



UiT The Arctic University of Norway

Department of Psychology, Faculty of Health Sciences

# **Lunch Break Environments and Their Effect on Psychological Detachment and Well-Being**

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## Preface

When I moved to Tromsø almost two years ago, it was with great excitement that I walked in through the doors at UiT. Having taken a longer break between my bachelor and master I was not sure what my thesis would be on. In the first year I took a course in work and occupational psychology with Dr. Dana Unger, and the topics we learned about peaked my interest. Through discussions with Dana, we eventually landed on the topic for this thesis.

Throughout the journey of writing this thesis, I have been guided by the invaluable support and expertise of numerous individuals whom I wish to acknowledge with profound gratitude. First and foremost, I extend my deepest appreciation to my thesis advisor, Dr. Dana Unger for insightful guidance that have been instrumental in shaping this work. Thank you for having patience on a level that would embarrass the most dedicated meditator.

I am also immensely grateful to the UiT, the Master's committee and the Department of Psychology for giving me an opportunity to grow and learn from fascinating people and topics. I extend my heartfelt thanks to our coordinator Dr. Tove Dahl for her motivating and energetic way of guiding us students on the road towards a master in psychology.

To my classmates during these two years in Tromsø, thank you for your long discussions during countless coffee breaks. You have been an immense source of inspiration and support. A special thanks to Samy Babiker who collaborated on the data collection for this thesis.

A heartfelt thanks goes to my family for the support I have been given throughout this journey. Without you I would not have been able to get even close to finishing this.

As with any scholarly endeavor, this thesis represents not a culmination, but a steppingstone in the ongoing pursuit of knowledge and understanding. It is my hope that this research contributes meaningfully to the body of literature in work and occupational

psychology, being useful in further inquiry and dialogue in the pursuit of enhancing the field of work and occupational psychology.

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Dr. Dana Unger





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Supervisor: Dr. Dana Unger

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### Sammendrag

Med økende oppmerksomhet rundt viktigheten av restitueringsopplevelser, særskilt for å dempe stress på arbeidsplassen og fremme velvære, sikter denne forskningen på å bidra til forståelsen av hvordan miljøfaktorer påvirker «detachment» og emosjonell utmattelse under lunsjpauser. Med utgangspunkt i teorier fra både miljøpsykologi og arbeids- og organisasjonspsykologi utviklet vi en spørreundersøkelse. 117 britiske deltakere ble rekrutert gjennom Qualtrics, og mål på «detachment», emosjonell utmattelse, lunsjpausemiljøer og preferanse for naturlige miljøer ble samlet inn over en periode på tre uker for hver deltaker. Vi forventet at «detachment» skulle mediere effekten av lunsjpauser i naturlige omgivelser på emosjonell utmattelse blant ansatte, og at preferanser for naturlige miljøer skulle moderere dette forholdet. Analysen avdekket «detachment» som en signifikant prediktor for emosjonell utmattelse. Deltakere som rapporterte høyere nivåer av «detachment», rapporterte lavere nivåer av emosjonell utmattelse. Undersøkelsen vår fant ingen signifikante resultater for å støtte oppfatningen om at å tilbringe lunsjpauser i naturlige omgivelser predikerer høyere nivåer av «detachment» og emosjonell utmattelse. Preferanse for naturlige miljøer modererte heller ikke forholdet mellom naturlige lunsjpausemiljøer og «detachment».

*Nøkkelord:* gjenopprettende miljøer, lunsjpauser, psykologisk løsrivelse, følelsesmessig utmattelse, restitusjonsopplevelser.



### **Abstract**

With increasing attention to the importance of recovery experiences, particularly in mitigating workplace stress and promoting well-being, the present research seeks to contribute to the understanding of how environmental factors influence psychological detachment and emotional exhaustion during lunch breaks. Drawing upon theories from both environmental psychology and work and occupational psychology, we developed a questionnaire study. 117 British participants were recruited through Qualtrics, and measures of psychological detachment, emotional exhaustion, lunch break environments and preference for natural environments were collected over a period of three weeks for each participant. We expected detachment to mediate the relationship between natural lunch break environments and emotional exhaustion, and that preference for natural environments would moderate this relationship. The analysis revealed detachment as a significant predictor of emotional exhaustion. Specifically, participants who reported higher levels of detachment, reported lower levels of emotional exhaustion. Our investigation did not find any significant results to support the notion that spending lunch breaks in natural environments predicts higher levels of detachment and emotional exhaustion. Preference for natural environments was also not found to moderate the relationship between natural lunch break environments and detachment.

*Keywords:* restorative environments, lunch breaks, psychological detachment, emotional exhaustion, recovery experiences.

## **Lunch Break Environments and Their Effect on Psychological Detachment and Well-Being**

Occupational stress can lead to many negative outcomes including risk of higher turnover rates (Kachi et al., 2020), job dissatisfaction (Qiu et al., 2021) and higher sick leave (Amiri & Behnezhad, 2020). Such outcomes can carry substantial costs for companies (Russo et al., 2021) and finding ways to mitigate occupational stress is therefore of great value. The term “stress”, commonly divided into stressors and strains (Schuler, 1980), are negative environmental factors that have a taxing impact on people. Stressors in work situations can be work overload, problematic social relations, or other demanding aspects of work. Strains refers to the impact, or result, of stressors. Strain can have immediate effects on physiological responses such as levels of adrenaline or cortisol (Dahlgren et al., 2005), or short-term psychological reactions like negative affect. If the stressor-strain relationship is not broken over longer periods of time it can lead to long-term effects such as burnout, chronic fatigue and exhaustion (Sonnetag & Fritz, 2015). During our off-work time, we have the opportunity to recover and break the stressor-strain relationship (Geurts & Sonnetag, 2006). A growing number of studies since the turn of the millennium has shown that how we spend our off-work time, has an impact on how we recover from occupational stress (see Sonnetag et al., 2022 for a review). Most studies have focused on longer respites from work, although a small number of recent papers have investigated how work-breaks during the workday can improve recovery (e.g., Hunter & Wu, 2016; Trougakos et al., 2014). More research is needed in order to better understand how the shorter breaks during a workday can impact employees.

Detachment refers to the sense of being away from the work situation both mentally and physically (Sonnetag & Fritz, 2007), and is a key recovery experience helping break the stressor-strain relationship (Steed et al., 2021). Detachment has been shown to increase positive affect and life satisfaction (Davidson et al., 2010), as well as reducing emotional

exhaustion (de Jonge et al., 2012). Exhaustion can be detrimental for employers as it may lead to higher turnover intentions, lower work commitment (Golden, 2006) and absenteeism (Amer et al., 2022). Finding ways to facilitate detachment can therefore help employers save costs in the long run, and finding ways to improve recovery during lunch breaks is of notable interest for employers as this is the part of non-work time that employers have the most influence over.

One aspect of the recovery setting largely overlooked within work and occupational psychology, is the effect of environments (Sonnentag et al., 2017). That is, where to recover best. However, “restorative environments”, within environmental psychology, have been gaining interest from researchers, and is a field sharing considerable conceptual overlap with recovery (Korpela et al., 2015). Attention restoration theory (ART) (Kaplan, 1995), states that restorative environments can have stress reducing effects because they provide opportunities for effortless attention. Over time, our capacity for intense cognitive effort and directed attention will become depleted and will therefore have to be restored. Central to ART is the differentiation between voluntary and involuntary attention. Voluntary (directed) attention is effortful and requires constant suppression of distractions. Involuntary attention is effortless and the ART postulates that environments differ in their suitability for promoting this attention.

