Daily Recovery from Work-Related Effort: Investigating Emotional Labour Strategies and Work-Related Thoughts.

Dissertation submitted in partial fulfilment of the requirements for the degree of

Master of Science in Applied Psychology

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2019

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Table of Contents

Acknowledgments

Thank you to my supervisor Katharina Näswall for her guidance and support through the planning and execution of this study, and all the helpful comments throughout its writeup. I am truly inspired by your ability to handle such a high workload with such composure.

To Chris Burt, Joana Kuntz, and Katharina, thank you for your teaching over the last two years. Before starting APSY I felt naive about organisations, but I am now leaving university with a richer and more nuanced understanding of what makes organisations work well and I have much more confidence in entering the working world.

Thank you to my fellow students in APSY. Working alongside everyone in the lab made the learning curve from undergrad to postgrad that much easier to deal with. I look forward to keeping in touch with you all in the future.

Also, thank you to all my training partners and instructors at Axis. Training over the last two years has been a great way to detach from study, keep fit, socialise, and experience growth. I highly recommend Brazilian Jiu-jitsu to anyone reading this.

Thank you to my parents for the love, support, and the weekly meals. To everyone who participated in this study, thank you for doing so in such a conscientious fashion. Lastly, thank you to my flatmates who celebrated the small wins with me and kept me laughing through the stressful times.

Abstract

Strategies for emotion regulation at work (emotional labour) have been linked to negative employee health outcomes such a burnout. An important part of the work-stress-strain relationship is recovery during non-work time. The current study had two aims. One was to replicate recent findings that two different emotional labour strategies (surface acting and deep acting) differ in their relationship to need for recovery after work at the day-level. A daily diary design was used to measure participants' emotional labour at work and recovery after work on five consecutive days. Neither surface acting nor deep acting during a work shift related to need for recovery after work. The other aim of the study was to compare psychological detachment, affective rumination, and positive work reflection's role in the recovery process. Psychological detachment mediated the negative relationship between need for recovery and vigour, so that when participants felt a high need for recovery after work, they were less likely to detach from work issues during their leisure time and in turn less likely to experience vigour before bed. Affective rumination and positive work reflection did not predict variance in vigour, suggesting that the content of work-related thoughts matters less for after-work recovery than does experiencing a lack of work-related thoughts. Implications of these findings are described and suggestions for future research is made.

Introduction

As most jobs involve interacting with other people, it is a truism that most jobs therefore involve managing emotions. While occupations like customer service, nursing, and teaching are most salient in the realm of emotion work, virtually all work involves managing emotions. Production of emotional displays and interpretation of the emotions of others is critical to performance in work activities beyond serving customers, treating patients, and teaching students. Success in negotiations and managing intra-organisational relationships with others (Ozcelik, 2013) such as the case in leadership (Côté et al., 2013), is enhanced by interpreting and producing appropriate emotional displays. However, people do not always feel the emotions that they are required to display for optimal performance of their job tasks. This tension between how one feels and the emotions they are required to express on the job has been labelled emotional dissonance (Zapf et al., 1999). It refers to the stressor felt "when an employee is required to express emotions that are not genuinely felt in the particular situation" (Zapf et al., 1999, p. 375). Emotional dissonance is thought to be a job stressor, and is linked to the development of burnout (Kenworthy et al., 2014). To cope with this stressor, employees can employ strategies to manage their emotions which have been studied under the lens of emotional labour (Hochschild, 1983).

The current study investigates how emotional labour experienced by workers from a general sample of occupations relates to their recovery from work stress during their non-work time. A primarily within-person approach is taken to measure how emotional labour within a work shift relates to a range of variables important to recovery in the evening following a work shift. Utilizing a daily diary design, participants completed two surveys per day for five consecutive days which allowed within-person variation in study variables to be captured. This study seeks to further the understanding of individual employee recovery from work related stress, in particular stress that is bound up in emotional labour.

Emotional Labour

Emotional labour was first conceptualised by sociologist Arnie Hochschild in her sociological work *The Managed Heart* (1983). It was defined as a labour that "requires one to induce or suppress feeling in order to sustain the outward countenance that produces the proper state of mind in others"(Hochschild, 1983, p. 7). Hochschild's work elucidated the existence of emotional labour as a legitimate form of labour emerging with the rise of the service industry in the United States. She noted that besides physical and mental labour, workers also to varying degrees engage in the labour of managing their own displays of emotion at work. Flight attendants that she studied were required to put on smiles to make passengers feel at ease, while debt collectors often had to express anger in order to collect their debts. However, workers did not always feel the way that was instrumental to them performing their jobs.

In order to display the required emotions in this case, Hochschild (1983) theorized two strategies workers employ – deep acting and surface acting. Surface acting involves the outward expression of an emotion that is incongruous to one's felt emotion. An example of this could be 'putting on a smile' at work even though one is experiencing sadness because of a personal issue, or irritation with an unreasonable customer. Alternatively, it could involve expressing confidence when accepting a task from a manager while feeling anxious about one's ability to complete it. Deep acting on the other hand involves the production of the desired emotion within oneself. An example of this could be while dealing with a disgruntled and belligerent customer, focusing on the situation as a chance to express one's competence in customer service rather than on the rudeness of the customer.

Grandey (2000) adapted Hochschild's (1983) sociological concepts of surface and deep acting to psychology, in doing so, integrating research on emotion regulation (Gross, 1998) to the workplace. Grandey (2000) reconceptualised surface and deep acting through the

lens of emotion regulation. Surface acting was likened to response-focused emotion regulation. This form of emotion regulation focuses on managing physiological, experiential or behavioural responses to emotion (e.g. facial expression)(Gross, 1998). Deep acting on the other hand was likened to antecedent-focused emotion regulation, as it involves altering the emotions one experiences via altering the antecedents of emotions. In deep acting this occurs through attentional deployment or cognitive change (Grandey, 2000). Attentional deployment referring to attending to a memory or an aspect of the current situation which elicits the desired emotion. For example, a debt collector may think of someone who has slighted them in the past in order to elicit anger. Cognitive change refers to altering the meaning one applies to the situation. For example, an inexperienced public speaker may elicit confidence by interpreting the situation as an opportunity to show their expertise rather than a chance to be evaluated negatively.

Response-focused emotion regulation is generally thought to be more effortful than antecedent-focused emotion regulation. As surface acting is a response focused form of emotional regulation, it requires a person to exert continuous effort to manage their outward expression when it differs to felt emotions. Conversely, Grandey (2000) argued that as deep acting constitutes antecedent-focused emotional regulation, it requires less effort than surface acting, because once the effort is expended to change the felt emotion, the expression of the emotion is effortless. This is an important difference between the conceptualisations because Hochschild (1983) viewed deep acting as insidiously more detrimental and alienating to the individual because it is the organisation exerting control over the employee's felt emotions. The current study follows the conceptualisation of Grandey (2000).

Since the article by Grandey (2000) there has been a large amount of research investigating antecedents and outcomes of emotional labour, and further developments in the emotional labour model. Researchers have found that emotional labour has relationships with

outcomes important to organisations such as customer satisfaction (Hülsheger & Schewe, 2011), role identification (Brotheridge & Lee, 2003), organisational citizenship behaviours (Kiffin-Petersen et al., 2011), role performance (Ozcelik, 2013), and turnover (Chau et al., 2009).

One key finding is that the two strategies – surface acting and deep acting – differ in their relationships with employee wellbeing. Brotheridge and Grandey (2002) first investigated the relationships between emotional labour strategies and burnout. They found that surface acting had a significant positive relationship with emotional exhaustion and depersonalisation, as well as a significant negative correlation with personal accomplishment, all facets of burnout. They also found a significant positive relationship between deep acting and personal accomplishment. These findings suggested that surface acting, but not deep acting, is connected to impaired wellbeing.

Hülsheger and Schewe (2011) describe four mechanisms that have been proposed to explain surface acting's negative relationship with employee wellbeing. Suppressing felt emotions through surface acting can result in feelings of inauthenticity which were found to predict depressed mood in workers (Erickson & Wharton, 1997).

