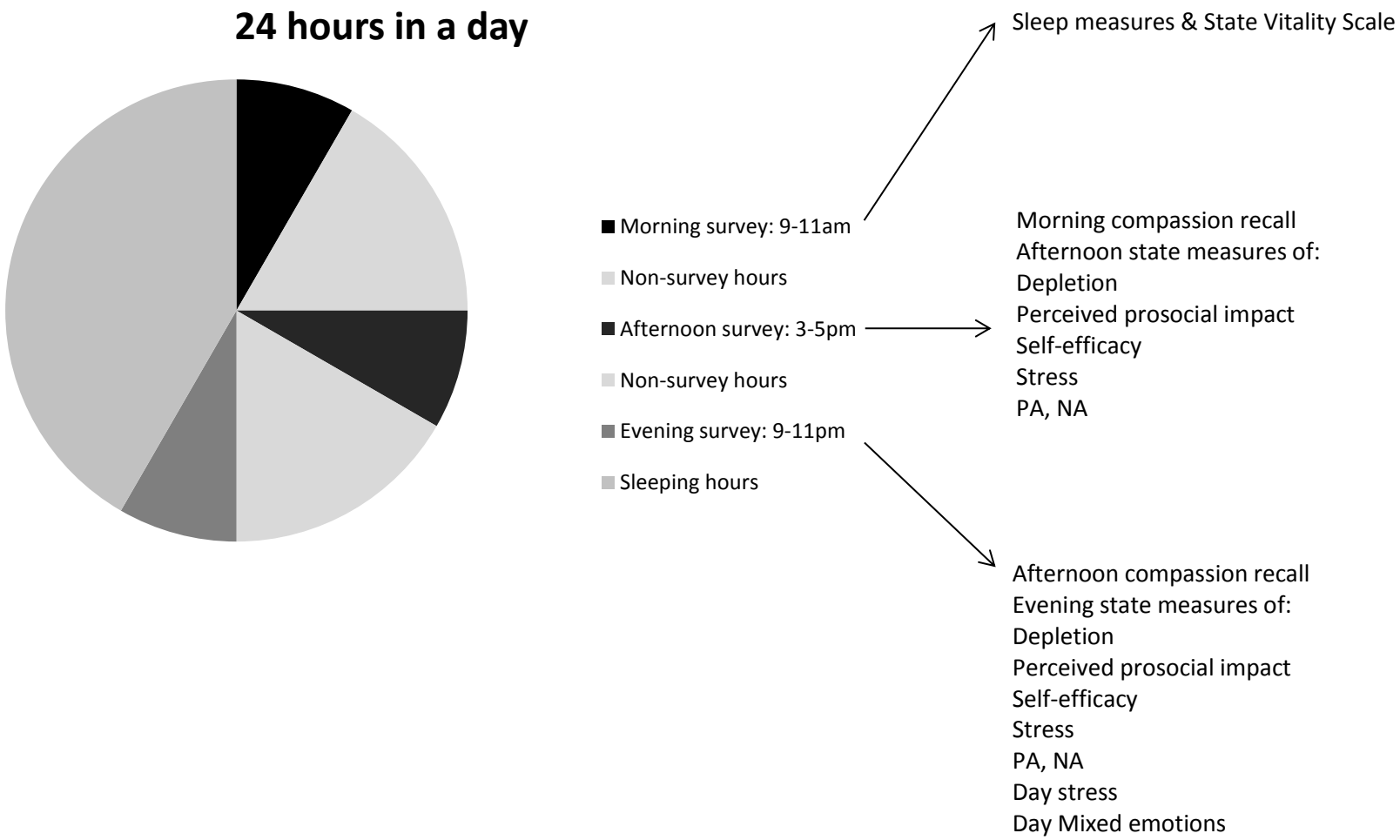


Figure 3a. Effects of Morning Felt Compassion on Morning Compassion Behaviour at Different Levels of Constraints to Compassion for *N* = 571.

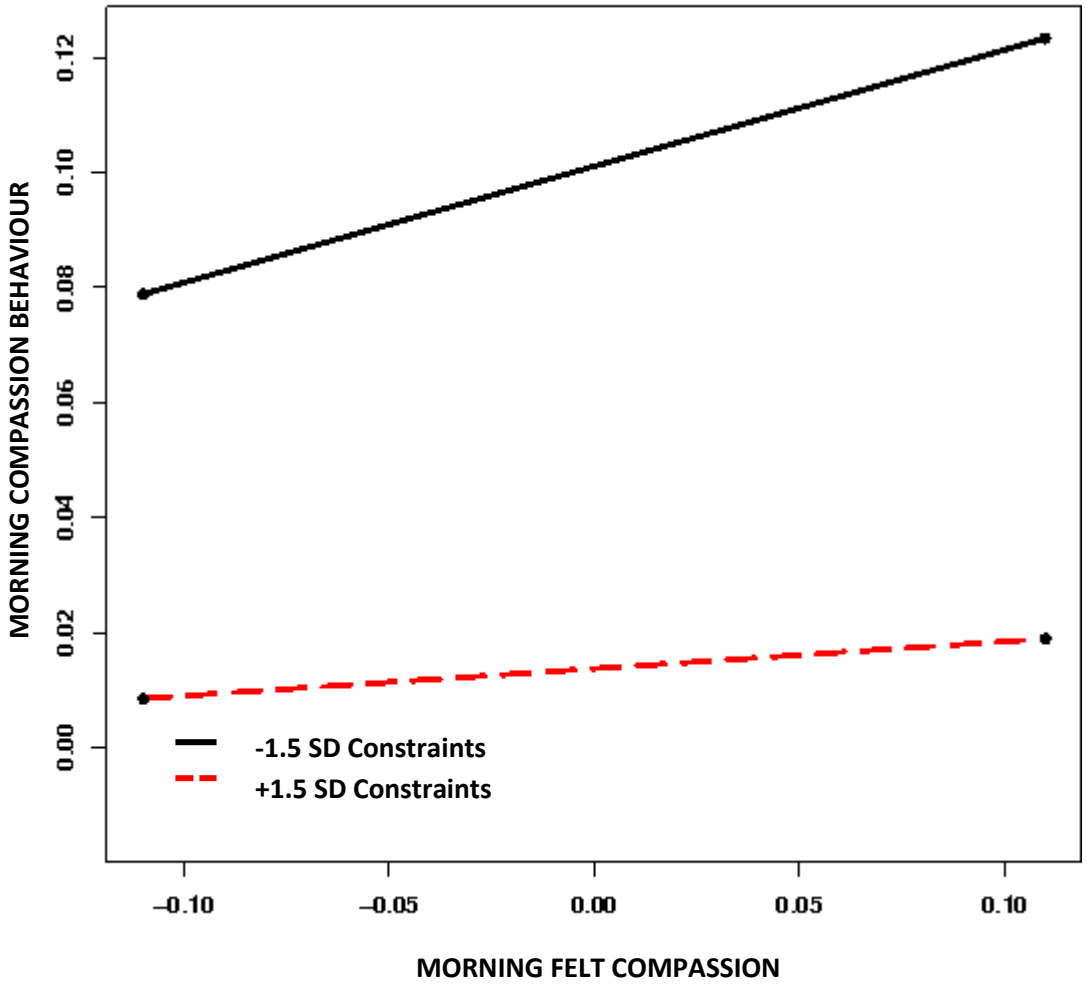


Figure 3b. Effects of Morning Felt Compassion on Morning Compassion Behaviour at Different Levels of Morning Constraints for *N* = 86.