Sonnentag and colleagues (2010b) describe detachment as the state characterized by the absence of both physical and psychological job-related demands. Similarly, involuntary attention can be understood as the lack of directed attention. As Korpela and colleagues (2015) argues in a review on the health benefits of restorative environments, there is conceptual overlap between the theoretical frameworks found in restorative environments and the recovery literature. We argue that detachment found in recovery research, shares similarities with the absence of directed attention found in research on restorative

environments. We therefore conceptualize detachment as the lack of directed attention toward work-related demands for the purpose of this study.

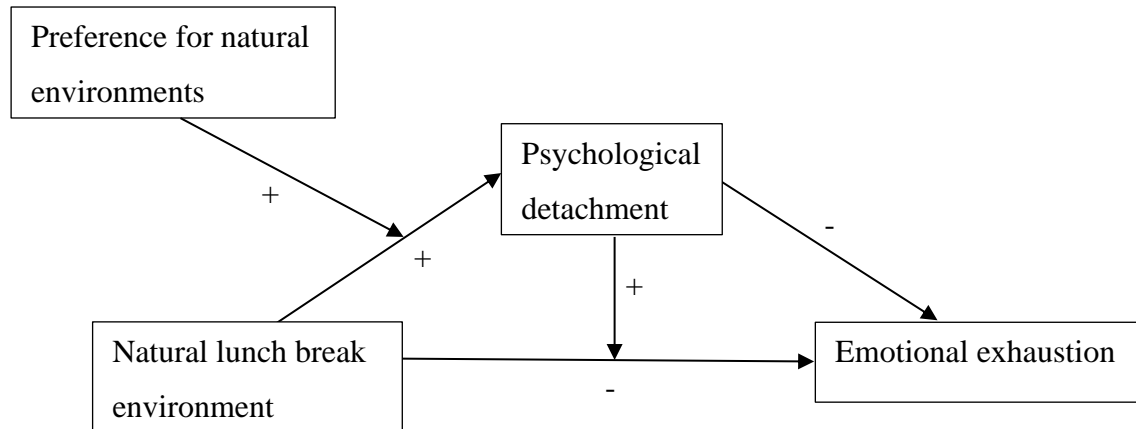
Drawing upon the ART, we wanted to investigate if detachment serves a mediating role in the relationship between restorative environments and emotional exhaustion. We therefore integrated ART with the stressor-detachment model (Sonnetag & Fritz, 2015), using natural lunch break environments as a predictor of detachment and emotional exhaustion. We argue that if effortless attention is related to a reduction in strains as a result of exposure to natural environments (Hartig et al., 2003), the underlying process mediating this relationship could be detachment. Effortless attention, characterized by the absence of cognitive effort and involuntary engagement with the environment, may facilitate detachment from work-related stressors and promote psychological restoration. Thus, we argue that detachment can play a mediating role in the relationship between effortless attention and the reduction of strains following exposure to natural environments.

Another aspect studied in environmental psychology is the moderating role of preferences in the relationship between environment and people (Bratman et al., 2012) Mayer and Frantz developed the Connectedness to Nature Scale (Mayer & Frantz, 2004). This measure aims to say something about to what extent people feel connected to the nature around them, and they argue that connection to nature moderates the effects of nature on mood, and the likelihood that people will contribute with environmentally friendly acts. Bratman and colleagues (2012) states that one aspect that has not received much attention is individual differences in the effect of environments on well-being based on peoples connection to nature. That is, some people may experience a greater impact from environments on their mental life than others due to individual preference. This is in line with ART which emphasizes the importance of compatibility between person and environment

(Kaplan, 1995). We therefore added preference for natural environments as a moderating variable in our proposed model.

**Figure 1**

*Moderated mediation model*



Our study contributes to the literature on recovery in several ways. Firstly, it attempts to consolidate findings from two different psychological fields, namely work and occupational psychology and environmental psychology. We argue that findings based on detachment might share similarities in concept with that of directed attention central to ART, and therefore will be served by further investigation into how these can be connected.

Secondly, our work contributes to the literature on recovery by studying recovery in the lunch break setting, which has been largely overlooked by earlier research. The lunch break is the most common break from the demanding hours at work, and a better understanding of how we can take advantage of this limited amount of time can improve productivity and well-being at work.

Lastly, we argue that a better understanding of how employers can organize the work break setting can be of great importance for the purpose of cost reduction and employee well-being. Decisions on where to rent offices and how to accommodate break rooms at work are examples of how employers can benefit from a better understanding of the recovery setting.

This contrasts with the majority of the existing research focusing on longer respites from work (Sonnetag et al., 2022) that employers have little to no control over. Employees can also benefit from being informed on how to spend their breaks efficiently in order to restore resources and improve their overall well-being.

### **Theoretical Background and Hypotheses**

In this section, we review relevant theories from environmental psychology, and work and occupational psychology, to inform our study on lunchbreak environments, detachment, exhaustion and connectedness to nature. Relevant empirical work will also be reviewed to guide our hypothesis development.

#### **Attention Restoration Theory**

As the world's population has become increasingly urbanized, interest in how our surrounding environment affects us has gained interest from researchers (Ohly et al., 2016; Kaplan, 1995). The most widely used theory describing environmental preference, is the attention restoration theory (ART) (Li et al., 2021; Ohly et al., 2016). Central to the ART is voluntary/directed attention, a concept from cognitive psychology that has roots back to William James over a century ago, which describes attention that requires effort (Kaplan, 1995). Where involuntary attention is effortless and requires little to no motivation, voluntary attention is thought of as a resource that becomes depleted over longer periods of use, a process described by Kaplan (1995) as attention fatigue. While voluntary attention is taxing on attentional resources in and of itself, effort is also expended on constant supervision and suppression of distractions (Kaplan, 1995). Kaplan & Kaplan (2003) describes symptoms of attention fatigue as irritability, distractibility, impulsiveness, and impaired capacity to make and follow plans.

ART (Kaplan, 1995) describes four criteria for restorative environments that nature is assumed to usually fulfill. Firstly, by “being away” from everyday scenes that taxes the

attentional reservoirs. Even if not physically, natural scenes can provide a foundation for mental escape. Secondly, by being “extensive”, where the environment provides a coherent view that is rich enough to engage a person's involuntary attention. Third, the environment should be “compatible” with a person's intrinsic motivations. Lastly, the environment is “softly fascinating”, engaging our involuntary attention without being overwhelming. ART makes no assumption that other environments cannot fulfill some of, if not all of these criteria, but natural environments are thought to have an aesthetic advantage (Kaplan & Kaplan 1989), combining beauty and fascination that create a setting that facilitates restoration of attentional resources.

The natural environment's positive effect in attentional fatigue reduction has received much interest from environmental psychologists (see Ohly et al., 2016 for a meta-analysis). Most studies have investigated natural landscapes and how they differ in restorative qualities from built landscapes (see Velarde et al., 2007 for a review). These studies often involve separating participants into one control group (receiving no stimuli from urban/built environments) and one experimental group (exposed to natural environments), and subsequently testing participants with tasks that require voluntary attention.

For example, in a study by Berman and colleagues (2008), they tested the effect of natural environments on directed-attention abilities. A backward digit-span task (experiment 1 and 2) and the Attention Network Test (experiment 2) was administered to test for the validity of the Attention Restoration before and after exposure to natural stimuli. Study 1 was an intervention study where the environmental manipulation was a 55-minute walk in a park near the campus of the university. The route consisted of little traffic or people. The control group was given a similar length walk in an urban area with heavy nearby traffic. In study 2 the participants viewed pictures of urban vs natural stimuli as the manipulation. Picture viewing sessions lasted about 10 minutes and consisted of 50 pictures in each group. In both

experiments, they found a significant improvement in attentional abilities in the nature group, while there was no significant difference between pre- and post-test for participants exposed to urban environments.