Also, surface acting involves the continuous monitoring of emotions and emotional displays to ensure that they are appropriate. This constant expenditure of effort can deplete mental resources leaving one in a state of ego-depletion (Baumeister et al., 1998) which makes it more difficult to exercise self-control. Functioning on subsequent tasks that require self-control is then impaired and workers experience feelings of exhaustion (Martínez-Iñigo et al., 2007)

Another mechanism is that surface acting usually involves experiencing negative emotions, and as they are prolonged, they will continue to hinder wellbeing. Also, in line with the social interaction model of emotional labour (Coté, 2005), the inauthentic emotional

displays associated with surface acting can lead to unfavourable reactions from interaction partners which may contribute to strain. Behind this is the idea that people can tell the difference between authentic and inauthentic emotional displays. When displays are perceived to be inauthentic, interaction partners may infer that the worker is being dishonest, trying to control them, or that they are not putting enough effort into the interaction. Inferring these intentions thus elicits negative responses from interaction partners which may contribute to strain. Some evidence supporting this notion comes from a study of doctors which found the surface acting was negatively related to satisfaction with patient interactions (Martínez-Iñigo et al., 2007). Moreover, dissatisfaction with patient interactions partly mediated the negative relationship between surface acting and exhaustion.

In contrast, by deep acting employees are thought to express emotions authentically thus increasing the likelihood that they will elicit favourable reactions from interaction partners (Coté, 2005). Deep acting is also thought to use comparatively less effort to regulate emotion, and predominantly involves experiencing positive emotions (Hülsheger & Schewe, 2011). It is through these mechanisms that surface acting is thought to be detrimental to, and deep acting either less detrimental or even beneficial to wellbeing.

Meta-analyses of research on the relationships between the two emotional labour strategies and employee wellbeing have further corroborated the relationships found by Brotheridge and Grandey (2002) (Hülsheger & Schewe, 2011; Kammeyer-Mueller et al., 2013; Mesmer-Magnus et al., 2012). Hülsheger and Schewe (2011) found moderate effect sizes for the relationship between surface acting and emotional exhaustion ($\rho = .44$) and depersonalisation ($\rho = .48$), but a weak relationship with personal accomplishment that was not generalizable. Being meta-analytic correlations computed from the results of many studies, these moderate positive relationships between surface acting and the facets of burnout are robust and clearly links the strategy to the development of the syndrome.

One important predictor of emotional labour is the perceived display rules in the organisation or work unit (Diefendorff et al., 2005). This refers to the perceived expectations for emotional displays that determine which emotions are acceptable or required to display at work. If employees perceive that some emotions are not acceptable to display at work (e.g. anger), while other emotions are strongly encouraged (e.g. joy) then they will be more likely to regulate their emotions in order to avoid deviating from the acceptable emotions. Thus, stronger perceptions of display rules are related to increased frequency of emotional labour (Kammeyer-Mueller et al., 2013; Mesmer-Magnus et al., 2012). These findings show the importance of considering display rules as they are the starting point for emotional labour. Without pressure to conform to a set of appropriate emotional displays at work then conceivably, emotion regulation at work would depend on broader cultural display rules (Matsumoto et al., 2008) and individual tendencies rather than what they are supposed to feel in the workplace. Therefore, it is important to consider perceived display rules as a measure of whether a job should involve emotional labour.

The current study measures participants' use of emotional labour strategies over five work shifts. In line with past findings we expect that participants' perceived display rules will predict their surface acting and deep acting during their shifts, so that higher ratings of perceived display rules will be associated with higher levels of emotional labour.

Hypothesis 1a: Display rules will be positively related to surface acting.

Hypothesis 1b: Display rules will be positively related to deep acting.

Recovery from Work Stress Research

While the effects of emotional labour on wellbeing and performance outcomes (Grandey & Melloy, 2017) are well established, its relationships with variables related to

recovery processes are just recently being examined (Diestel et al., 2015; Konze et al., 2019; Xanthopoulou et al., 2018).

Recovery refers to the process whereby resources that have been invested in meeting job demands at work are regenerated (Zijlstra & Sonnentag, 2006). Recovery can take place over breaks at work, evenings after work, weekends, or vacations, and is thought to play an important role in employee wellbeing (Meijman & Mulder, 1998).

Meijman and Mulder's (1998) Effort Recovery Model proposes that after exertion of energy to meet job demands, a period of recovery is required in order to replenish psychophysiological resources before engaging in work again. Working while in a depleted state where one has a need for recovery can mean that the performance of tasks requires compensatory effort expenditure, further exacerbating the need for recovery. They suggested that this imbalance in effort expenditure and recovery can lead to long-term strain outcomes (Meijman & Mulder, 1998). With overexposure, physiological systems (i.e. cardiovascular, metabolic, immune, central nervous system) that are active under stress can become chronically active, and cause physical illnesses (McEwen, 1998). Therefore, in order to limit the potential for negative health outcomes in employees it is important to consider not just the stressful aspects of work, but also the aspects of non-work time that can be restorative.

Meijman and Mulder (1998) proposed that as a minimal requirement for recovery of energy/resources to occur, job demands need to be absent. In other words, recovery can only occur when there is distance between the individual and demands of their job, so that the systems engaged in meeting job demands are no longer taxed. However, as many jobs today involve cognitive job demands, physical distance from the workplace alone can be insufficient to facilitate recovery processes. Mental distance from job demands (i.e. absence of work-related thoughts), referred to as psychological detachment is also required

(Sonnentag & Bayer, 2005). This is because thinking about work-related issues during non-work time can still engage the systems used during work and inhibit recovery (Sonnentag & Fritz, 2007).

Along with psychological detachment, experiencing mastery, relaxation, and control over leisure activities is thought to aid recovery (Sonnentag & Fritz, 2007). A recent meta-analysis found that when recovery experiences were added as a mediator to a model of the effects of job characteristics on wellbeing, variance explained in fatigue increased by 26% ($\Delta R^2 = .08$), and the variance explained in vigour increased by 62% ($\Delta R^2 = .12$) (Bennett et al., 2018). This shows the value of considering recovery experiences when investigating the influence of job stressors on wellbeing.

Emotional Labour and Recovery

Research has indicated that the job stressors employees experience can impede their recovery (Sianoja et al., 2018; Sonnentag & Fritz, 2015). As emotional labour involves the use of strategies that differ with respect to how much emotional dissonance (a stressor) the worker experiences, it makes sense to examine the relationship between emotional labour and recovery.

Research on the relationships between emotional labour and recovery variables exists but is somewhat scarce. Sonnentag, Kuttler, and Fritz's (2010) study of pastors and their spouses found that emotional dissonance along with other job stressors was negatively related to psychological detachment, which in turn predicted emotional exhaustion and need for recovery. A key construct in the recovery process, need for recovery refers to the feeling resulting from fatigue of urgently needing to take time off to recuperate (Sonnentag & Zijlstra, 2006). While the study by Sonnentag et al. (2010) did not measure emotional labour

strategies, emotional dissonance is closely tied with surface acting (Mesmer-Magnus et al., 2012), and so it is likely that usage of emotional labour strategies influences recovery experiences such as psychological detachment.

More recently, research on recovery and emotional labour has focused on episodes where the two occur. For example, recovery researchers are interested in examining recovery episodes such as breaks at work (Janicke et al., 2018), after-work leisure time (Xanthopoulou et al., 2018), weekend leisure time (Weigelt & Syrek, 2017), and vacations (Chen et al., 2016). Emotional labour can be seen as occurring during different episodes over a work shift (Beal & Trougakos, 2013). For example, dealing with an irate customer's complaint is a separate episode to helping a co-worker with a task 20 minutes later, and may involve using a different emotional labour strategy. Researchers have even analysed emotional labour dynamics occurring during a simulated customer service phone call by taking continuous measurements every 200 ms (Gabriel & Diefendorff, 2015). While analysing emotional labour at the episode level may not always be practical in a work context, researchers have used daily diary studies to capture the use of strategies over a work shift.