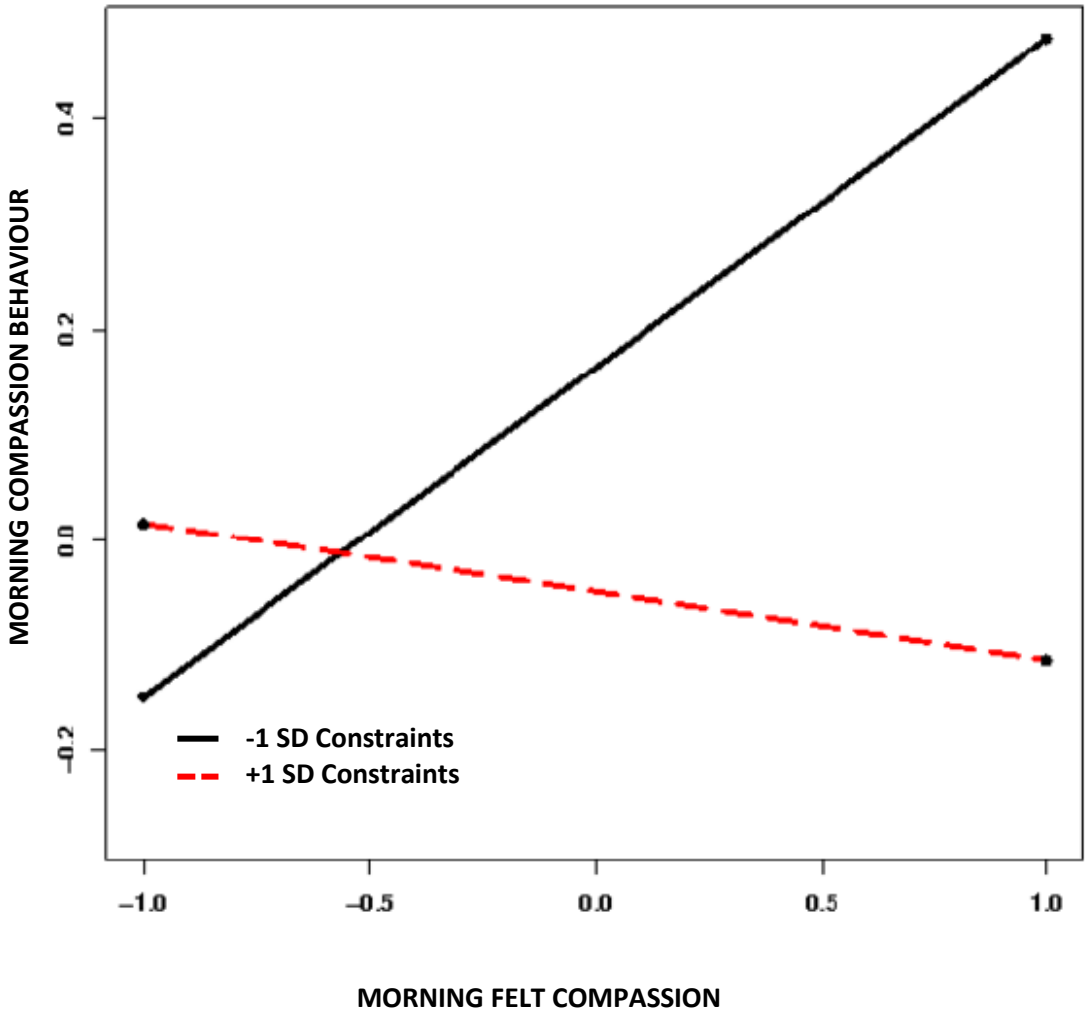


Figure 3c. Effects of Morning Felt Compassion on Morning Compassion Behaviour at Different Levels of Morning Constraints for *N* = 571.