### **SRT and Restorative Environments**

Under a different theoretical view, stress reduction theory (SRT) suggests that natural environments possess a “healing” power capable of reducing stress and enhancing positive affect simply by being present in them. Ulrich (1991; 2023) has, among others, conducted significant research on the stress-reducing effects of natural environments. The SRT draws heavily on evolutionary theory and describes unconscious autonomic responses that humans have to environments. It suggests that landscapes suited for survival (views of water, vegetation, and less complex and rugged terrain) will have a positive effect on mental health through reduction in arousal and negative thoughts (Bratman et al., 2012).

Ulrich (1979) has shown that merely being shown picture slides of natural landscapes compared to a control group being shown urban views has an effect on self-reported affect, anxiety, and sadness (Ulrich, 1979). A later study testing 120 people, found that while viewing video of natural landscapes versus urban scenes after viewing a ten-minute stress inducing film, subjects experienced a reduction in stress measured in heart rate, skin conductance, muscles tension, and blood pressure. Self-ratings provided after the experiment confirmed these findings (Ulrich et al., 1991).

In another study by Hartig and colleagues (2003), building on both ART and SRT, found that subjects completing a directed attention demanding task. They split subjects into an urban group (placed first in a room with no windows, and then for a walk in urban environments) and natural setting (placed in a room with a view of trees and then for a walk in natural areas) The natural setting was in a large nature reserve with vegetation and wildlife. Positive affect and anger/aggression tested pre- and post-test by questionnaire, saw a



reduction for participants in the natural environment condition. The opposite was true for the urban condition. Overall happiness was also tested during the walks on a graph several times. Ambulatory blood pressure and an attentionally demanding task was measured before, during and after environmental exposure. Performance improved for the natural condition and declined for the urban condition. Ambulatory blood pressure decreased faster in the group exposed to three views than those sat in a room with no windows. The same was true during the walk in natural/urban settings.

Based on the SRT and above-mentioned research we hypothesize that:

*Hypothesis 1: There is a negative relationship between natural lunch break environments and emotional exhaustion.*

Velarde and colleagues (2007), in a literature review on studies investigating the restorative effect of natural landscapes on health outcomes, found that the clearest effect from natural environments were found in a reduction in short term stress and mental fatigue, a faster recovery from physical illness and a long term increase in well-being and positive behavior (e.g. reduction in aggressive behavior). Urban landscapes had a lower positive effect or, in some cases, a negative effect. ART and SRT differ in terms of their focus. ART has a more cognitive focus where the attentional resources are front and center. SRT focuses more on the direct effect on the stressor-strain relationship by focusing on both physiological and psychological symptoms. Studies within the two different frameworks often differ in the outcome studied (Velarde, 2007). While both theories guide research on natural environments, SRT studies often focus on the effect on salivary cortisol concentration (Lee et al., 2009), heart rate (Laumann et al., 2003), and self-reported measures such as affect (Ulrich et al., 1991). In studies on ART the outcome studied is often a task that test for attentional resources (Tennesen & Cimprich, 1995) and well-being measures (Van den Berg et al., 2003).

### **Recovery in Work and Occupational Psychology**

As a field within work and occupational psychology, recovery has been growing over the past 20 years (Sonnentag et al., 2017). According to Sonnentag and Geurts (2009, p. 2), recovery refers to “a process of psychophysiological unwinding that is the opposite of the activation of psychophysiological systems that has occurred during exposure to stressful work conditions”. Studies on recovery can be categorized into those that study recovery as an outcome (e.g. Binnewies et al., 2009) and as a process (e.g. Sonnentag et al., 2010a). In the present study we are viewing recovery as a process, specifically looking at detachment as an underlying psychological mechanism that helps us unwind from stress and reduce the impact of job demands (Steed et al., 2021).

Early research in the field would often focus on off-job activities such as social activity and physical exercise (Sonnentag & Zijlstra, 2006; Rook & Zijlstra, 2006). At first, activities were often divided into high duty- and low duty-activities (Sonnentag et al., 2017). Work related activities were largely shown to have negative effects on recovery (e.g. Sonnentag & Natter 2004; Trougakos et al., 2014) but studies on other high duty activities such as household work received more mixed results (Sonnentag et al., 2017). These studies investigated which activities were best suited for recovery but do not necessarily say much about why. Individual differences in terms of the effectiveness of activities was not addressed in much detail (Ragsdale et al., 2016). Therefore, Sonnentag and Fritz (2007) argued that studying recovery with a focus on experiences would provide valuable insights into how we recover. They argued that there are four distinct experiences necessary for effective recovery. First, control describes the ability to decide what to do during your free time, when to do it, and how to do it. Second, relaxation, refers to spending time on activities with low physical and mental activity such as listening to music, or watching TV. Third, mastery, refers to engaging in activities that involve some form of challenge to overcome. For example,

learning to play an instrument or learning a new dinner recipe. Fourth, psychological detachment, refers to the ability to leave work behind. Psychological detachment implies not only that you are not doing work related tasks, but also that you are not thinking about work (Sonnentag & Fritz, 2007).

### **The Stressor Detachment-model**

The stressor detachment model from Sonnentag and Fritz (2015), describes psychological detachment (hereafter detachment) as both a mediator and a moderator in the stressor strain relationship. As a mediator, detachment is impeded by job stressors. When job demands are high, people will have a harder time detaching from work during non-work hours and will tend to ruminate more about challenges at work. As a moderator, detachment will buffer the impact of stressors and result in less strain. Although some stressors are easy to identify such as physical stressors, detachment plays a particular role in psychological stressors where the stressors are not always easily identified, such as role ambiguity at work. The model is built on the assumption that stressors can persist for longer periods of time, even after a person is aware of their presence (Sonnentag & Fritz, 2015). Most studies on detachment have shown a positive relationship with well-being and a negative relationship with strain symptoms (Sonnentag, & Fritz, 2015), and a wide variety of measures have been used to assess well-being and strain. These include, but are not limited to, state of being recovered in the morning (Volman et al., 2013), exhaustion and vigor at bedtime (Demerouti et al., 2012) and positive and negative affect the next day (Mojza et al., 2011).

One aspect which has been largely overlooked in studies on detachment is where it is best suited to switch off. We choose to combine the stressor detachment-model with the ART. We propose that if detachment serves as a mediator between stressors and strain, and if detachment can be conceptualized as a lack of directed attention towards work-related demands, along with the stress-reducing effects of natural environments, then we would

expect an increase in detachment with more time spent in natural environments to mitigate the impact of strains.

Based on the assumption of ART, that natural environments provide suitable settings for restoration, combined with the empirical evidence demonstrating detachment as a key process in recovery we hypothesize that:

*Hypothesis 2: There is a positive relationship between natural lunch break environments and detachment from work.*

### **Research on Lunch Break Recovery**

Most detachment research has focused on longer absences from work (e.g. vacations and weekends), and research on work breaks during the work day have been scarce with a few notable exceptions in the last few years (Karabinski, et.al 2021). In a study by De Bloom and colleagues (2017), testing 153 Finnish knowledge workers, they looked at the effect of lunch break activities on recovery experiences (detachment, relaxation and enjoyment) and recovery outcomes (restoration, fatigue, and job satisfaction). The participants were split into a park walking group and a relaxation exercise group to spend 15 minutes of their lunch break. The strongest positive effects for detachment, relaxation and enjoyment was found for the park walking group, although the results were dependent on seasons as the positive effects were found during the fall, but there was little effect on either group during spring.