Xanthopoulou et al. (2018) investigated how the emotional labour strategies employees use during a work shift relate to after work recovery. They found that surface acting at work had an indirect positive relationship with need for recovery after work through exhaustion. Alongside this they found that deep acting had two parallel indirect negative relationships through lowered exhaustion and increased flow. Their findings suggest that surface acting can be energy depleting for employees through the self-monitoring of their emotional displays and could lead to a high need for recovery at the end of a work shift. Deep acting on the other hand is not as effortful and can lead to positive social interactions at work that reduce the need for recovery after work. Xanthopoulou et al.'s (2018) study demonstrated that in addition to the differential relationships surface and deep acting have

with burnout, they may also differ in their implications for employee wellbeing at the day-level, by influencing employees' need for recovery after work. Employees' need for recovery is an indication of the extent to which psychophysiological resources need to be restored before returning to work hence it plays an important role in predicting after-work recovery.

One of the aims of the current study is to replicate the finding of Xanthopoulou et al. (2018) that surface acting and deep acting over a work shift could differentially relate to employees' need for recovery after the work. Therefore, participants' use of emotional labour strategies during work and need for recovery after work are measured over five working days. Given the past findings of surface acting's ego-depleting effects (Hülsheger & Schewe, 2011), and the findings of Xanthopoulou et al. (2018) that surface acting related positively to need for recovery through exhaustion we hypothesize that:

Hypothesis 2a: Surface acting during work will be positively related to need for recovery after work.

Hypothesis 2b: Deep acting during work will be negatively related to need for recovery after work.

Role of Work-Related Thoughts During Leisure Time in Recovery

Another aim of the current study was to investigate recovery during the period after work and before bedtime, that is being referred to as leisure time. Particularly of interest is the role of work-related thoughts in recovery during leisure time. As previously mentioned, psychological detachment is a key recovery experience (Sonnentag & Fritz, 2007, 2015). However, it may be the case that not all kinds of work-related thoughts are related to impaired recovery, and some kinds of work-related thoughts could have stronger associations

with impaired recovery than others. Constructs such as affective rumination (Cropley & Zijlstra, 2011), positive work reflection (Fritz & Sonnentag, 2005), problem-solving pondering (Cropley & Zijlstra, 2011), and negative work-reflection (Fritz & Sonnentag, 2006) have all been theorised to describe varying kinds of work-related thoughts. Recent research has established that they are empirically distinct constructs that differ in their relationships with important attitudinal and wellbeing outcomes (Weigelt et al., 2019). Considering this, studies that measure multiple work-related thought constructs are key to enhancing knowledge of how they differ in relation to recovery processes. Therefore, the current study measures psychological detachment, affective rumination, and positive work reflection during leisure time to investigate their role in recovery.

Psychological Detachment.

Recent theoretical work in form of the stressor-detachment model places psychological detachment as both a moderating and a mediating variable in the positive relationship between job stressors and strain/poor well-being (Sonnentag & Fritz, 2015). The mediating pathway suggests that job stressors increase negative activation, an affective state of high arousal and negative valence which makes psychological detachment unlikely. In turn the lack of psychological detachment impairs wellbeing. While as a moderating variable, psychological detachment can mitigate the negative impact of job stressors on wellbeing. This combination of mediating and moderating effects has been described as the recovery paradox (Sonnentag, 2018). Referring to the phenomenon that when recovery is most needed (i.e. when job stressors are high), the experiences (e.g. psychological detachment) required to induce recovery are impaired. Of interest in the current study is psychological detachment's mediating role in the recovery process.

There are two mechanisms that could explain why need for recovery after work would be negatively related to psychological detachment during leisure time. As Sonnentag (2018) writes, negative activation in response to experiencing job stressors at work can continue into leisure time. The mood-congruency hypothesis proposes that mood influences cognition by increasing the likelihood of thoughts that have the same valence as the current mood (Judge & Ilies, 2004). Multiple theories offer accounts of the mechanism this occurs through (Rusting, 1998). One account from associative network models of memory is that emotions are represented by nodes within a network in the brain so that when a node is activated, this activation extends throughout the network increasing the likelihood of activating cognitions associated to the emotion (Rusting, 1998). Therefore, the negative affectivity triggered by work stressors may then influence workers' thoughts to be about negative experiences in their workday. Depletion of energetic resources could also link need for recovery to low psychological detachment (Sonnentag, 2018). Having low energetic resources could mean employees' ability to exercise control over their thoughts is impaired, and they are unable to keep from thinking about work. It may also mean that activities that promote psychological detachment but require energy investment are unlikely to be chosen.

Xanthopoulou et al. (2018) also measured participants need for recovery after work and vigour before bed to gain insight into the after-work recovery process for a sample of people with emotionally demanding jobs. Vigour here refers to the affective state of pleasant activation (Bennett et al., 2018) and is measured in recovery research as an outcome to indicate that energy is restored and recovery has been successful. Xanthopoulou et al. (2018) found that the negative relationship between need for recovery and vigour was partially mediated by relaxation (another recovery experience), so that a high need for recovery lowered the likelihood that participants would experience relaxation, which was positively related to vigour. They explain the negative association between need for recovery and

relaxation may be partly due to workers continuing to think about work stressors which may inhibit relaxation.

The current study uses the same design as Xanthopoulou et al.'s (2018) study to investigate the role of work-related thoughts in after work recovery. In line with the mediating role proposed in the stressor-detachment model (Sonnentag & Fritz, 2015) it is hypothesised that:

Hypothesis 3: Psychological detachment during leisure time will mediate the negative relationship between need for recovery after work and vigour at bedtime at the within-person level. Need for recovery will negatively relate to psychological detachment which will in turn positively relate to vigour.

Affective Rumination.

Xanthopoulou et al. (2018) suggested rumination as a potential mechanism connecting surface acting to impaired recovery in their participants, but it was not measured in their study. Affective rumination is defined as "a cognitive state characterised by the appearance of intrusive, pervasive, recurrent thoughts, about work, which are negative in affective terms" (Cropley & Zijlstra, 2011, p. 10). Key to this construct is that it involves both the intrusive cognitions and the coinciding negative affect. Affective rumination during leisure time has been found to inhibit recovery from job demands (Querstret & Cropley, 2012), impair sleep (Syrek et al., 2017), and is associated with reduced heart rate variability (Cropley et al., 2017).

According to the mood-congruency hypothesis (Judge & Ilies, 2004), when in a mood of a particular valence, cognition is more likely to be of the same valence. Therefore, when a worker has a high need for recovery after work and experiences negative activation, they will

be more likely to experience affective rumination. As with psychological detachment, it is expected that either negative activation and/or energy depletion associated with a high need for recovery after work will result in affective rumination during leisure time which will impair recovery resulting in a low level of vigour.

Hypothesis 4: Day-level Affective rumination during leisure time will mediate the negative relationship between need for recovery after work and vigour at bedtime.

Affective rumination may also be positively related to surface acting. Past research has linked job stressors such as unfinished tasks to affective rumination at the within-person level (Syrek et al., 2017). Similarly, the emotional dissonance participants experience from surface acting may trigger affective rumination when reflected on during their leisure time. Social conflicts with customers at work (a ripe situation for surface acting) has been found to negatively relate with psychological detachment and positively relate with negative work reflection after work (Volmer et al., 2012). Employees may continue to experience unresolved negative emotions during leisure time and ruminate on the subject matter of those emotions. For example, an exchange with a customer or co-worker where one could not express their frustration, may be ruminated about after work. Due to the exploratory nature of this analysis, a hypothesis is not proposed, instead a research question is tested.

Research question 1: Will day-level surface acting at work be positively related to affective rumination during leisure time?

Positive Work Reflection.