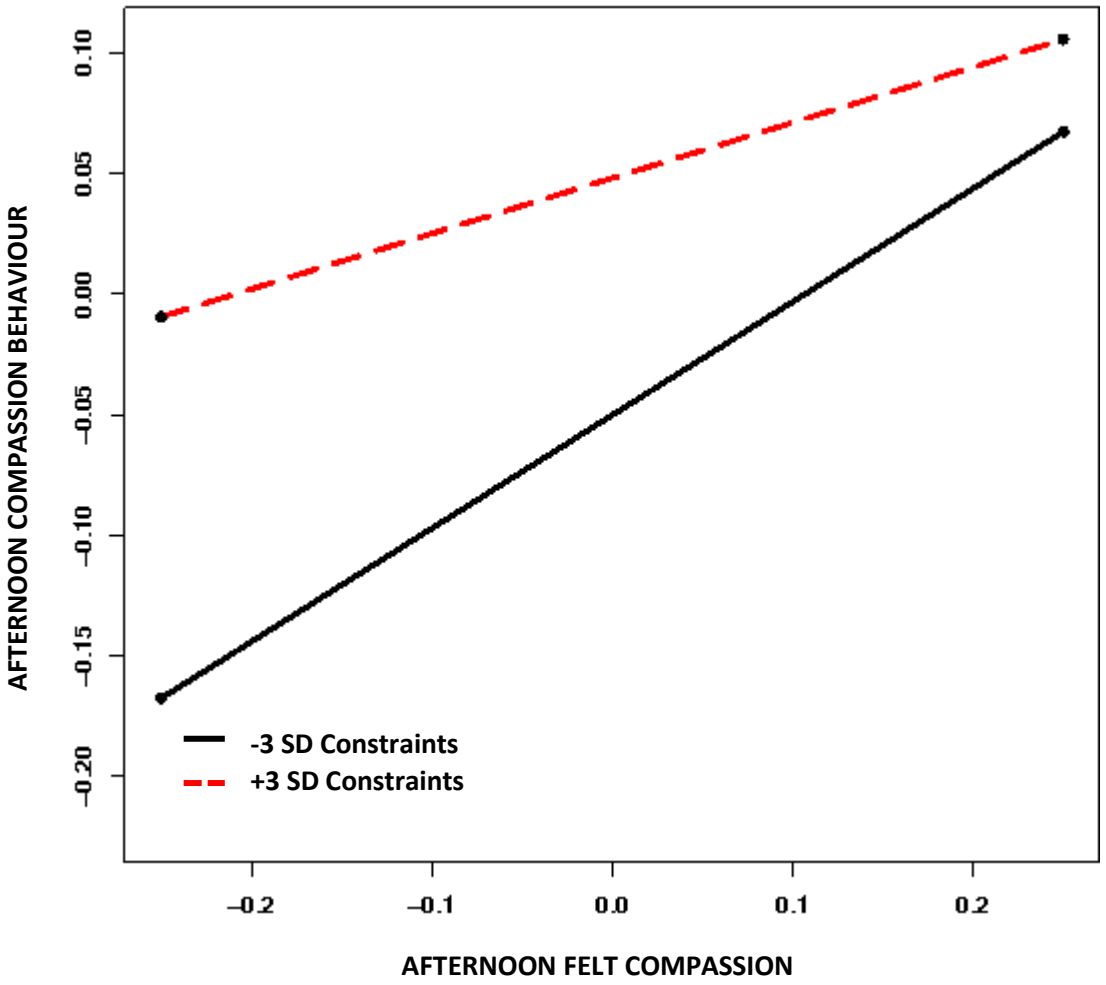


Figure 4. Visual Representation of the Mediating Effect of Mixed Emotion on The Relationship Between Felt Compassion and Stress.

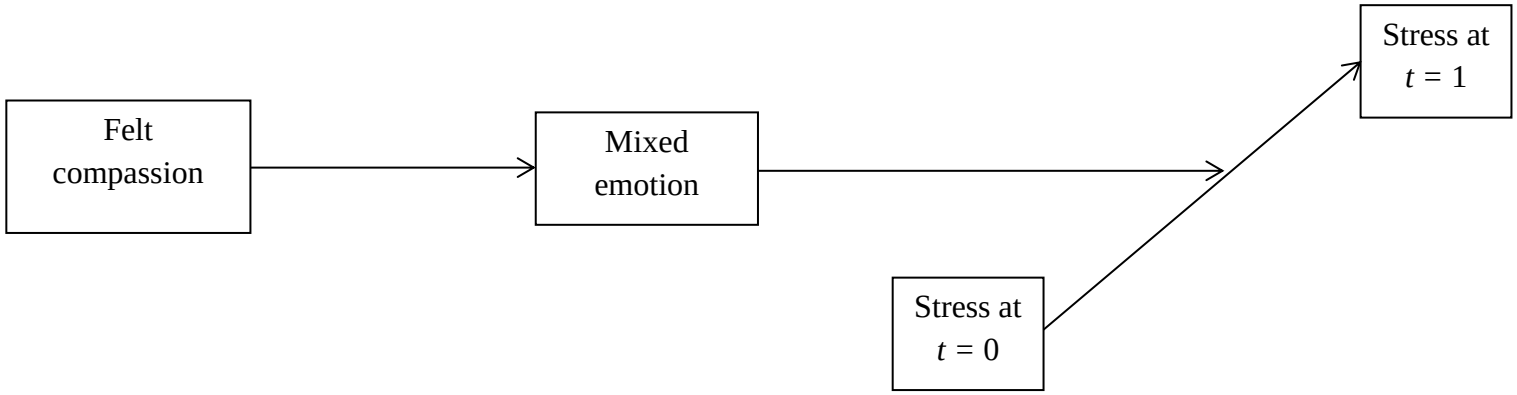


Figure 5. Effects of Afternoon Stress on Evening Stress at Different Levels of Mixed Emotion.

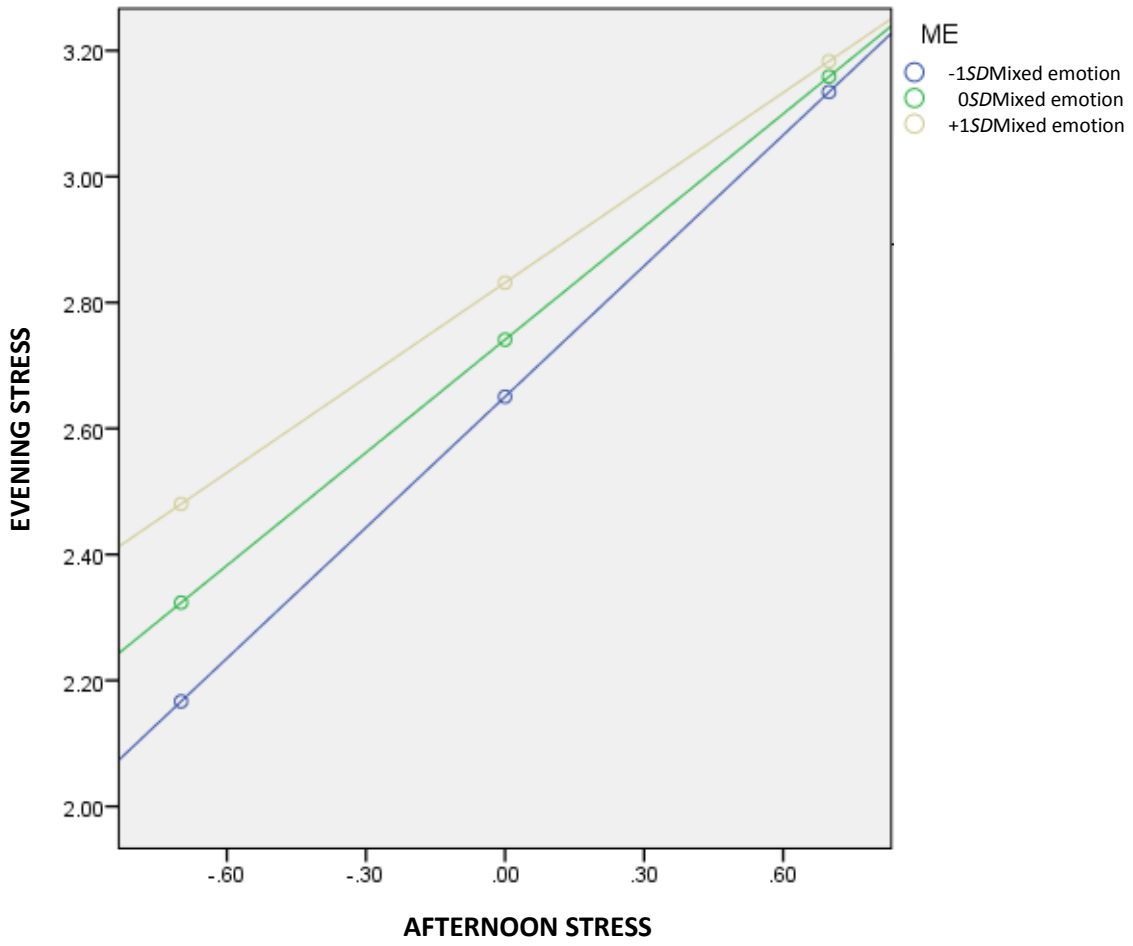


Figure 6. Effects of Next Day Afternoon Stress on Next Day Evening Stress at Different Levels of Mixed Emotion.