In an intervention study by Sianoja and colleagues (2018), they tested the effects of lunchbreak activities on concentration, strain and fatigue. They also tested whether detachment and enjoyment during lunch breaks predicted well-being outcomes. 97 participants were split into a park walking group and a relaxation exercise group. Both park walks and relaxation exercises had a positive effect on recovery outcomes in the afternoon although detachment during park walks did not mediate the relationship between park walks

and afternoon strain and fatigue. Detachment did however, mediate the relationship between both relaxation exercises and park walks, and afternoon concentration, in line with ART.

In a recent Norwegian study by Johnsen and colleagues (2022), they investigated the effect of outdoors walks during lunchbreaks compares do doing a relaxation exercise. They repeated the study in both summer and winter to see in the change in climate would affect the restorative effect of the environment. They found that the outdoor walking-group had a significant increase in subjective vitality and detachment (both seasons), whereas the group receiving the relaxation exercise only saw an increase in subjective vitality during summer.

In line with studies on the effect of detachment on the stressor-strain relationship, we hypothesize that:

*Hypothesis 3: There is a negative relationship between psychological detachment and emotional exhaustion.*

Based on the stressor-detachment model (Sonnetag & Fritz, 2015) we also expect detachment to have a mediating role in the relationship between natural lunch breaks and emotional exhaustion. Based on the above mentioned research, we expect that people who experience lower levels of detachment as a result of natural environments will have a lower reduction in emotional exhaustion: Natural environments have been established to have a positive effect on stress reduction and so has detachment, but no earlier research to our knowledge has been conducted to investigate if natural environments influences strain outcomes through the mediation of detachment, with the exception of Sianoja and colleagues (2018), studying park walks as an activity. We therefore decide to investigate this relationship in the current study and hypothesize that:

*Hypothesis 4: Psychological detachment mediates the negative indirect effect of natural lunch break environments on emotional exhaustion.*

### **Detachment as a Moderator**

Based on the research on the SRT mentioned earlier, we would expect that spending time in natural environments will have a negative relationship with emotional exhaustion. A recent meta-analysis on the effect of natural environments on strain reduction (Yao, et. al 2021) involving 31 studies, they found a negative relationship between exposure to natural environments and both physiological and psychological markers of strain. As all the studies involved were field studies, and most of them involved a relatively short exposure to natural environments (15 minutes being the most common time frame), it is reasonable to assume that people's lunch breaks have a sufficient time window to meaningfully affect strain reactions. However, to make conclusions about the lasting effects of these environments, based on this meta-analysis is difficult. In our study, we ask participants in more general terms, based on how they typically spend their lunch breaks. We expect that if the studies done on markers of stress in shorter time intervals have an effect, we would be able to see lasting effects when exposure to these types of environments are a habitual parts of people's everyday work life.

As both natural environments and detachment have been shown to have a stress reducing effect, we expect people who spend their lunch breaks in natural environments to experience more detachment from work. However, we also expect that the relationship between natural environments and emotional exhaustion will be moderated by detachment. That is, for people who spend their lunch breaks in natural environments but still think about work-related issues, we would expect the reduction on emotional exhaustion as a result of natural lunchbreak environments to be lower. We therefore hypothesize that:

*Hypothesis 5: Psychological detachment moderates the negative relationship between natural lunch break environments and emotional exhaustion; that is, the relationship between natural lunch break environments and emotional exhaustion is stronger for employees with a high level of psychological detachment.*

### **Connectedness to Nature**

In environmental psychology, people's connection to nature have been gaining interest from researchers (Bratman et al., 2012). Our opinions and preferences about specific environments can alter the impact those environments have on us (Bratman et al., 2012). The Connectedness to nature scale was developed by Mayer and Franz (2004) as a measurement for people's emotional connectedness to nature. Although the Connectedness to nature scale was originally created to test Aldo Leopold's (1949) assertion that a connection to the natural world is a necessary precursor to eco-friendly acts, people who are more connected to nature score better on overall happiness and satisfaction (Mayer et al., 2009). In three studies, Mayer and colleagues (2009) investigated the role of the Connectedness to nature as a mediator in the relationship between nature stimuli and positive mood. In study 1, a positive relationship was found between Connectedness to nature and attentional capacity and positive affect, in line with ART.

Lower scores on the Connectedness to nature-scale has been linked to rumination (Richardson and Sheffield, 2015). Although not directly studied in relation to detachment to our knowledge, ruminating over work-related matters will make successful detachment less likely (Sonnentag et al., 2010b). It is therefore of interest to investigate if connection to nature can be related to detachment. We expect people who are more connected to nature to be more receptive to the positive effects of natural environments. Bratman and colleagues (2012) argue that a feeling of being "part of" a greater natural world can lead to a reduction in negative rumination, as one is lifted out of a focus on one's self. Detachment conceptualized as the absence of directed attention in work-related issues will therefore be promoted by a combination of natural environments and high Connectedness to nature-scores, through a reduction in rumination over work-related issues.

In addition, Bratman and colleagues (2012) calls for more research into whether or not the effect of environments are simply greater for people who score higher on the scale. That

is, higher scores on the Connectedness to nature-scale predict spending more time in nature (Mayer & Frantz, 2004), but someone might spend the same amount of time in nature and receive different effects from it based on personal preference (Bratman et al., 2012). Based on the arguments laid out above, we therefore included connectedness to nature as a measure of people's preference for environments in our model. Specifically, we assume that the effect of natural environments on detachment will be higher for those who score higher on connectedness to nature.

On this basis, we hypothesize that:

*Hypothesis 6: Preference for natural environments moderates the positive relationship between natural lunch break environments and psychological detachment; that is, the relationship between natural lunch break environments and psychological detachment is stronger for employees with a high preference for natural environments.*

And that:

*Hypothesis 7: Preference for natural environments moderates the mediating effect of psychological detachment on the relationship between natural lunch break environments and emotional exhaustion; that is, the indirect effect of natural lunch break environments on emotional exhaustion via psychological detachment is stronger for employees with a high preference for natural environments.*

## **Method**

### **Recruitment and Procedure**

The present study was an online questionnaire made in Qualtrics (<https://www.qualtrics.com>). Participants were recruited anonymously through Prolific, an online recruitment platform (<https://www.prolific.com>), between November 29th, 2023, and January 17th, 2024. Data collection was done in collaboration with another master student Samy Babiker and supervisor Dana Unger, who collected separate data from the same



participants. We set up a compensation scheme in Prolific whereby participants were compensated a total of £9 for completing all three surveys. For completing the screening questionnaire, the participants were compensated £0.35. Participants were compensated £1.55 for each of the three questionnaires with a bonus payment of £4 for completing all of them. We screened out participants for working age (participants had to be born 1957-2005), full time employment (only participants with a 100% work contract could participate), and country of residence. All participants were living and working in the UK. To investigate the impact of the environment on psychological detachment, we used a three wave, one week time lag study, consisting of three questionnaires, sent out to participants after completion of the screening questionnaire. This was done in order to reduce common method bias (Podsakoff et al., 2003). The first questionnaire was sent out to all participants who were eligible to take part right after they completed the screening questionnaire, and invitations for the next two were sent out in the following two weeks.

At the start of the screening questionnaire the participants were presented with a consent form (see Appendix) with information about the study, what the participants were required to do and the compensation scheme. They were informed that participation was voluntary and that they could withdraw at any time, and that their responses would be collected anonymously with their 24-digit user ID being the only individually identifiable data. The user ID was collected to be able to merge the different data sets after data collection. Approval from the Sikt, a Norwegian public service provider in the academic field, was received prior to any data collection.