Positive work reflection has been receiving greater interest in research on work-related thoughts (Meier et al., 2016; Weigelt et al., 2019). This is an important area to investigate because it is possible that work-related thoughts during leisure time do not always interfere with recovery efforts. One study implementing an intervention that boosted participants positive reflection (not restricted to the work domain) found it led to reduced stress and health complaints in the evening (Bono et al., 2013). Positive reflection on work events in leisure time may result in an enhanced sense of self efficacy (Binnewies et al., 2009), or an increase in positive affect (Meier et al., 2016) that restores one's energy after a day of work. As implied by Meier et al. (2016) positive work reflection may also be beneficial through associated positive affect reducing the negative affect behind the need for recovery felt at the end of a work day. Moreover, to some degree positive work reflection implies that the stressful aspects of one's work may be absent from one's thoughts, allowing recovery to take place (Meijman & Mulder, 1998). Therefore, positive work reflection during leisure time should be related to enhanced recovery as measured by the positive affective state of vigour at bedtime.

Also, due to the negative activation associated with a high need for recovery (Sonnentag, 2018), and in line with the mood-congruency hypothesis (Judge & Ilies, 2004) proposing that thoughts are more likely to be negative in this affective state, participants may be less likely to have positive thoughts during leisure time when they experience a high need for recovery after work. This analysis is exploratory; therefore, a hypothesis is not proposed, instead a research question is tested.

Research question 2: Will day-level positive work reflection during leisure time mediate the negative relationship between need for recovery after work and vigour before bed, so that on

days with higher levels of need for recovery people are less likely reflect on positive aspects of their work, and subsequently experience less vigour before bed?

If deep acting facilitates positive social interactions at work (Coté, 2005) then it may also be associated with positive work reflection. If authentic expressions of emotion garner positive responses from customers, colleagues, or managers during a work shift, a worker will then have more positive subject matter to reflect on. Moreover, if these interactions constitute performance in one's job task, then reflections on these moments would likely be positive. Such a relationship would be another example of the positive aspects of emotional labour associated with deep acting (Humphrey et al., 2015). Again, a research question will be tested in rather than a hypothesis as this analysis is exploratory.

Research question 3: Will day-level deep acting at work be positively related to positive work reflection during leisure time?

Role of Person-Level Factors

While the current study is mainly focused on within-person associations of emotional labour with work-related thoughts, it is also important to consider individual difference variables that may moderate relationships. There is meta-analytic evidence of differing relationships between personality dimensions and EL strategies (Mesmer-Magnus et al., 2012). Extraversion positively correlates with deep acting ($p = .16$, $k = 5$), while neuroticism positively correlates with surface acting ($p = .31$, $k = 5$). Moreover, Judge et al. (2009) found that emotional labour had more negative effects for introverts (i.e. increased emotional exhaustion, decreased job satisfaction) and more positive effects for extraverts. Given these findings, extraversion and emotional stability (the polar opposite of neuroticism) may affect

the hypothesised relationships between emotional labour strategies and need recovery after work. Therefore, extraversion and neuroticism will be measured and their potential role of moderators of the relationship between surface acting during work and need for recovery after work will be tested in data analysis. While no specific hypotheses are proposed here, research questions will be tested:

Research question 4a: Will extraversion moderate the relationship between surface acting at work and need for recovery after work?

Research question 4b: Will emotional stability moderate the relationship between surface acting during at work and need for recovery after work?
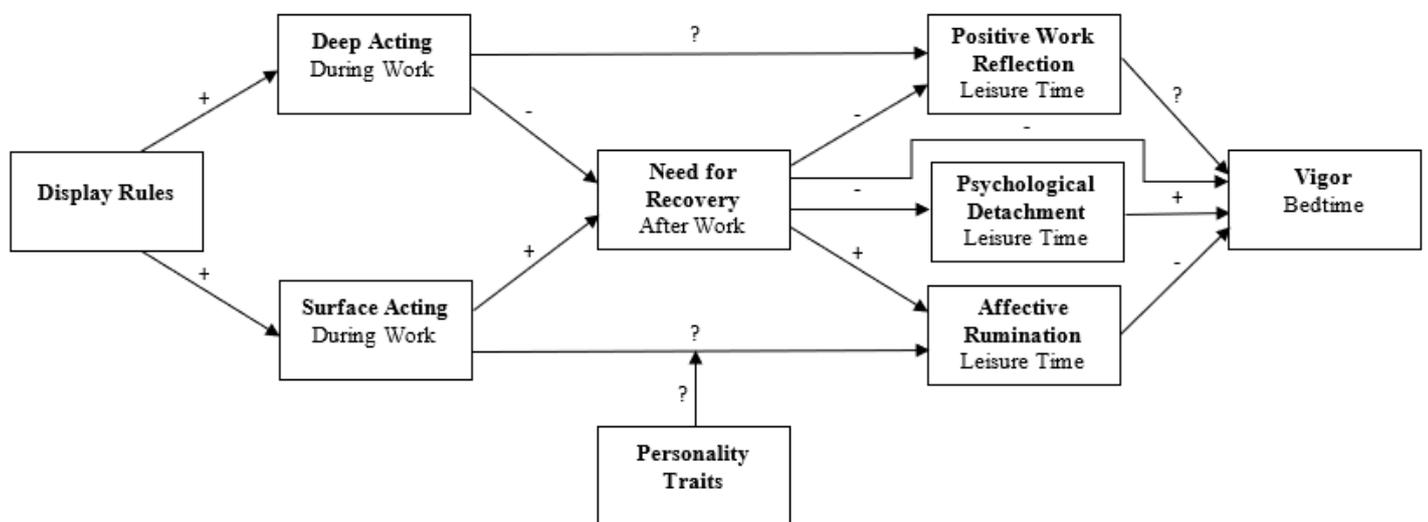
Figure 1. Model of expected relationships between emotional labour and recovery variables

The current study examines the relationships surface acting and deep acting during a shift has with participants need for recovery after work, and their work-related thoughts during leisure time. Moreover, these relationships are investigated at the within-person level of analysis, measuring individual fluctuations in these variables over five workdays. In doing

so it investigates whether strategies that workers employ at work could have implications for their day-to-day recovery from work related stress. Figure 1 depicts a model illustrating the research questions and hypotheses for the study.

Method

Participants

46 participants were recruited through recruitment posts on Facebook or recruitment emails (Appendix A) sent to individuals from the authors personal and professional networks, who were approached to also forward the email to anyone they thought suitable. The criteria for participating included working a full-time job (roughly 40 hours per week) where there was frequent interaction with other people and working daytime shifts. This resulted in a wide variety of occupations including retail assistants, nurses, sales managers, administrators, educators, and insurance consultants. Of the 46 participants who completed an initial survey, 41 chose to continue with the study. Data from two participants was removed from analyses after they stated they did not attend their work on multiple days during the study. From the 39 participants whose data was included in the analyses, 205 data points were collected. 81.6% of the sample identified as Pākehā/NZ European, 10.3% as Māori, 2.6% as Asian, and 5.3% as other ethnicities. 71.8% of the sample were female. Mean job tenure for the sample was 3.84. Mean age for the sample was 34.23 with a standard deviation of 14.82.

Procedure

The current study uses a daily diary design. Participants completed an initial general survey that measured their demographic variables, personality traits, and display rules. At the end of this survey, participants also chose the start date of the five days in which they would complete two short daily surveys. On average, participants chose a start date for the daily

surveys that was 5.4 days after they had completed the initial survey. Each day for five consecutive days participants were to complete a survey after they finished work (After Work Survey), and a survey before they went to bed (Before Bed Survey). These surveys were sent to participants via email at four pm and eight pm respectively.

Materials

Aside from the need for recovery scale which is part of a copyrighted instrument, all scales are included in the appendices with their items and response format.

General Survey

     Demographic variables. Participants' occupation, job tenure, birth year, ethnicity, and gender were all measured.