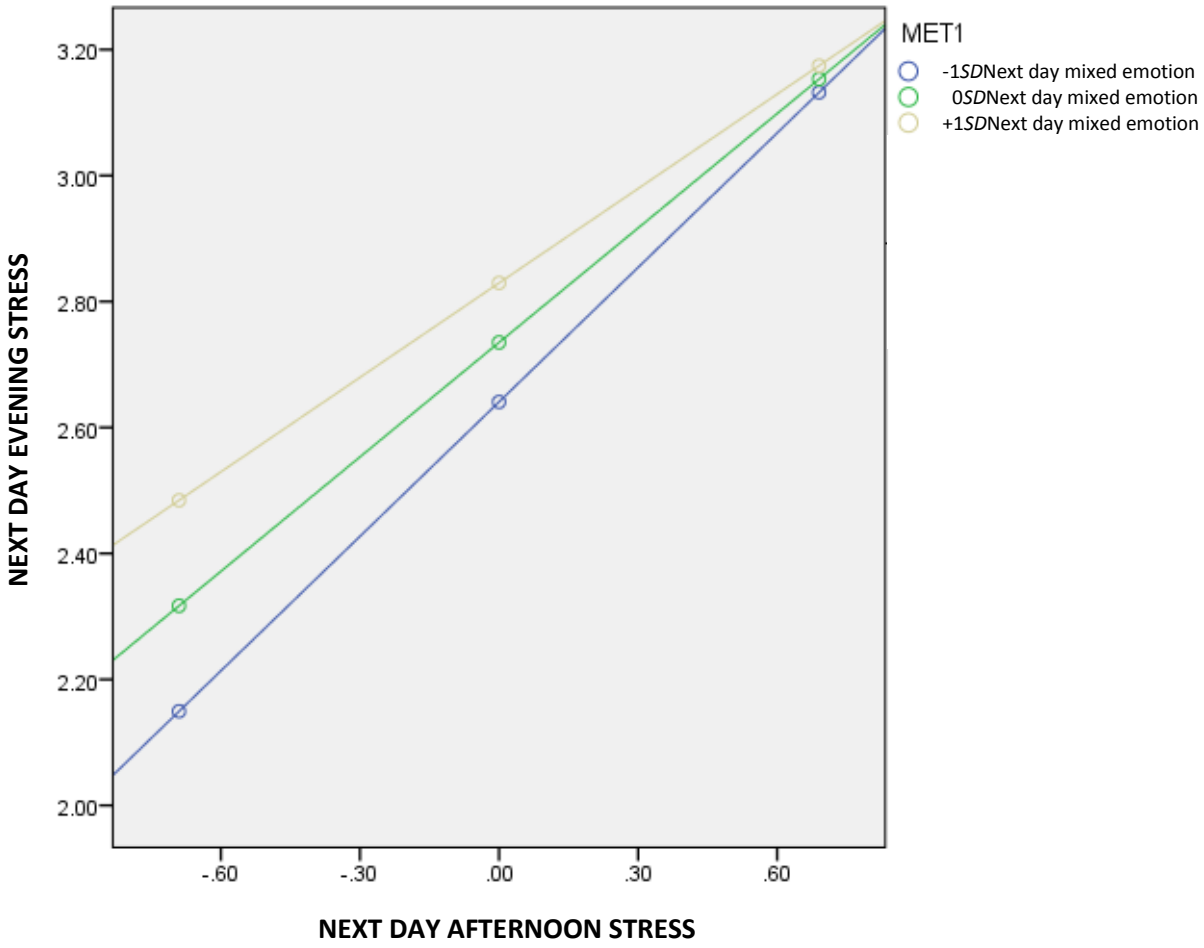


Figure 7. Effects of This Day Evening Stress on Next Day Afternoon Stress at Different Levels of Mixed Emotion.