### **Participants**

Out of 217 participants responding to the screening questionnaire, 135 responded to the first survey. In all, 121 respondents finished all three questionnaires. After data collection, we had to exclude another 4 participants due to failing attention checks that we had placed

among the items in the survey (e.g. Attention check, check off "I somewhat agree"), resulting in 117 participants used in the final analysis. With regards to gender distribution, 60 (51.3%) identified as female and 57 (48.7) as male. The average age of participants was 38.45 ( $SD = 10.56$ , range: 21-61). 57.3% of participants had completed higher education, with 33.3% holding a bachelor's degree, 21.4% having a master's degree and 2.6% holding a doctorate degree. The average organizational tenure for participants was 9.9 years ( $SD = 8.14$ , ranging from <1 to 39 years).

### **Measures**

All questionnaires were given in English as the participants were UK residents. For all of the scales described in the section, the items were preceded by an instruction to think of how the items describe the participants in general.

#### ***Lunch break environment***

For natural lunch break environments, we asked participants about their general habits in terms of how they spend their lunch breaks during a working day. We made five items intended to capture the participants level of interaction with natural environments during their lunch breaks ("I typically spend my lunch breaks outdoors", "I typically spend my lunch breaks in areas with natural vegetation (trees, plants, etc.)" and "I typically have a view of natural water sources during my lunch breaks"). We decided to remove two of the items from this scale from further analysis, as the initial reliability statistics were poor (Cronbach's  $\alpha = 0.29$ ). These were the reversed items "I typically spend my lunch breaks in an urban environment" and "I typically spend my lunchbreak in areas with a lot of traffic". Items were measured on a 5-point Likert scale ranging from 1 = *Almost never* to 5 = *Almost always*. These items were included in the first questionnaire at T1, sent out right after the screening. Cronbach's  $\alpha$  coefficient for this scale was 0.71.

#### ***Connectedness to Nature***

Preference for natural environments was collected using the Connectedness to Nature Scale (Mayer & Frantz, 2004). Data for this variable was collected in the first questionnaire at T1. The scale consists of 14 items (e.g., “I recognize and appreciate the intelligence of other living organisms”) and was rated on a 5-point Likert scale ranging from 1 = *Strongly disagree* to 5 = *Strongly agree*. Items 4, 12 and 14 were reversed prior to any analysis as instructed by Mayer and Frantz (2004). Cronbach’s  $\alpha$  coefficient for this scale was 0.85.

### ***Detachment***

Detachment was assessed using the four psychological detachment items from the Recovery Experience Questionnaire (Sonnentag & Fritz, 2007). These were measured on a 5-point Likert scale ranging from 1 = *I do not agree at all* to 5 = *I fully agree* (e.g., “During my off worktime, I forget about work”). Detachment items were included in the second questionnaire at T2. Cronbach’s  $\alpha$  coefficient for this scale was 0.88.

### ***Exhaustion***

To measure emotional exhaustion, we used Oldenburg Burnout inventory (OBLI) (Demerouti et al., 2010). OLBI consists of 16 items split into 8 that measure exhaustion and 8 that measure disengagement. For the purpose of this study we only used measures of exhaustion (e.g., “After working, I have enough energy for my leisure activities“). 4 out of these 8 items were reversed coded prior to any analysis (Demerouti et al., 2010). Responses were collected on a 5-point Likert scale ranging from 1 = *Strongly disagree*, to 5 = *Strongly agree*. This was done in the last questionnaire at T3. Cronbach’s  $\alpha$  coefficient for this scale was 0.84.

### **Statistical Analysis**

IBM SPSS 29 was used to conduct all data analysis. After transferring the data into SPSS from Qualtrics, the data set was checked for errors, failed attention checks and errors before analysis. The scales were then tested for reliability before further analysis. In order to

do hypothesis testing for regression, mediation, moderation and moderated mediation in our model (see figure 1), we used the Process V4.2 plug-in for SPSS by Hayes (Hayes, 2022). In order to do this, we used model 7 in the program for all the hypotheses apart from the H5, where we used model 1.

## Results

We performed descriptive analysis on each scale to determine the mean, standard deviation and correlations (see table 2). We found a positive significant correlation between lunch break environment and connectedness to nature ( $r = .22, p < .05$ ), between emotional exhaustion and connectedness to nature ( $r = -.19, p < .05$ ) and emotional exhaustion with detachment ( $r = -.35, p < .01$ ).

**Table 2**

*Mean, standard deviation, Cronbach's alpha and correlations for all scales.*

Variable	M	SD	$\alpha$	1	2	3	4
1. Lunch break environments	1.99	.77	.71	1			
2. Connectedness to nature	3.47	.56	.85	.22*	1		
3. Detachment	3.76	.99	.88	.11	-.004	1	
4. Emotional exhaustion	2.85	.68	.84	-.08	-.19*	-.35**	1

*Note.* M = Mean, SD = Standard deviation,  $\alpha$  = Cronbach's alpha. \*\* is significant at  $p = 0.01$  (2-tailed). \* is significant at  $p = 0.05$  (2-tailed).

## Hypothesis Testing

Our first hypothesis (H1) states that there is a negative relationship between natural lunch break environments and emotional exhaustion. For this hypothesis we used model 7 in Process. A simple regression analysis ( $b = -.037, SE = .078, p = .636, 95\% CI [-.192, .118]$ ) revealed that the data did not support H1. Our second hypothesis (H2) states that There is a positive relationship between natural lunch break environments and detachment from work.

The simple regression analysis ( $b = -.019$ ,  $SE = .913$ ,  $p = .981$ , 95% CI [-1.629, 1.590]), showed a non-significant relationship, and thus rejects H2. Hypothesis three (H3) states that there is a negative relationship between psychological detachment and emotional exhaustion. The analysis ( $b = -.235$ ,  $SE = .060$ ,  $p = .0002$ , 95% CI [-.354, -.115]) revealed a significant relationship between detachment and emotional exhaustion. H3 is therefore supported by the data. Table three shows results for simple regression testing on H1, H2 and H3.

**Table 3**

*Results for simple regression. Testing for H1, H2 and H3.*

Variable	$b$	$SE$	$p$	95% CI	
				LLCI	ULCI
LE→EX	-.037	.078	.636	-.192	.118
LE→DE	-.019	.913	.981	-1.629	1.590
DE→EX	-.235	.060	.0002	-.354	-.115

*Note.*  $b$  = coefficient,  $SE$  = Standard error,  $p$  = p-value. LLCI = lower-level confidence interval, ULCI upper-level confidence interval. LE = Lunch break environment, DE = Detachment, EX = emotional exhaustion.

Hypothesis 4 (H4) states that psychological detachment mediates the negative indirect effect of natural lunch break environments on emotional exhaustion. The results from the mediation analysis indicate no significant effect (estimate= -.036,  $SE = .031$  [-.102, .022]) to support H4, as the confidence interval contains zero. Table four presents the results of H3 and H8

**Table 4**

*Results for mediation analysis. Testing for H4.*

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Predictor	<i>Estimate</i>	<i>SE</i>	95% CI	
			BootLLCI	BootULCI
LE→DE→EX	-.036	.031	-.102	.022

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*Note.* *SE* = Standard error, LLCI = lower-level confidence interval, ULCI upper-level confidence interval. LE = Lunch break environment, DE = Detachment, EX = Emotional exhaustion.