     Perceived Display Rules (Appendix C). A seven item scale developed by Diefendorff et al. (2005) was used to measure perceived display rules. This is comprised of a four item subscale measuring positive display rule perceptions and a three item scale measuring negative display rule perceptions. Items in this scale refer to interactions with customers, however participants in this sample did not necessarily interact with customers in their work. To overcome this discrepancy this scale was prefaced with the statement "These questions use the word 'customer', but if that is not applicable to your job, think about other people you have frequent contact with, be they colleagues, clients, patients etc.". Cronbach's $\alpha = .80$

     Extraversion (Appendix D). A ten item scale from the International Personality Item Pool was used to measure extraversion (Goldberg, 1999; Goldberg et al., 2006). A sample item is "I don't mind being the centre of attention". Cronbach's $\alpha = .87$

Emotional Stability (Appendix E). A ten item scale from the International Personality Item Pool was used to measure emotional stability (Goldberg, 1999; Goldberg et al., 2006). A sample item is "I am relaxed most of the time". Cronbach's $\alpha = .83$

After Work Survey

All after work survey variables were measured on a 5-point scale where 1 = *Strongly disagree,* 2 = *Disagree*, 3 = *Neither agree or disagree* 4 = *Agree*, 5 = *Strongly agree.*

Surface Acting (Appendix F). The three item sub-scale from the emotional labour scale (Brotheridge & Lee, 2003) was used to assess surface acting at work. A sample item is "Today at work, I resisted expressing my true feelings". Across the five days Cronbach's alphas ranged from .71 to .83 (*M* = .78)

Deep Acting (Appendix F). The three item sub-scale from the emotional labour scale (Brotheridge & Lee, 2003) was used to assess deep acting at work. A sample item is "Today at work, I made an effort to actually feel the emotions that I need to display to others". Over the five days Cronbach's alphas ranged from .72 to .93 (*M* = 85)

Need for Recovery. A four item scale that was adapted by Xanthopoulou et al. (2018) from the Questionnaire on Experience and Evaluation of Work (Veldhoven & Meijman, 1994) was used to assess participants' need for recovery after work. A sample item is "Right now, I cannot really show any interest in other people. Cronbach's alphas ranged from .67 to .94 (M = .80) over the five days.

Before Bed Survey

All bedtime survey variables were measured on a 5-point scale where 1 = *Strongly disagree,* 2 = *Disagree*, 3 = *Neither agree or disagree* 4 = *Agree*, 5 = *Strongly agree*.

Positive work reflection (Appendix G). A four item scale from Binnewies et al. (2009) based off of Fritz and Sonnentag (2006) was used to measure positive work reflection. A sample item is "During my off-job time, I thought about the positive points of my job." Across the five days Cronbach's alphas ranged from .87 to .93 (M = .90)

Affective rumination (Appendix H). A five item scale from Cropley et al. (2012) was used to measure affective rumination. A sample item is "During my off job time, I was irritated by work issues. Cronbach's alphas ranged from .78 to .92 (M = .86) across the five days.

Psychological detachment (Appendix I). Sonnentag and Fritz (2007) four item scale was used to measure the absence of work-related thoughts. A sample item is "During my off-job time, I didn't think about work at all". Over the five days Cronbach's alphas ranged from .81 to .82 (M = .82)

Vigour (Appendix J). The three-item subscale that was adapted by Xanthopoulou et al. (2018) from the Utrecht Work Engagement Scale (Schaufeli et al., 2006) was used to measure vigour. These items were adapted in order to measure vigour in the moment instead of at work. A sample item is "Right now, I feel bursting with energy". Cronbach's alphas ranged from .76 to .92 (M = .83) over the five days.

Strategy of Analysis

Correlations between demographic and study variables were computed in SPSS. Due to the hierarchical structure of the data with day-level measures being nested within persons, multilevel modelling analyses were performed using MPlus Version 8 (Muthén & Muthén, 2017). Multilevel modelling allows for the interdependence of within-person data, offering an appropriate method for analysing data which cannot be analysed using ordinary least squares regression due to violating the assumption of independent data.

To test the hypothesised relationships between study variables, an unconflated 2-1-1-1-1 multilevel mediation model was applied to the data (Kenny et al., 2003). This meant that variance was separated into within and between-level components. Day-level variables were person-mean centered to capture daily fluctuations from person level means. All day-level variables (i.e., surface acting, deep acting, need for recovery, psychological detachment, affective rumination, positive work reflection, vigour) were modelled at the within-person level and display rules, surface acting, and deep acting were entered at the between-person level. Display rules was modelled as the predictor of surface acting and deep acting on the person level.

To test whether extraversion and emotional stability moderate the relationship between surface acting and need for recovery, the relationship was modelled as a random variable that changed between persons. The two personality variables were then estimated to predict variance in the slope of the new variable.

Intraclass correlation coefficients (ICC) were calculated to determine whether there was enough within-person variance in the study variables to warrant analyses at the within-person level. ICC is a measure of the proportion of the total variance in a variable that can be attributed to between-person factors. ICC values for study variables ranged from .53 to .66

(Table 1), meaning that the proportion of variance attributable to within-person factors ranged from 34% to 47% of total variance. Therefore, ICC's for all day-level study variables indicated there was enough within-person variance to justify multilevel analysis (Hox, 2010).

Table 1. Intraclass correlation coefficients for day-level variables.

Variables	ICC
Surface Acting	.62
Deep Acting	.65
Need for Recovery	.62
Affective Rumination	.61
Psychological Detachment	.66
Positive Work Reflection	.53
Vigour	.53

Results

Table 2 displays the descriptive statistics as well as the within-person and between-person correlations for study variables.

Hypotheses 1a and 1b proposed that display rules would positively predict both surface acting and deep acting. Table 3 presents regressions of the person means for surface and deep acting on display rules. The significant positive estimate for display rules (estimate = .57, SE = .18, p <.01) predicting surface acting supports H1a. This means that perceiving stronger display rules increased the likelihood of surface acting at work across the five days of the study. Conversely, the estimate for display rules (estimate = .22, SE = .16, p = .18) predicting deep acting was not significant. Therefore, H1b was not supported.

Table 2. Results of display rules predicting surface acting and deep acting.

	Surface Acting				
Predictor	Estimate	SE	p	Lower 95% CI	Upper 95% CI
Display Rules	.57	.18	.00	.12	1.02

| Residual variance in outcome | .36 | .08 | .00 | .16 | .56 |

		Deep Acting			
Predictor	Estimate	SE	p	Lower 95% CI	Upper 95% CI
Display Rules	.22	.16	.18	-.20	.64
Residual variance in outcome	.40	.08	.00	.19	.60

Table 3. Descriptive statistics and correlations between the study and demographic variables.

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Age	34.23	14.82													
2 Gender	1.72	.46	.08												
3 Tenure	3.84	5.79	.48**	-.04											
4 Display Rules	3.93	.62	-.06	-.06	.89										
5 Extraversion	3.51	.62	.07	.00	.13	.03									
6 Emotional Stability	3.39	.54	.33*	-.22	.13	-.20	.11								
7 Surface Acting	2.88	.69	-.27	.08	-.17	.51**	-.35**	-.31		.13	.07	.14	-.17**	-.22**	-.05
8 Deep Acting	3.28	.65	-.18	.07	-.27	.21	.14	.08	.02		-.13	-.15	.12	.10	.18*
9 Need for Recovery	2.66	.70	-.35*	.15	-.17	.11	-.35**	-.50**	.48**	.12		.38**	-.32**	-.18*	-.40**
10 Affective Rumination	2.57	.67	-.19	.04	-.09	.27	-.10	-.18	.60**	-.04	.37*		-.42**	-.32**	-.34**
11 Psychological Detachment	3.29	.69	.02	-.09	-.04	-.52**	-.14	-.10	-.50**	.16	.00	-.63**		-.08	.41**
12 Positive Work Reflection	3.36	.59	.12	.11	.06	-.07	-.18	.19	-.16	.18	-.14*	-.36*	.12		.15
13 Vigour	2.82	.57	-.10	.03	-.01	-.40**	-.12	-.09	-.32*	.11	-.27*	-.56**	.56**	.54**	

Gender: 1 = Male, 2 = Female; *p < 0.05 **p < 0.01. Values below the diagonal are between-person correlations. Values above the diagonal are day-level correlations calculated with person-mean centered data. $N_{between}$ = 39.