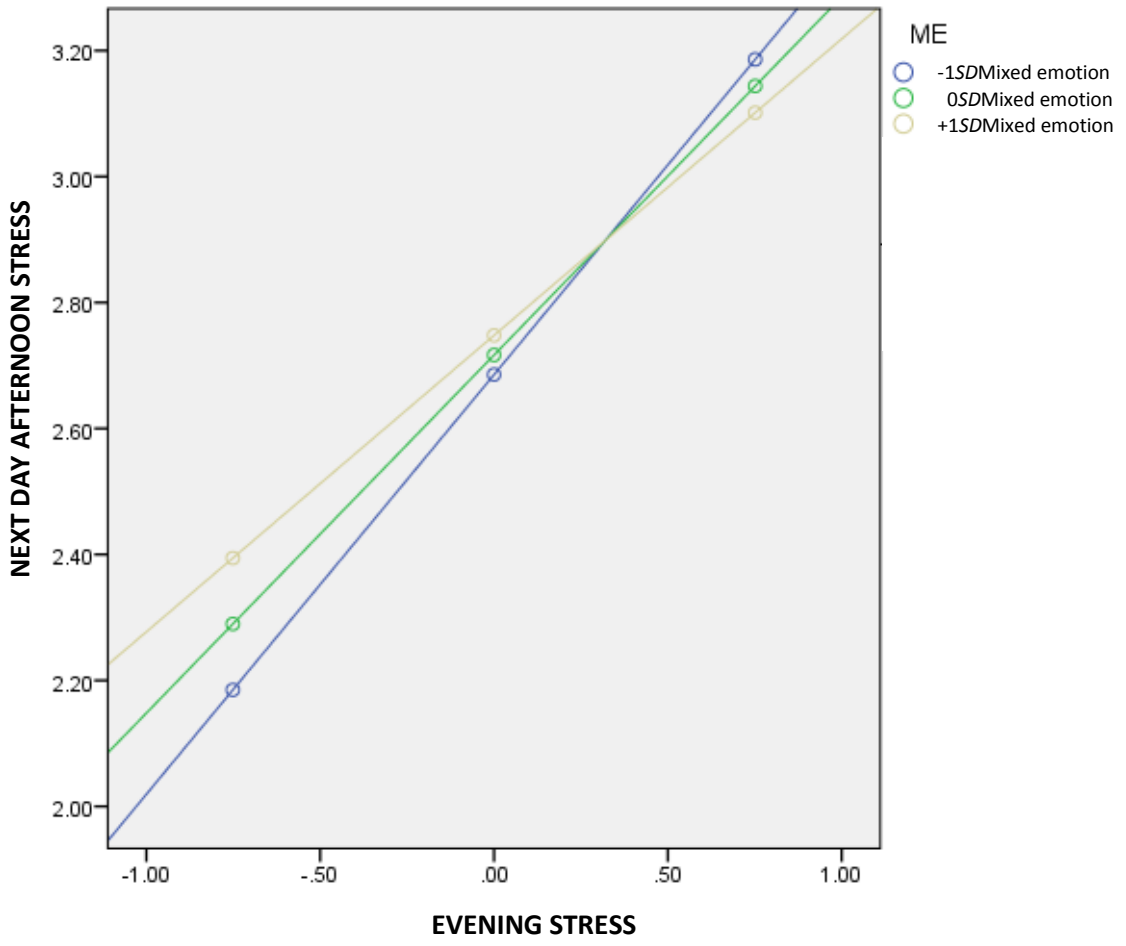
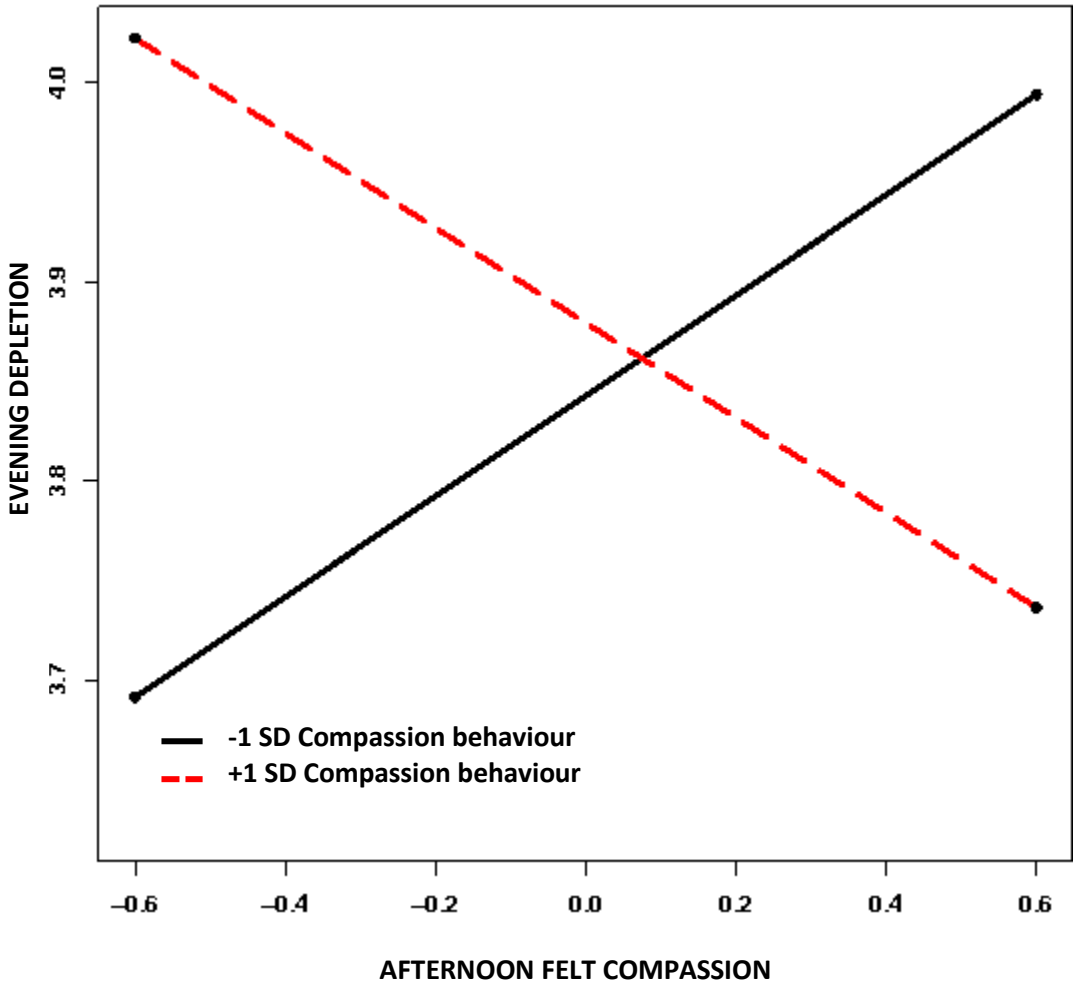


Figure 8. Effects of Day Felt Compassion on Evening Depletion at Different Levels of Compassion Behaviour.



11.Appendix A

Pilot materials:

1. Adapted Mixed Emotion Scale

Beal, D. J., & Ghandour, L. (2011). Stability, change, and the stability of change in daily workplace affect. *Journal of Organizational Behaviour, 32*(4), 526-546.

INSTRUCTIONS: Please rate the extent to which you experienced mixed emotions today.

Anchors: 1 = Not at all; 2 = A little; 3 = Moderately; 4 = Quite a bit; 5 = Very much

Today, I felt...

1. a mixture of both positive and negative emotions.
2. a combination of different positive and negative emotions at the time.
3. different positive and negative emotions at the same time.
4. contrasting positive and negative emotions.

2. New Generalized Self-efficacy Scale

Chen, G., Gully, S. M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational research methods, 4*(1), 62-83.

INSTRUCTIONS: Please rate the extent to which agree to the statements below in describing how you feel right now.

Anchors: 1 = Very untrue of me; 2 = Untrue of me; 3 = Somewhat untrue of me; 4 = Neutral;

5 = Somewhat true of me; 6 = True of me; 7 = Very true of me

Right now, I feel like…

1. I will be able to achieve most of the goals that I have set for myself.
2. When facing difficult tasks, I am certain that I will accomplish them.
3. In general, I think that I can obtain outcomes that are important to me.
4. I believe I can succeed at most any endeavour to which I set my mind.
5. I will be able to successfully overcome many challenges.

6. I am confident that I can perform effectively on many different tasks.
7. Compared to other people, I can do most tasks very well.
8. Even when things are tough, I can perform quite well.

3. State Self-Control Capacity Scale – Full form

INSTRUCTIONS: Below are some items that describe how you feel today. Please rate the extent to which you agree with the statements.

Anchors: 1 = Strongly disagree; 5 = Strongly agree

1. I feel mentally exhausted
2. Right now, it would take a lot of effort for me to concentrate on something
3. I need something pleasant to make me feel better
4. I feel motivated
5. If I were given a difficult task right now, I would give up easily
6. I feel drained
7. I have lots of energy
8. I feel worn out
9. If I were tempted by something right now, it would be very difficult to resist
10. I would want to quit any difficult task I was given
11. I feel calm and rational
12. I can't absorb any information
13. I feel lazy
14. Right now I would find it difficult to plan ahead
15. I feel sharp and focused
16. I want to give up

17. This would be a good time for me to make an important decision
18. I feel like my willpower is gone
19. My mind feels unfocused right now
20. I feel ready to concentrate
21. My mental energy is running low
22. A new challenge would appeal to me right now
23. I wish I could just relax for a while
24. I am having a hard time controlling my urges
25. I feel discouraged

4. Compassion Scale

Pommier, E. A. (2011). The compassion scale. Dissertation Abstracts International Section A: *Humanities and Social Sciences*, *72*, 1174

INSTRUCTIONS: HOW I TYPICALLY ACT TOWARDS OTHERS. Please read each statement carefully before answering. Indicate how often you felt or behaved in the stated manner in the last week.