Hypothesis 5 (H5) states that psychological detachment moderates the negative relationship between natural lunch break environments and emotional exhaustion. For this test, we used model 1 from the Process V4.2 plug-in. This was the only test not included in model 7 of the program. A simple moderation test was used to test for this relationship, revealing an interaction term between lunch break environments and detachment ( $b = .009$ ,  $SE = .081$ ,  $p = .916$ , 95% CI [-.151, .169]) that was non-significant. We therefore found no support for H5. The sixth hypothesis (H6) states that preference for natural environments moderates the positive relationship between natural lunch break environments and psychological detachment. We performed a simple moderation analysis, examining the interaction effect between lunch break environments and connectedness to nature on detachment. The test revealed an interaction effect ( $b = .048$ ,  $SE = .230$ ,  $p = .836$ , 95% CI [-.409, .504]) that was not significant. We therefore found no support for hypothesis 6. Results for H5 and H6 are presented in table 5.

### **Table 5**

*Results for simple moderation. Testing for H5 and H6.*

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Variable	<i>b</i>	<i>SE</i>	<i>p</i>	95% CI	

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				LLCI	ULCI
DE x LE→EX	.009	.081	.916	-.151	.169
CN x LE→DE	.048	.230	.836	-.409	.504

*Note.* *b* = coefficient, *SE* = Standard error, *p* = p-value. LLCI = lower-level confidence interval, ULCI = upper-level confidence interval. LE = Lunch break environment, DE = Detachment, EX = emotional exhaustion. CN = Connectedness to nature.

The last hypothesis (H7) states that preference for natural environments moderates the mediating effect of psychological detachment on the relationship between natural lunch break environments and emotional exhaustion. The moderated mediation-index (index= -.011, SE =.062, 95 % CI [-.138, .114]) was not significant. Looking at the different effect sizes of lunch break environments on detachment, they were not significantly different at high (1 SD above mean; *estimate*= -.040, *SE*=.042 [-.131, .038]), medium (1 SD above mean; *estimate*= -.036, *SE*=.031 [-.102, .022]) or low (1 SD below mean; *estimate*= -.028, *SE*=.051 [-.135, .070]) levels of connectedness to nature. A non-significant moderation is indicated by the confidence intervals containing a zero. We therefore found no support for H7.

### Table 6

*Results for moderation mediation analysis. Testing for H7.*

Predictor	<i>Index</i>	<i>BootSE</i>	95% CI	
			BootLLCI	BootULCI
CN x LE→DE	-.011	.062	-.138	.114
Conditional indirect effects				
Level of CN	<i>Effect</i>	<i>BootSE</i>	95% CI	

			BootLLCI	BootULCI
<hr/>				
CN x LE→DE				
High	-.040	.042	-.131	.038
Medium	-.036	.031	-.102	.022
Low	-.028	.051	-.135	.070

*Note.* *SE* = Standard error, LLCI = lower-level confidence interval, ULCI upper-level confidence interval. LE = Lunch break environment, DE = Detachment, CN = Connectedness to nature.

### Discussion

In this study, we set out to integrate research from work and occupational psychology and environmental psychology. Namely, we wanted to see if we could integrate findings from environmental psychology on restorative environments, under the theoretical frameworks of ART and SRT (Bratman et al., 2012), into the literature on recovery experiences introduced by Sonnentag and Fritz (2007).

We developed a moderated mediation model combining ART and the stressor-detachment model, with detachment as mediator for the relationship between natural lunch break environments, and preference for environments as a moderator. The analysis revealed detachment as a significant predictor of emotional exhaustion, replicating earlier finding in the recovery research. Our main expectation was a negative indirect effect of natural lunch break environments on emotional exhaustion via detachment. That is, we expected a reduction in emotional exhaustion as a result of spending more time in natural environments during lunch breaks, and that detachment would (at least partially) explain this relationship. Our data did not reveal this relationship. We also expected detachment to moderate the relationship between natural lunchbreak environments and emotional exhaustion. This expectation was again, not supported by the data. We also added preference (connectedness to nature) as a moderator variable in the relationship between natural lunch break environments and



detachment. We expected that people who report a higher connection to nature would receive more benefit in the form of detachment. This expectation was also not met by the data. In this section we will discuss possible reasons for our insignificant results, and possible remedies for future research investigating similar questions.

The reasoning behind our model was threefold. First, only a few studies have focused on environments in the context of work recovery (Sonnentag & Fritz, 2017), and a better understanding of how the natural environments can promote recovery from work is an important contribution to the literature.

Furthermore, as even less work has been invested in the study of environments in the lunch break setting, we chose to focus on this particular absence from work.

Second, there is a vast literature on restorative environments that provide evidence for natural environments promotion of strain reduction and attention restoration (Bratman et al., 2012), often studying outcomes conceptually comparable to those found in the literature on recovery experiences (Sonnentag et al., 2017). We contend that an investigation into how these findings could be linked was warranted.

Third, as ART states that restoration is primarily a process of resting our directed attention, and detachment often is described as the absence of repetitive thoughts, worry and rumination (e.g. Sonnentag & Fritz, 2014; Merino-Tejedor et al., 2017), we investigated if the process of recovery mediated by detachment could be influenced by the natural environment through the same underlying processes as directed attention from ART. Lastly, we added personal preference to our model to investigate the individual difference in effect of natural environments on recovery, an investigation called for by Bratman and colleagues (2012).

While other studies have found an effect of natural environments on well-being outcomes such as positive affect and reduction in anger/aggression (Hartig et al., 1991; 2003), our study failed to find a relationship between lunch break environments and emotional

exhaustion. We chose to use this measure as an outcome variable as it has been used in recovery research and has been linked to both rumination (Donahue et al., 2012) and detachment (Sonnentag et al., 2010b).

One possible explanation for a lack of statistical significance is a methodological error on our part. In most studies on restorative environments, the environmental variable has been manipulated experimentally by the researchers (Ohly et al., 2016). We developed our own measure of lunchbreak environments which asked participants about their general lunch break habits. This might fail to capture the effect of natural lunch break environments on participants due to confounding variables. A likely confounder was that we did not control for time spent in nature outside of work. It might be the case that people who don't have the option of spending time in nature during their workday, can make up for this after work hours. This would not be visible to us in the data using the methodology we chose and is crucial as we collected data on emotional exhaustion and detachment in general terms, which could be affected just as much by environments visited outside of work. Emotional exhaustion can also be explained by many other factors in participants lives such as perceived understaffing, workplace social support, and job satisfaction (Dietzel & Coursey, 1998) amongst others. These factors might overshadow the effect of participants habitual lunch breaks.

Furthermore, as natural lunch break environments was involved as a variable in all the hypotheses (apart from H3 which was the only supported hypothesis), it is reasonable to assume that our operationalization of lunch break environments was the main reason our model failed to produce significant results.

We also found no significant relationship between lunchbreak environments and detachment. To our surprise, the small insignificant effect even went in the negative direction. In a Finnish study by de Bloom and colleagues (2017), a 15 minute park walk during lunch

breaks for 10 consecutive days improved detachment, more so than for the relaxation group or the control group. This was found during fall and not in spring. We did not specify any seasonal control in our study, but it is reasonable to assume that the impact by environments can change with the seasons. This was investigated (summer vs winter) by Johnsen and colleagues (2022), who also found an effect of natural environments on detachment in both seasons. However, they found no significant effect of seasons on this relationship.

Controlling for different seasons in our study might have yielded different results, but we would hold that, again, the operationalization of lunch break environments is the most probable reason for the insignificant results also in this relationship.

The only hypothesis supported by our data was H3, which stated that there is a negative relationship between detachment and emotional exhaustion. There are many aspects of a human life that can impact on emotional exhaustion, unrelated to natural lunchbreak environments. As we asked for participants self-reported detachment in general terms, detachment might still be a result of aspects like job demands (Potok & Littman-Ovadia, 2014), emotional demands (Oosthuizen et al., 2011) or role ambiguity (Sonnetag & Fritz, 2007). These factors might be the actual reasons contributing to our significant result for H3. This supports earlier findings (e.g. Sonnetag et al., 2010b) that detachment is an important recovery process. Our finding contributes to the literature by replicating this effect, further solidifying detachments' major role in the recovery process. It also further strengthens the recovery experience questionnaire as a good measure of peoples recovery experiences. As our data was collected asking participants about their general experiences, this finding indicates that the measure is reliable tool even in quite broad settings.