Multilevel Mediation Analysis

Hypotheses 1a and 1b proposed that display rules would positively predict both surface acting and deep acting. The significant positive estimate for display rules (estimate = .57, SE = .18, p <.01) predicting surface acting supports H1a. This means that perceiving stronger display rules increased the likelihood of surface acting at work across the five days of the study. Conversely, the estimate for display rules (estimate = .22, SE = .16, p = .18) predicting deep acting was not significant. Therefore, H1b was not supported.

Table 4 shows the results of the within-level multilevel mediation analysis for H2A and H2B. The estimates for surface acting (estimate = .09, SE = .09, p = .34) and deep acting (estimate = -.16, SE = .14, p = .27) predicting need for recovery were both non-significant. Therefore, H2a and H2b were not supported. This means that on any given day, the extent to which participants surface acted or deep acted oat work was unrelated to their need for recovery after work.

Hypothesis 3 proposed that psychological detachment during leisure time would mediate the negative relationship between need for recovery after work and vigour at bedtime. Four estimates supported this hypothesis. Firstly, daily need for recovery after work (estimate = -.26, SE= .07, p < .01) predicted vigour at bedtime, meaning that on days participants felt a high need for recovery after work, they were likely to experience less vigour at bedtime. Need for recovery after work also predicted a lack of psychological detachment (estimate = -.29, SE = .07, p < .00) during leisure time. This meant that on days participants felt a high need for recovery, they were likely to continue to think about work issues during their leisure time. Psychological detachment (estimate = .31, SE = .13, p <.05) during leisure time in turn predicted vigour at bedtime. Participants who were able to detach during leisure time were more likely to experience vigour at bedtime. Moreover, the indirect

effect (estimate = -.10, SE = .05, p <.05) of need for recovery on vigour through impaired psychological detachment was significant.

Hypothesis 4 proposed that affective rumination would also mediate the negative relationship between need for recovery and vigour. While need for recovery did predict affective rumination (estimate = .36, SE = .08, p <.01), the estimate for affective rumination predicting vigour (estimate = -.08, SE =.13, p = .54) was not significant. The indirect effect (estimate = .03, SE. 05, p = .53) of need for recovery on vigour through affective rumination was also not significant. This means that while on days where participants were high in need for recovery after a work shift, they were more likely to experience affective rumination during their leisure time, this did not impact their vigour at bedtime beyond the effect of lack of detachment.

The relationship between surface acting during work and affective rumination (estimate = .10, SE = .07, p = .14) during leisure time was not significant, meaning that at the day-level surface acting during work did not make participants more likely to ruminate on work issues during their leisure time. Research question 1 was not supported. Research question 2 was that positive work reflection during leisure time would be positively related to vigour before bedtime. The estimate for positive work reflection predicting vigour (estimate = .11, SE = .11, p = .31) was not significant, meaning this research question was not supported. Deep acting during work did not predict positive work reflection (estimate = .09, SE = .09, p = .32) at the day level, meaning research question 3 was also not supported.

In response to research questions 4A and 4B, neither emotional stability (estimate = .04, SE = .16, p = .79) or extraversion (estimate = -.17, SE = .34, p = .61) predicted variance in the slope between surface acting and need for recovery. This indicates that there was no evidence

for these personality traits affecting the within person relationship between surface acting during a work shift and need for recovery after a work shift.

Table 4. Results of multilevel mediation analysis at within-level

Predictor	Estimate	SE	p	Lower 95% CI	Upper 95% CI
Need for Recovery					
Surface Acting	.09	.09	.34	-.15	.32
Deep Acting	-.16	.14	.27	-.53	.21
Residual variance in outcome	.28	.04	.00	.18	.38
Affective Rumination					
Need for Recovery	.36	.08	.00	.14	.58
Surface Acting	.10	.07	.14	-.08	.28
Residual variance in outcome	.24	.04	.00	.13	.34
Psychological Detachment					
Need for Recovery	-.29	.07	.00	-.46	-.12
Residual variance in outcome	.21	.03	.00	.13	.29
Positive Work Reflection					
Need for Recovery	-.16	.10	.13	-.49	.18
Deep Acting	.09	.09	.32	-.19	.56
Residual variance in outcome	.29	.04	.00	.19	.39
Vigour					
Need for Recovery	-.26	.07	.00	-.44	-.07
Affective Rumination	-.08	.13	.54	-.42	.26
Psychological Detachment	.32	.13	.01	.00	.65
Positive Work Reflection	.11	.11	.31	-.17	.38
Need for Recovery via Affective Rumination	-.03	.05	.53	-.15	.09
Need for Recovery via Psychological Detachment	-.10	.05	.02	-.20	.01
Need for Recovery via Positive Work Reflection	-.02	.02	.29	-.06	.02
Residual variance in outcome	.20	.03	.00	.13	.28

Discussion

The current study investigated relationships between the use of daily emotional labour strategies and recovery from work-related effort after work. One of the aims was to test if surface acting and deep acting differ in their relationship with need for recovery after work. Research has already established a largely good/bad dichotomy with regards to the relationships deep acting and surface acting have with employee health outcomes (Grandey & Melloy, 2017). Surface acting tends to be moderately associated with poor wellbeing, whereas deep acting either is unrelated to or weakly related to poor wellbeing. But this study aimed to replicate recent findings that extended the dichotomy to day-level indicators of strain (Xanthopoulou et al., 2018).

The finding that display rules predict surface acting so that participants with higher ratings of perceived display rules tended to have higher levels of surface acting over the study period was expected under Hypothesis 1A. However, unexpectedly the relationship between display rules and deep acting (Hypothesis 1B) was not significant. It may be the case that those who surface acted were motivated to meet the expected emotional displays in their role, but that display rules are necessary but not sufficient to promote deep acting. As it involves changing one's cognitions in order to produce affective change, it could be that workers only engage in deep acting to meet display rules if they identify with their role and are hence motivated to bring their emotions in line with display rules (Brotheridge & Lee, 2003; Humphrey et al., 2015). This between-person finding should be interpreted with caution due to the small sample size (n = 39).

The non-significant estimates of surface acting and deep acting in predicting need for recovery means that no support was found for hypotheses 2a and 2b. In other words, participants' emotional labour during a work shift had no influence over their level of need for recovery after their work shift had ended. Unlike Xanthopoulou et al. (2018), the current

study did not measure exhaustion and flow as mediating variables of the relationships between use of the two emotional labour strategies (i.e. surface acting, deep acting) during a work shift and need for recovery after work. Daily surface acting may still have had an indirect effect on need for recovery after work through exhaustion at work on participants in this study, as was found by Xanthopoulou et al. (2018). However, as there was no measure of exhaustion in this study, this could not be tested. It is also worth noting that as this study sampled participants with a variety of occupations, it is likely that other properties of a work shift such as job demands not considered in this study (time pressure, workload etc.) have strong influence over their need for recovery after work.

Another one of the present study's aims was to investigate the role that work-related thoughts (and the lack thereof) play in after-work recovery. The current study did find support for the mediating role of psychological detachment in the relationship between need for recovery after work and vigour before bed. On days where participants had a high need for recovery after work, they tended to have a lack of psychological detachment during their leisure time and were subsequently less likely to experience vigour before bed. This finding conforms to the predictions of the stressor-detachment model, that experiencing high levels of job stressors increases negative activation, making psychological detachment less likely, which in turn relates to impaired recovery (Sonnentag & Fritz, 2015). It also illustrates the recovery paradox, that when recovery is most needed it is also less likely to be successful. Being in a state of high need for recovery means that people have less energy to invest into activities that enhance psychological detachment. Activities that require active engagement such as physical exercise, or that 'grab' one's full attention such as visiting a museum (Kaplan et al., 1993) or walking through natural environments (Kaplan, 1995), can enhance psychological detachment from work but require energy to be invested in them. But when people have a high need for recovery, they are more likely to engage in activities that require

less energy investment but may not be as effective in helping them detach (e.g. watching television).