Anchors: 1 = Almost never; 5 = Almost always

In the last week,...

1. When people cried in front of me, I often did not feel anything at all.
2. Sometimes when people talked about their problems, I felt like I didn't care.
3. I did not feel emotionally connected to people in pain.
4. I paid careful attention when other people talked to me.
5. I felt detached from others when they told me their tales of woe.
6. If I saw someone going through a difficult time, I tried to be caring toward that person.
7. I often tuned out when people told me about their troubles.
8. I liked to be there for others in times of difficulty.

9. I noticed when people are upset, even if they didn't say anything.
10. When I saw someone feeling down, I felt like I couldn't relate to them.
11. It occurred to me that feeling down is part of being human.
12. Sometimes I was cold to others when they were down and out.
13. I tended to listen patiently when people told me their problems.
14. I didn't concern myself with other people's problems.
15. I had the thought that it is important to recognize that all people have weaknesses and no one's perfect.
16. My heart went out to people who were unhappy.
17. Despite my differences with others, I knew that everyone feels pain just like me.
18. When others were feeling troubled, I usually let someone else attend to them.
19. I didn't think much about the concerns of others.
20. I thought that suffering is just a part of the common human experience.
21. When people told me about their problems, I tried to keep a balanced perspective on the situation.
22. I couldn't really connect with other people when they're suffering.
23. I tried to avoid people who are experiencing a lot of pain.
24. When others felt sadness, I tried to comfort them.

Coding Key:

Kindness Items: 6, 8, 16, & 24

Indifference Items: 2, 12, 14, & 18 (Reversed Scored)

Common Humanity: 11, 15, 17, & 20

Separation: 3, 5, 10, & 22 (Reversed Scored)

Mindfulness: 4, 9, 13, & 21

Disengagement: 1, 7, 19, & 23 (Reverse Scored)

To compute a total Compassion Score, take the mean of each subscale (after reverse-scoring) and compute a total mean.

Please remember that if you plan to examine the subscales separately, you should not reverse-code. Before reverse-coding, for example, higher indifference scores represent more indifference, but after reverse-coding higher indifference scores represent less indifference. This is why the subscales of indifference, separation, and disengagement are reverse-coded before taking an overall compassion mean.

Appendix B

Interpersonal Reactivity Index

Davis, M. H. (1980). A multidimensional approach to individual differences in empathy. JSAS Catalog of Selected Documents in Psychology, 10, 85.

INSTRUCTIONS: The following statements inquire about your thoughts and feelings in a variety of situations. Read each item carefully before responding and answer as honestly as you can. For each item, indicate how well it describes you using the scale below.

Anchors: 1 = DOES NOT DESCRIBE ME WELL; 5 = DESCRIBES ME VERY WELL

1. I daydream and fantasize, with some regularity, about things that might happen to me.

2. I often have tender, concerned feelings for people less fortunate than me.

3. I sometimes find it difficult to see things from the "other guy's" point of view.

4. Sometimes I don't feel very sorry for other people when they are having problems.

5. I really get involved with the feelings of the characters in a novel.

6. In emergency situations, I feel apprehensive and ill-at-ease.

7. I am usually objective when I watch a movie or play, and I don't often get completely caught up in it.

8. I try to look at everybody's side of a disagreement before I make a decision.

9. When I see someone being taken advantage of, I feel kind of protective towards them.

10. I sometimes feel helpless when I am in the middle of a very emotional situation.

11. I sometimes try to understand my friends better by imagining how things look from their perspective.

12. Becoming extremely involved in a good book or movie is somewhat rare for me.

13. When I see someone get hurt, I tend to remain calm.

14. Other people's misfortunes do not usually disturb me a great deal.

15. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments.

16. After seeing a play or movie, I have felt as though I were one of the characters.

17. Being in a tense emotional situation scares me.

18. When I see someone being treated unfairly, I sometimes don't feel very much pity for them.

19. I am usually pretty effective in dealing with emergencies.

20. I am often quite touched by things that I see happen.

21. I believe that there are two sides to every question and try to look at them both.

22. I would describe myself as a pretty soft-hearted person.

23. When I watch a good movie, I can very easily put myself in the place of a leading character.

24. I tend to lose control during emergencies.

25. When I'm upset at someone, I usually try to "put myself in his shoes" for a while.

26. When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me.

27. When I see someone who badly needs help in an emergency, I go to pieces.

28. Before criticizing somebody, I try to imagine how I would feel if I were in their place.

Dispositional Positive Emotion Scales (DPES) Compassion subscale:

Shiota, M. N., Keltner, D., & John, O. P. (2006). Positive emotions differentially associated with Big Five personality and attachment style. *Journal of Positive Psychology, 1,* 61–71.

INSTRUCTIONS: Below are some statements that may describe you. Using the scale below, rate the extent to which you agree to these statements.

Anchors: 1= strongly disagree; 4 = neither agree nor disagree; 7 = strongly agree

1. I am a very compassionate person
2. I often notice people who need help
3. When I see someone hurt or in need, I feel a powerful urge to take care of them
4. It’s important to take care of people who are vulnerable
5. Taking care of others gives me a warm feeling inside.

Trait Positive and Negative Affect Schedule

Watson, D., & Clark, L. A. (1999). The PANAS-X: Manual for the positive and negative affect schedule-expanded form.

INSTRUCTIONS: This scale consists of a number of words and phrases that describe different feelings and emotions. Indicate to what extent you have felt this way in general. Read each item and then select the appropriate option using the scale below.

Anchors: 1 = very slightly or not at all; 2 = a little; 3 = moderately; 4 = quite a bit; 5 = extremely

_____ cheerful	_____ sad	_____ active	_____ angry at self
_____ disgusted	_____ calm	_____ guilty	_____ enthusiastic
_____ attentive	_____ afraid	_____ joyful	_____ downhearted
_____ bashful	_____ tired	_____ nervous	_____ sheepish
_____ sluggish	_____ amazed	_____ lonely	_____ distressed
_____ daring	_____ shaky	_____ sleepy	_____ blameworthy
_____ surprised	_____ happy	_____ excited	_____ determined
_____ strong	_____ timid	_____ hostile	_____ frightened
_____ scornful	_____ alone	_____ proud	_____ astonished
_____ relaxed	_____ alert	_____ jittery	_____ interested
_____ irritable	_____ upset	_____ lively	_____ loathing
_____ delighted	_____ angry	_____ ashamed	_____ confident
_____ inspired	_____ bold	_____ at ease	_____ energetic
_____ fearless	_____ blue	_____ scared	_____ concentrating
_____ disgusted with self	_____ shy	_____ drowsy	_____ dissatisfied with self

Five Factor Mindfulness Questionnaire – Short Form

Bohlmeijer, E., P. M. ten Klooster, et al. (2011). "Psychometric properties of the five facet mindfulness questionnaire in depressed adults and development of a short form." Assessment 18(3): 308-320.