We also investigated the mediating effect of detachment on the relationship between natural lunch breaks and emotional exhaustion. Given research consistently demonstrating the restorative effects of natural environments on directed attention (Berman et al., 2008;

Bratman et al., 2012), and considering detachment as the lack of directed attention towards work-related demands, alongside evidence indicating detachment predicts reduced emotional exhaustion (de Jonge et al., 2012), we hypothesized that detachment would (at least partially) mediate the relationship between natural lunch break environments and emotional exhaustion. We failed to find any evidence to support this hypothesis. Based on the results for H1, this is not surprising, as there was no significant relationship between natural lunch break environments and emotional exhaustion.

### **Connectedness to Nature as a Moderator**

Connectedness to nature was investigated as a moderator variable in the relationship between lunch break environments and detachment. Our expectation was that Connectedness to nature, conceptualized as personal preference for environments, would strengthen the relationship between natural lunch break environment and detachment. That is, if people feel more connected to nature, they will receive more benefit from interacting with it. Our model failed to produce such results. It is difficult to say why this relationship was not found as the relationship between lunch break environments and detachment was non-significant (and surprisingly negative).

Although we did not find any moderating role of Connectedness to nature, it was correlated with lunch break environments, indicating that the people who are more connected to nature spend more of their lunch break time in natural environments. This is in line with earlier research on Connectedness to nature (Mayer & Frantz, 2004), showing that higher Connectedness to nature-scores predicts more interaction with natural environments.

### **Limitations and Future Research**

As with any research endeavor, our study has several limitations that should be acknowledged, which may have implications for the interpretation of the results.

Additionally, avenues for future research are proposed to address these limitations in order to

further advance our understanding of the relationship between natural lunch break environments, psychological detachment, and emotional exhaustion.

As we measured a specific type of work break, more control over this variable seems to be important. Studying the effect of natural environments on people requires that we know what aspects of the environments are at play. As Ulrich (1979; 1991) has shown that merely being shown visual representations of nature can have a reducing effect on both physiological and psychological markers of stress, capturing the details of how specific natural environments impact us is of great importance. A more suitable approach to studying the specific effects of lunch break environments would require a more objective environmental assessment. We could have conducted an experimental study where lunch break environments is systematically manipulated to examine their effects on psychological outcomes. A controlled intervention, manipulating natural versus urban environments during lunch breaks, to explore the causal relationship between environmental exposures and well-being might have been a more suitable approach.

Instead of relying solely on self-report measures, we could have considered incorporating objective assessments of lunch break environments. Environmental audits, where we assess the environments in and around workplaces, could have provided detailed information about the physical characteristics of lunch break spaces, such as greenery, natural elements and overall aesthetics. For these proposed methodological solutions, a more time specific approach in measuring detachment and emotional exhaustion could have yielded different results. Measuring these variables during or right after lunchbreaks, we could have been able to isolate the effect of natural lunchbreaks in a way that was not possible with our current approach.

However, our methodological design could have been more justified in a study on more general effects of environment on detachment, without the specific focus on lunch break. We

might have been able to capture the effect of natural environments on detachment and emotional exhaustion by asking participants about their general exposure to nature both outside and possibly at work. As we assume there were confounding variables not captured by our measure, a broader approach to studying natural environments effect on detachment and emotional exhaustion could have been able to capture these. This might have been the best solution for this thesis as the abovementioned options are more costly in terms of time and effort for both researchers and participants.

Also, the present study utilized a sample of employees from diverse occupational sectors; however, the sample size and composition may limit the generalizability of the findings. Our study consisted of 117 British participants. Future research could benefit from employing larger and more diverse samples, encompassing a broader range of demographic and occupational variables, to enhance the external validity of the findings.

### **Conclusion**

In conclusion, our study sheds light on the complex relationship between psychological detachment and emotional exhaustion in the context of lunch break environments. Our findings underscore the significance of psychological detachment as a predictor of emotional exhaustion, reinforcing earlier research in the recovery literature. The robustness of this relationship solidifies our understanding of the role of detachment in buffering against workplace stress and burnout.

However, our study did not yield significant results regarding the direct impact of lunch break environments on psychological detachment and emotional exhaustion. It is crucial to emphasize that these null findings do not negate the potential influence of lunch break environments on detachment and well-being. Rather, they highlight the complexities involved in measuring and operationalizing such constructs in real-world settings.

Our study was ambitious in its attempt to capture individuals' general lunch break habits in real-world settings, contrasting with previous research that often utilized more controlled laboratory settings or shorter time frames. Nevertheless, the complexity of individuals' lunch break experiences and the dynamic interplay between environmental factors and psychological processes warrant further exploration. More research is needed to elucidate the lasting effects of lunch break environments on psychological recovery and well-being outcomes over time.

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## Appendix

### Online questionnaire: Consent and Screening



**UiT** The Arctic  
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### Welcome to a survey regarding "Well-being at work and careers"

Thank you for participating!

#### What is the study about?

Researchers from UiT The Arctic University of Norway are conducting a study to better understand peoples' work-related well-being and how this affects their careers. You will be asked about your working conditions, work/career experiences, and some personal information (e.g., your gender, age, ethnic background).

#### What will I be asked to do?

The study consists of 3 surveys, each taking approximately 12 minutes of your time. In a first screening survey, you will be asked questions about your work situation and about you as a person. This screening survey takes about 2 minutes to complete. You will get reimbursed separately for completing the screening survey.

Based on predefined criteria, we will then invite a selected sample of participants to complete 3 additional weekly surveys once every week over the next two consecutive weeks. The first survey starts on January 3, 2024. You will be asked to complete one brief survey per week. The second survey will be sent on January 10, 2024 and the third will be sent on January 17, 2024.

**How much will I get paid?**

For completing the full survey, you will receive a maximum payment of £9. Please only complete the screening survey if you are happy and able to proceed with the weekly surveys over the next weeks (upon invitation). The payment of the screening survey is independent of whether you will be invited to the rest of the study.

- For the screening questionnaire, you will be compensated with £0.35

Those participants who are invited to complete the weekly surveys will be additionally compensated:

- For each survey that you complete you will receive £1.55
- You will receive a bonus of £4 for completing all three questionnaires. You will only be invited to the next questionnaire if you have completed the former one.

**Do I have to take part?**

Participation is completely voluntary. You should only take part if you want to; choosing not to take part will not disadvantage you in any way. If you choose to take part, you will be asked to provide your consent. To do this you will be asked to indicate that you have read and understood the information provided, and that you consent to your anonymous data being used for the purposes explained.

You are free to withdraw at any time during the completion of the survey without having to give a reason. Simply do not submit the questionnaire and shut down your web browser. You are free to return and complete the questionnaire at any time. Incomplete questionnaires will be deleted 1 week after the survey is closed. Withdrawing from the study will not affect you in any way. Once you submit the survey, you can get access to your personal data or have your personal data corrected or deleted. Besides your Prolific ID, please do not include other personal identifiable information in your responses.

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**Who should I contact for further information?**

For questions and further information, please do not hesitate to contact us: [dana.unger@uit.no](mailto:dana.unger@uit.no), [samy.babiker@uit.no](mailto:samy.babiker@uit.no), or [Lbo060@uit.no](mailto:Lbo060@uit.no)

Thank you very much for your support!