While we did find evidence of the expected role for psychological detachment in recovery, the content of work-related thoughts during leisure time themselves did not appear to influence vigour before bed. Despite affective rumination having a significant negative correlation with vigour, in our model it did not predict any of the variance in vigour beyond that of need for recovery and psychological detachment. This is surprising because affective rumination is negatively valenced and involves high psychophysiological arousal. Presumably, it would be negatively related to an affective state characterised by pleasant arousal.

High need for recovery after work did predict high levels of affective rumination during leisure time. This relationship may be explained by need for recovery's link with negative activation. This affective state after work may endure throughout one's leisure time and influence cognitions about work to be negatively valenced in line with the mood-congruency hypothesis (Judge & Ilies, 2004; Rusting, 1998).

Positive work reflection during leisure time was also unrelated to both need for recovery after work and vigour before bed. With regards to the lack of a relationship with need for recovery, it could be the case that while being in a negative mood increases the likelihood that one will think about the negative aspect of one's job (i.e. affective rumination), it does not alter the likelihood of thinking about positive aspects of one's job. The lack of a relationship with vigour is in conflict with past findings that positive work reflection relates to increased affective wellbeing (Meier et al., 2016). The results of the current study imply that the content of work-related thoughts during leisure time are not as important as experiencing a lack of these thoughts in recovering energy from work.

No evidence was found to support the research questions concerning direct relationships between emotional labour strategies during a work shift and work-related thoughts during leisure time. Use of surface acting or deep acting during a work shift had no direct influence over either affective rumination or positive work reflection during after work leisure time on the same day.

One explanation of these results is that thoughts about work are likely to include aspects beyond what happened in a particular work shift. Workers may reflect on positive interactions that may have been facilitated by deep acting but happened days prior, or they may ruminate on the emotional dissonance they feel in their work in general, unrelated to any specific instance of surface acting. Moreover, deep acting likely does not always result in positive experiences, nor surface acting negative experiences. Positive work reflection might also centre on moments where workers did not use an emotional labour strategy at all, and instead genuinely felt the required emotion. The subject matter of positive work reflection and affective rumination may also be unrelated to social interactions at work (e.g. they may be related to the completion of a solo project, or looming deadlines).

Research questions 4A and 4B asked whether extraversion and emotional stability would moderate the relationship between surface acting during work and need for recovery after work. The analyses found no evidence for either of these personality variables moderating the suggested relationship. In other words, being high or low in extraversion or emotional stability had no bearing over whether surface acting at work was associated with participants' need for recovery after work. In interpreting this finding, it is important to note the small sample size at the between level (n = 39). Such a small sample size means that this finding should be taken tentatively. Future research should recruit a higher number of participants in order to report more definitive findings and investigate other person-level variables that could moderate the relationship. Emotional labour ability is an example of such

a variable, with recent research suggesting that surface acting may be less exhausting for workers who are high in emotional regulation ability (Scherer et al., 2019).

Limitations

To reduce the influence of common method bias (Podsakoff et al., 2003) on the data, some predictor and outcome variables were measured at separate time points. For example, need for recovery was measured after participants finished a work shift and vigour was measured before they went to bed. However, variables (e.g. psychological detachment) that were proposed to mediate the relationship between these two variables were measured at the same time as vigour. Following Xanthopoulou et al. (2018), to reduce the influence of common method bias in this case, participants were prompted to reflect on a different reference time. Scales measuring, psychological detachment, affective rumination, and positive work reflection were introduced with 'during this evening…', whereas the vigour scale was preceded with 'right now…'. Similarly, scales measured after work were preceded by 'today at work…' for emotional labour strategies, and 'right now' for need for recovery. While framing scales with different time references creates some sense of temporal separation, because some scales are measured contiguously, there is still potential for common method bias to explain some of the shared variance between variables. Future research could introduce more time points to measure antecedent, mediator, and outcome variables separately. Another approach would be to collect data from alternate sources or mediums such as spouse report of psychological detachment (Sonnentag et al., 2010), or physiological markers of wellbeing such as heart-rate variability (Cropley et al., 2017).

Another limitation of the current study is that negative activation and depletion of energetic resources, two of the mechanisms through which a high need for recovery is thought to impair psychological detachment (Sonnentag, 2018) were not measured. Future studies should measure negative activation, depletion of energetic resources (i.e. exhaustion)

with need for recovery in order to measure the proportion of variance each can account for in psychological detachment. If the variance explained by negative activation and depleted energetic resources differs considerably, then this may inform interventions to enhance recovery.

Another limitation of the current study is that the sample size was quite low (n = 39). Although the design of the study meant that enough data was gathered to conduct within person analyses, the generalizability is somewhat limited by the sample size. The present sample was general in the sense that occupations varied from jobs thought to be high in emotional labour (e.g. nursing, teaching) to those lower in emotional labour (e.g. office administrators). However, future research should enlist larger sample sizes in order to make enhance the generalizability of findings.

Strengths

One of the strengths of the current study is that it sampled participants from a variety of occupations, rather than selecting participants with customer service or teaching roles where workers may engage in emotional labour with greater frequency. This allowed investigation of emotional labour in people whose occupations do not fit into the category of emotion work per se, but as the results indicate, do still utilise emotional labour strategies at work. Despite this, the current study had a small sample size of 39. Future studies should aim for larger sample sizes to get a more representative sample of the general population of workers.

Another strength of the current study is that it measured within-person fluctuations in levels of study variables at multiple time points over the course of five days. This allowed investigation of intra-individual emotional labour and recovery processes. While emotional labour strategies were originally thought to be a stable individual difference, recent research

has found there is within-person variation in the use of each strategy that is worth investigating (Grandey & Melloy, 2017).

This study also compared relationships with recovery variables of two types of work-related thoughts (i.e. affective rumination, positive work reflection) to that of psychological detachment. Not all work-related thoughts may relate to impaired recovery, some may enhance it, and the effect sizes of those that do relate to impaired recovery may vary. In the current study neither of the work-related thoughts predicted vigour (as an indicator of successful recovery) beyond the contribution of psychological detachment. Nonetheless, future studies should continue to investigate the various types of work-related thoughts in the same study as they may differ in their relation to other variables studied in the recovery literature.

Implications

On days where workers feel a high need for recovery after work, this can impair their recovery, partially through a lack of psychological detachment. One way to overcome this could be to form habits for activities that bolster psychological detachment (Sonnentag, 2018). Incorporating activities that require full attention such as playing sports or engaging in other activities that enhance psychological detachment as part of an every day after work routine should make it easier to choose these activities on days where work is draining. For example, forming a habit of practicing mindfulness after work every day to divert attention away from aspects of work, could increase the likelihood that one will practice mindfulness on days where it is most needed.

Conclusion

The use of two emotional labour strategies (surface acting and deep acting) by a sample of workers with varied occupations was examined in the current study to investigate their relationships with the need for recovery. It was found that using either emotional labour strategy in a work shift was not associated with experiencing higher or lower need for recovery after that work shift. While between-person studies of the two strategies has found surface acting is associated with negative outcomes for employee wellbeing (Hülsheger & Schewe, 2011), the current study found no evidence for surface acting contributing to strain indicated by need for recovery at the day-level. Moreover, use of the two strategies in a work shift did not relate to the types of work-related thoughts exhibited by the participants in their leisure time. These findings suggest that the use of emotional labour strategies may not influence after-work recovery from work stress for workers that are not in high emotional labour occupations. However, these findings should be taken tentatively because of the low sample size.

As for the role that work-related thoughts play in after-work recovery, the current study found that psychological detachment, but not affective rumination or positive work reflection mediated the negative relationship between after work need for recovery and before bed vigour. These findings show the recovery paradox in action but also suggests that the absence of work-related thoughts during non-work time is more important for recovery than the content of any work-related thoughts. In order to enhance recovery on days where need for recovery is high, employees may form habits for activities that promote psychological detachment, so that these activities are routinized and less energy-investment on days where they feel drained after work. Leaders may facilitate this by modelling similar behaviour and advocating for the importance of recovery among their followers.