INSTRUCTIONS: Below is a collection of statements about your everyday experience. Please answer according to what really reflects your experience rather than what you think your experience should be. Using the 1–5 scale below, please indicate how frequently or infrequently you have had each experience in general.

Anchors: 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 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. Usually 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

Self-Compassion Scale

Neff, K. D. (2003). Development and validation of a scale to measure self-compassion. Self and Identity, 2, 223-250.

INSTRUCTIONS: Below are some scales that may describe your behaviours. Please read each statement carefully before answering.

Indicate how often you behave in the stated manner, using the scale provided below.

Anchors: 1 = Almost never; 5 = Almost always

1. I'm disapproving and judgmental about my own flaws and inadequacies.

2. When I'm feeling down I tend to obsess and fixate on everything that's wrong.

3. When things are going badly for me, I see the difficulties as part of life that everyone goes through.

4. When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.

5. I try to be loving towards myself when I'm feeling emotional pain.

6. When I fail at something important to me I become consumed by feelings of inadequacy.

7. When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am.

8. When times are really difficult, I tend to be tough on myself.

9. When something upsets me I try to keep my emotions in balance.

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 intolerant and impatient towards those aspects of my personality I don't like.

12. When I'm going through a very hard time, I give myself the caring and tenderness I need.

13. When I'm feeling down, I tend to feel like most other people are probably happier than I am.

14. When something painful happens I try to take a balanced view of the situation.

15. I try to see my failings as part of the human condition.

16. When I see aspects of myself that I don't like, I get down on myself.

17. When I fail at something important to me I try to keep things in perspective.

18. When I’m really struggling, I tend to feel like other people must be having an easier time of it.

19. I’m kind to myself when I’m experiencing suffering.

20. When something upsets me I get carried away with my feelings.

21. I can be a bit cold-hearted towards myself when I'm experiencing suffering.

22. When I'm feeling down I try to approach my feelings with curiosity and openness.

23. I’m tolerant of my own flaws and inadequacies.

24. When something painful happens I tend to blow the incident out of proportion.

25. When I fail at something that's important to me, I tend to feel alone in my failure.

26. I try to be understanding and patient towards those aspects of my personality I don't like.

Coding Key:

Self-Kindness Items: 5, 12, 19, 23, 26

Self-Judgment Items: 1, 8, 11, 16, 21

Common Humanity Items: 3, 7, 10, 15

Isolation Items: 4, 13, 18, 25

Mindfulness Items: 9, 14, 17, 22

Over-identified Items: 2, 6, 20, 24

Subscale scores are computed by calculating the mean of subscale item responses. To compute a total self-compassion score, reverse score the negative subscale items before calculating subscale means - self-judgment, isolation, and over-identification (i.e., 1 = 5, 2 = 4, 3 = 3. 4 = 2, 5 = 1) - then compute a grand mean of all six subscale means. Researchers can choose to analyze their data either by using individual sub-scale sores or by using a total score

10 item Connor–Davidson Resilience Scale

Campbell-Sills, L., & Stein, M. B. (2007). Psychometric analysis and refinement of the connor–davidson resilience scale (CD-RISC): Validation of a 10-item measure of resilience. *Journal ofTraumatic Stress, 20*(6), 1019-1028.

INSTRUCTIONS: Below are some scales that may describe your behaviours. Please read each statement carefully before answering.

Indicate how often you behave in the stated manner, using the scale provided below.

Anchors: 1 = Strongly disagree, 7 = Strongly agree

1. Able to adapt to change
2. Can deal with whatever comes
3. Tries to see humorous side of problems
4. Coping with stress can strengthen me
5. Tend to bounce back after illness or hardship
6. Can achieve goals despite obstacles
7. Can stay focused under pressure
8. Not easily discouraged by failure
9. Thinks of self as strong person
10. Can handle unpleasant feelings

Interpersonal Support Evaluation List - Short Form

Cohen S., Mermelstein R., Kamarck T., & Hoberman, H.M. (1985). Measuring the functional components of social support. In Sarason, I.G. & Sarason, B.R. (Eds), *Social support: theory, research, and applications.* The Hague, Netherlands: Martinus Niijhoff.

INSTRUCTIONS: This scale is made up of a list of statements each of which may or may not be true about you. For each statement select "definitely true" if you are sure it is true about you and "probably true" if you think it is true but are not absolutely certain. Similarly, you should select "definitely false" if you are sure the statement is false and "probably false" if you think it is false but are not absolutely certain.

Anchors: 1 = definitely false; 2 = probably false; 3 = probably true; 4 = definitely true

1. If I wanted to go on a trip for a day (for example, to the country or mountains), I would have a hard time finding someone to go with me.
2. I feel that there is no one I can share my most private worries and fears with.
3. If I were sick, I could easily find someone to help me with my daily chores.
4. There is someone I can turn to for advice about handling problems with my family.
5. If I decide one afternoon that I would like to go to a movie that evening, I could easily find someone to go with me.
6. When I need suggestions on how to deal with a personal problem, I know someone I can turn to.
7. I don't often get invited to do things with others.
8. If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my house or apartment (the plants, pets, garden, etc.).
9. If I wanted to have lunch with someone, I could easily find someone to join me.
10. If I was stranded 10 miles from home, there is someone I could call who could come and get me.
11. If a family crisis arose, it would be difficult to find someone who could give me good advice about how to handle it.
12. If I needed some help in moving to a new house or apartment, I would have a hard time finding someone to help me.

Scoring:
Items 1, 2, 7, 8, 11, 12 are reverse scored.
Items 2, 4, 6, 11 make up the Appraisal Support subscale
Items 1, 5, 7, 9 make up the Belonging Support subscale
Items, 3, 8, 10, 12 make up the Tangible Support subscale.

Adapted Jenkins Sleep Evaluation

Jenkins, C. D., Stanton, B. A., Niemcryk, S. J., & Rose, R. M. (1988). A scale for the estimation of sleep problems in clinical research. *Journal of Clinical Epidemiology, 41*(4), 313-321.

INSTRUCTIONS: Please begin by telling me a little about the quantity and quality of your sleep last night...

Please use the 2400 format. For example 9am is 0900, 12am is 2400, 3.15pm is 1515.

1. You went to bed at: _____
2. You fell asleep approximately around: _____
3. You woke up at: _____
4. You got out of bed at: _____
5. Did you have the following symptoms last night:

a) difficulty falling asleep?

b) waking up?

c) difficulty staying asleep (including waking up too early)?

d) waking up feeling tired and worn out after usual amount of sleep?

Anchors: 1= no; 2 = yes

Subjective Vitality Scale

Bostic, T. J., Rubio, D. M., & Hood, M. (2000). A validation of the subjective vitality scale using structural equation modeling. *Social Indicators Research, 52*, 313-324.

INSTRUCTIONS: In this section, please respond to each of the following statements in terms of how you are feeling right now. Indicate your agreement with each statement is for you at this time, using the scale below:

1 = Strongly disagree; 7 = Strongly agree

1. At this moment, I feel alive and vital.
2. I don't feel very energetic right now.
3. Currently I feel so alive I just want to burst.
4. At this time, I have energy and spirit.
5. I am looking forward to today.
6. At this moment, I feel alert and awake.
7. I feel energized right now.