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B.Sc. Samy Babiker, UiT The Arctic University of Norway (M.Sc. Student in Psychology)

B.Sc. Lars Borge, UiT The Arctic University of Norway (M.Sc. Student in Psychology)

Please indicate whether you would like to participate in the study

I consent to taking part in this research survey.

I do not want to participate in the study.



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In which year were you born?

Please select your year of birth from the list below.





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What is your employment status?

Only 1 answer possible.

Director/Senior management

Employee with supervisor role (Please specify the number of subordinates that report to you directly)

Employee without supervisor role

Self-employed

Apprenticeship (student in a dual educational system program)

Intern

Trainee

Student

Unemployed

Other





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What type of contract do you have?

Only 1 answer possible.

Full time employment (100% work contract)

Part time employment (percentage):



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Where do you currently live?

Only 1 answer possible.

United Kingdom

Other country, please specify





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What is your Prolific ID?

Only 1 answer possible.



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Thank you for taking this survey.

We will stay in touch!

For questions and further information, please do not hesitate to contact us: [dana.unger@uit.no](mailto:dana.unger@uit.no), [samy.babiker@uit.no](mailto:samy.babiker@uit.no), or [lbo060@uit.no](mailto:lbo060@uit.no)

Thank you very much for your support!

**Online questionnaire: T1**

**UiT The Arctic  
University of Norway**

**Welcome to the first survey of our study regarding "Well-being at work and careers"**

Thank you for participating!

In this section, we will ask you some demographical questions as well as general questions about work-life and well-being as well as your relationship to nature.

The following questionnaire will take about 12 minutes of your time. Please read the following questions carefully.

**Who should I contact for further information?**

For questions and further information, please do not hesitate to contact us: [dana.unger@uit.no](mailto:dana.unger@uit.no), [samy.babiker@uit.no](mailto:samy.babiker@uit.no), or [lbo060@uit.no](mailto:lbo060@uit.no)

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What is your gender?

Male

Female

Other, that is:

Prefer not to say



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When did you start working for your current employer?

Please specify your entry date. If you do not know it exactly, please make an estimation (e.g., 11.2016).

What type of contract do you have?

Only 1 answer possible.

Permanent contract

Temporary contract







## UiT The Arctic University of Norway

How many hours do you typically work per week?

If you do not know it exactly, please make an estimation.



## UiT The Arctic University of Norway

Where do you typically work from?

I work from a work space in my organization.

I work from home.

I worked from another place outside my organisation or home (e.g., library, café). Please specify.





## UiT The Arctic University of Norway

Consider what option best describes how you normally spend your lunch breaks at work.

Please give an answer to each line.

	Almost never	Rarely	Sometimes	Often	Almost always
I typically spend my lunch breaks outdoors.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I typically spend my lunch breaks in an urban environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I typically spend my lunch breaks in areas with natural vegetation (trees, plants, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I typically have a view of natural water sources during my lunch breaks.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I typically spend my lunch breaks in areas with a lot of traffic.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>





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What is your highest level of education completed?

Only 1 answer possible.

- No educational qualification
- Primary education
- Lower secondary education (GCSE or equivalent)
- Upper secondary qualification (A Level)
- Vocational qualification
- Bachelor's degree (e.g., BA, BBA, BFA, BS)
- Master's degree (e.g., MA, MBA, MFA, MS, MSW)
- Doctorate degree (e.g., EdD, PhD)
- Other qualification, please specify:





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You will now be asked some questions about your relationship to nature.

Please answer each of these questions in terms of the way you generally feel. There are no right or wrong answers. Using the following scale, simply state as honestly and candidly as you can what you are presently experiencing.

Please give an answer to each line.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I often feel a sense of oneness with the natural world around me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think of the natural world as a community to which I belong.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I recognize and appreciate the intelligence of other living organisms.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often feel disconnected from nature.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I think of my life, I imagine myself to be part of a larger cyclical process of living.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often feel a kinship with animals and plants.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I feel as though I belong to the Earth as equally as it belongs to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a deep understanding of how my actions affect the natural world.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often feel part of the web of life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel that all inhabitants of Earth, human, and nonhuman, share a common 'life force'.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Like a tree can be part of a forest, I feel embedded within the broader natural world.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I think of my place on Earth, I consider myself to be a top member of a hierarchy that exists in nature.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often feel like I am only a small part of the natural world around me, and that I am no more important than the grass on the ground or the birds in the trees.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My personal welfare is independent of the welfare of the natural world.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[→](#)



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University of Norway

We thank you for your time spent taking this survey. Your response has been recorded.

Your next survey will be in one week.

We will stay in touch!

For questions and further information, please do not hesitate to contact us:  
[dana.unger@uit.no](mailto:dana.unger@uit.no), [Lbo060@uit.no](mailto:Lbo060@uit.no), or [samy.babiker@uit.no](mailto:samy.babiker@uit.no).

Thank you very much for your support!

**Online questionnaire: T2**

**UiT The Arctic**  
University of Norway

**Welcome to the second survey of our study  
regarding "Well-being at work and careers"**

Thank you for participating!

In this survey, we will ask you general questions about your work-life and well-being.

The following questionnaire will take about 12 minutes of your time. Please read the following questions carefully.

**Who should I contact for further information?**

For questions and further information, please do not hesitate to contact us: [dana.unger@uit.no](mailto:dana.unger@uit.no), [samy.babiker@uit.no](mailto:samy.babiker@uit.no), or [lbo060@uit.no](mailto:lbo060@uit.no)

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## UiT The Arctic University of Norway

Think of how you are in general. To what extent do the following statements describe you?

Please give an answer to each line.

During my off-work time, I...

	I do not agree at all	I somewhat disagree	I neither agree nor disagree	I somewhat agree	I fully agree
... forget about work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... I don't think about work at all.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... I distance myself from my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... I distance myself from my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... I get a break from the demands of work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>





**Online questionnaire: T3**

**UiT The Arctic**  
University of Norway

**Welcome back to the final survey of our study regarding "Well-being at work and careers"**

Thank you for participating!

In this final section, we will ask you some general questions about work-life and well-being.

The following questionnaire will take about 12 minutes of your time.

Please read the following questions carefully.

**Who should I contact for further information?**

For questions and further information, please do not hesitate to contact us: [dana.unger@uit.no](mailto:dana.unger@uit.no), [samy.babiker@uit.no](mailto:samy.babiker@uit.no), or [lbo060@uit.no](mailto:lbo060@uit.no)

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**UiT The Arctic**  
University of Norway

Think of how you are in general. To what extent do the following statements describe you?

Please give an answer to each line.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I always find new and interesting aspects in my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There are days when I feel tired before I arrive at work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It happens more and more often that I talk about my work in a negative way.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
After work, I tend to need more time than in the past in order to relax and feel better.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can tolerate the pressure of my work very well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lately, I tend to think less at work and do my job almost mechanically.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find my work to be a positive challenge.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
During my work, I often feel emotionally drained.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Over time, one can become disconnected from this type of work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
After working, I have enough energy for my leisure activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Sometimes I feel sickened by my work tasks.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
After my work, I usually feel worn out and weary.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This is only type of work that I can imagine myself doing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Usually, I can manage the amount of my work well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel more and more engaged in my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I work, I usually feel energized.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



**UiT** The Arctic  
University of Norway

We thank you for your time spent completing this survey. Your response has been recorded.

We are processing the bonus payments now.

We will stay in touch!

For questions and further information, please do not hesitate to contact us:  
dana.unger@uit.no, Lbo060@uit.no, or samy.babiker@uit.no.

Thank you very much for your support!