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Appendices

Appendix A: Recruitment Email

Hi [name],

I'm writing to request your help to recruit participants for a study I'm running for my Masters dissertation. It looks to investigate how people who frequently interact with others in their jobs feel after their workday.

To be eligible for the study, participants must work full time in a job where they work during the day and frequently interact with other people. The study asks participants to complete a series of short online surveys during their leisure time over the course of a **five-day working week**. The **initial survey will take ten minutes** and be followed by **ten five-minute surveys** throughout the five days. As a reward, participants who complete all surveys will go in the draw to win **one of seven $100 petrol vouchers.** The first survey begins with a more detailed summary of the study.

Can you please forward this email to any members of your organisation who may be suitable/interested?

The survey can be started by following the link below.

[Link]

Kind Regards,

James Thomas

Appendix B: Study Information and Consent

What is this study about?

Hello, I am James Thomas, a Masters student at the University of Canterbury investigating how people who work in jobs where they frequently interact with other people feel after their work day. The current study will have you complete **10 short questionnaires** asking about your experience with emotions at work and how you feel during non-work time. These questionnaires will be spaced out over a **five-day work week**. This will require you to complete a questionnaire **after you finish work each day**, and **another questionnaire each day before you go to bed**.

You have been approached to take part in this study because you work in a job where you **frequently interact with other people**, you work **full-time** (roughly 40 hours a week), and work **during the day**. You have been forwarded an invitation to this study by a member of your organisation, or you have indicated your interest in the study through Facebook.

If you choose to take part in this study, your involvement in this project will involve filling out this **initial online questionnaire**, and then **ten five-minute online questionnaires** over a **five-day period**. Each day you will be sent **two links via email**. These will lead to a questionnaire to complete **after work**, and one to be completed **before you go to bed**. It is important that you complete each questionnaire at the times specified. The initial questionnaire should take ten minutes and the shorter daily questionnaires should take five minutes each to complete. The last page of the current questionnaire will allow you to **choose a date to begin the short questionnaires**. If you choose not to complete this study and reconsider at a later date, you can return to this questionnaire through the link you received through Facebook or email.

In completion of the questionnaires, there is a chance some of the items about personality or work issues trigger emotional distress. If you do experience distress as a result of participation, here are some places you can go for support.

Lifeline
0800543354
lifeline.org.nz

Mental Health Foundation
Mentalhealth.org.nz

1737 Helpline
Free call or text 1737
1737.org.nz

Participation is voluntary and you have the right to withdraw at any stage without penalty. You may ask for your raw data to be returned to you or destroyed at any point. However, once analysis of raw data starts on 1/12/19, it will become increasingly difficult to remove the influence of your data on the results. **As a reward, participants who complete all the surveys will go in the draw to win one of seven $100 petrol vouchers.**

The results of the project may be published, but you may be assured of the complete confidentiality of data gathered in this investigation: your identity will not be made public. To ensure confidentiality, each participant will be identified by a code with a separate spreadsheet linking codes to participants emails, so that you may receive a summary of the study results and/or vouchers in the case of you winning the raffle. Data will be securely stored on password protected university servers, where only myself and my supervisor will have access to the data. All data will be destroyed after five years. A thesis is a public document and will be available through the UC Library.

The project is being carried out as a requirement for a Masters in Applied Psychology by James Thomas who can be contacted at james.thomas@pg.canterbury.ac.nz, under the supervision of Professor Katharina Naswall, who can be contacted at katharina.naswall@canterbury.ac.nz.
Either James or Katharina will be happy to discuss any queries or concerns you may have about participation in the project.

This project has been reviewed and approved by the University of Canterbury Human Ethics Committee, and participants should address any complaints to The Chair, Human Ethics Committee, University of Canterbury, Private Bag 4800, Christchurch (human-ethics@canterbury.ac.nz)

By continuing with this questionnaire you consent to participate and start the survey

Appendix C: Display rules scale

From Diefendorff et al. (2005)

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
Part of my job is to make the customer feel good.	1	2	3	4	5
My workplace does not expect me to express positive emotions to people as part of my job. (R)	1	2	3	4	5
This organisation would say that part of the product to customers is friendly, cheerful service.	1	2	3	4	5
My organisation expects me to try and act excited and enthusiastic in my interactions with customers.	1	2	3	4	5
I am expected to suppress my bad moods or negative reactions to customers.	1	2	3	4	5
This organisation expects me to try to act excited and enthusiastic in my interactions with customers.	1	2	3	4	5
I am expected to try to pretend I am not angry or feeling contempt while on the job.	1	2	3	4	5

(R) = reverse coded

Appendix D: Extraversion scale

From the IPIP representation of the Goldberg (1992) markers for the Big-Five factor structure

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
I am the life of the party.	1	2	3	4	5
I feel comfortable around people.	1	2	3	4	5
I start conversations.	1	2	3	4	5
I talk to a lot of different people at parties.	1	2	3	4	5
I don't mind being the centre of attention.	1	2	3	4	5
I don't talk a lot. (R)	1	2	3	4	5
I keep in the background. (R)	1	2	3	4	5
I have little to say. (R)	1	2	3	4	5
I don't like to draw attention to myself. (R)	1	2	3	4	5
I am quiet around strangers. (R)	1	2	3	4	5

(R) = reverse code

Appendix E: Emotional stability scale

From the IPIP representation of the Goldberg (1992) markers for the Big-Five factor structure

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
Am relaxed most of the time.	1	2	3	4	5
Seldom feel blue.	1	2	3	4	5
Get stressed out easily. (R)	1	2	3	4	5
Worry about things. (R)	1	2	3	4	5
Am easily disturbed. (R)	1	2	3	4	5
Get upset easily. (R)	1	2	3	4	5
Change my mood a lot. (R)	1	2	3	4	5
Have frequent mood swings. (R)	1	2	3	4	5
Get irritated easily. (R)	1	2	3	4	5
Often feel blue (R)	1	2	3	4	5

(R) = reverse coded

Appendix F: Emotional labour scales

Deep Acting – From Brotheridge and Lee (2003)

Today at work I…

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
Made an effort to actually feel the emotions that I need to display to others.	1	2	3	4	5
Tried to actually experience the emotions that I must show.	1	2	3	4	5
Really tried to feel the emotions I have to show as part of my job.	1	2	3	4	5

Surface Acting – From Brotheridge and Lee (2003)

Today at work I…

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
Resisted expressing my true feelings.	1	2	3	4	5
Pretended to have emotions that I didn't really have.	1	2	3	4	5
Hid my true feelings about a situation	1	2	3	4	5

Appendix G: Positive work reflection scale

From Fritz and Sonnentag (2005)

During this evening…

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
I realized what I like about my job.	1	2	3	4	5
I thought about the positive points of my job.	1	2	3	4	5
I considered the positive aspects of my job.	1	2	3	4	5

Appendix H: Affective rumination scale

From Cropley et al. (2012)

During this evening…

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
I became tense when I thought about work-related issues.	1	2	3	4	5
I was annoyed by thinking about work-related issues.	1	2	3	4	5
I was irritated by work issues.	1	2	3	4	5
I became fatigued by thinking about work related issues.	1	2	3	4	5
I was troubled by work-related issues.	1	2	3	4	5

Appendix I: Psychological detachment scale

From Sonnentag and Fritz (2007)

During this evening…

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
I forgot about work.	1	2	3	4	5
I didn't think about work at all.	1	2	3	4	5
I distanced myself from my work.	1	2	3	4	5
I got a break from the demands of work.	1	2	3	4	5

Appendix J: Vigour scale

From Schaufeli et al. (2006)

Right now…

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
I feel bursting with energy.	1	2	3	4	5
I feel strong and vigorous.	1	2	3	4	5
I feel like going to work.	1	2	3	4	5