Compassion feelings and compassionate behaviour instructions - Morning

INSTRUCTIONS: Please answer the following question as truthfully as possible. Your response will be completely confidential. Please recall the events that happened between now and since filling in the survey this morning (9am this morning*).

1. Did you feel compassion between now and since filling in the survey this morning (9am this morning*)?

By compassion, we mean that you felt sympathetic pity and concern for the sufferings or misfortunes of others. That is, you felt compassion towards another living being.

Anchors: 0 = I did not feel compassion towards another; 1= I felt compassion towards another

2. How frequently did you feel compassion since the last survey (9am this morning*)?

Anchors: 1 = Once; 2 = More than once (if more than once, please indicate how many times) _____

3. In the first** situation, what happened that caused you to feel compassion? Who was(were) the target(s) of your compassion? For whom did you feel compassion towards? (You do not have to provide full names of the people involved if you do not feel comfortable doing so. You may use initials.)
   _____
   _____
   _____

4. Did you do something for the target(s) of your compassion?

Anchors: 0 = No; 1= Yes (please describe briefly what you did) _____

You described the first** situation where you felt compassion as such:

<PARTICIPANT'S ANSWER IN Q3 WAS SHOWN AGAIN>

5. To what extent did you feel you had the ability to help the person(s)/living being(s) who was (were) suffering in this situation?

Anchors : 1 = Not at all; 7 = Extremely

6. To what extent did you perceive constraints to helping the person(s)/living being(s) who was (were) suffering in this situation?

Anchors : 1 = Not at all; 7 = Extremely

7. Did any of this situation you described above happen within the past hour?

Anchors: 0 = No; 1 = Yes

*Instructions in parenthesis if participant missed filling in the morning survey

** Participants fill in questions 3-7 repeatedly, according to the number of times they reported feeling compassion in question 2.

10 item State Self-control Capacity

Ciarocco, N., Twenge, J. M., Muraven, M., & Tice, D. M. (2007.) The state self-control capacity scale: Reliability, validity, and correlations with physical and psychological stress. Paper presented at the annual meeting of the Society for Personality and Social Psychology, San Diego.

Christian, M. S., & Ellis, A. J. (2011). Examining the effects of sleep deprivation on workplace deviance: A self-regulatory perspective. Academy Of Management Journal, 54(5), 913-934. doi:10.5465/amj.2010.0179

INSTRUCTIONS: The following are some statements that describe how you felt in the past hour. Please indicate the extent to which you agree with these statements.
Anchors: 1 = Strongly disagree; 7 = Strongly agree

During the past hour, I...

1. needed something pleasant to make me feel better.
2. felt drained.
3. wanted to quit any difficult task I was given.
4. couldn't absorb any information.
5. felt lazy.
6. wanted to give up.
7. felt like my willpower was gone.
8. *felt if I were tempted by something right now, it would be very difficult to resist.*
9. felt sharp and focused.
10. felt calm and rational.

Adapted Prosocial Impact measure

Grant, A. M. (2008b). The significance of task significance: Job performance effects, relational mechanisms, and boundary conditions. *Journal of Applied Psychology, 93*(1), 108.

INSTRUCTIONS: The following are some statements that describe how you felt in the past hour. Please indicate the extent to which these statements are true for you.

Anchors: 1 = Strongly disagree; 5 = Strongly agree

During the past hour, I...

1. was very conscious of the positive impact that my actions had on others.
2. was very aware of the ways in which my actions were benefiting others.
3. felt that I could have a positive impact on others through my actions.

New Generalized Self-efficacy Scale

Chen, G., Gully, S. M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational research methods*, *4*(1), 62-83.

INSTRUCTIONS: Below are some statements which might describe feelings and thoughts you may have had in the past hour. Please rate the extent to which you agree to these statements.

Anchors: 1 = Strongly disagree; 5 = Strongly agree

During the past hour, I...

1. felt I will be able to achieve most of the goals that I have set for myself.
2. felt certain, when facing difficult tasks, that I will accomplish them.
3. thought, in general, that I can obtain outcomes that are important to me.
4. believed I can succeed at almost any endeavour to which I set my mind.
5. felt able to successfully overcome many challenges.
6. felt confident that I can perform effectively on many different tasks.
7. felt I could, compared to other people, do most tasks very well.
8. felt I could, even when things are tough, perform quite well.

Perceived Stress Scale

Cohen, S., Kamarck, T., Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behaviour, 24*, 385396.

INSTRUCTIONS: Please rate the extent to which you agree to the statements below in describing how you felt in the past hour.

Anchors: 1 = Strongly disagree; 5 = Strongly agree

During the past hour, I felt…

1. I was unable to control the important things in my life.
2. that difficulties were piling up so high that I could not overcome them.
3. that things were going my way.
4. confident about my ability to handle my personal problems.

Adapted Short Positive and Negative Mood Scale

Bledow, R., Schmitt, A., Frese, M., & Kühnel, J. (2011). The affective shift model of work engagement. *Journal of Applied Psychology, 96*(6), 1246.

INSTRUCTIONS: This scale consists of a number of words and phrases that describe different feelings and emotions. Indicate to what extent you have felt this way in the past hour.

Read each item and then select the appropriate option using the scale below.

Anchors: 1 = Very slightly or not at all; 2 = A little; 3 = Moderately; 4 = Quite a bit; 5 = Extremely

1. Proud
2. Enjoying
3. Happy
4. Optimistic
5. Content
6. Enthusiastic
7. Depressed
8. Angry
9. Unhappy
10. Frustrated
11. Disappointed
12. Worried

Adapted Mixed Emotion Scale

Beal, D. J., & Ghandour, L. (2011). Stability, change, and the stability of change in daily workplace affect. *Journal of Organizational Behaviour, 32*(4), 526-546.

INSTRUCTIONS: Please rate the extent to which you experienced mixed emotions - that is feeling both positive and negative emotions - in the entire day today.

Anchors: 1 = Not at all; 2 = A little; 3 = Moderately; 4 = Quite a bit; 5 = Very much

Today, I felt...

1. a mixture of both positive and negative emotions.
2. a combination of different positive and negative emotions at the time.
3. different positive and negative emotions at the same time.
4. contrasting positive and negative emotions.

Single Item Day Stress Measure

Ong, A. D., Bergeman, C. S., Bisconti, T. L., & Wallace, K. A. (2006). Psychological resilience, positive emotions, and successful adaptation to stress in later life. *Journal of Personality and Social Psychology, 91*(4), 730–749. https://doi.org/10.1037/0022-3514.91.4.730

1. Please think about the most stressful event that you experienced today. What was it?

_____

2. Rate how stressful this event was

Anchors: 1 = not very stressful ; 5 = very stressful