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„Investigating the Effectiveness of a Mindfulness-Based Relaxation App Intervention: A Longitudinal Study."

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Abstract

Psychology research has accepted and approved mindfulness as an option of stress-reducing intervention. Whereas numerous studies have already investigated the effectiveness of face-to-face mindfulness-based relaxation interventions in the context of occupational well-being, evidence of the effectiveness of online interventions is still lacking. Therefore, purpose of the present study was to examine the feasibility and effectiveness of a mindfulness-based relaxation app intervention through evaluating a module of the eleMental App. By comparing pre-test, three weekly tests and post-test results, we could determine statistical variations in the outcomes occurring during and after the intervention phase. 74 participants were asked to complete at least three audio exercises each week in an intense 3-week intervention phase. Four central work- and recovery-related outcomes (need for recovery, work-related stress, well-being and job satisfaction) were assessed. Further, we integrated two mediators (mindfulness and psychological detachment) into our model which possibly might influence the outcome relations. In addition, we set four moderators (resilience, self-efficacy for recovery, frequent use of exercises and appraisal of exercises) that might intensify relations. We could verify some hypotheses. Participants reported significantly lower levels in need for recovery in week 3 and post-test. The effects of the intervention were primarily explained by increased levels of mindfulness and its mediating role. Psychological detachment did not mediate any relation of our outcome variables. Moderation analyses depicted frequency of use to moderate need for recovery as well as appraisal of exercises and self-efficacy for recovery did for participants' perception of work-related stress. Therefore, our findings provide support for app-based interventions to aid relaxation indicating less need for recovery and a reduction of stress level due to intervention. Proposed directions for research implications and practice are discussed.

Keywords: mindfulness, need for recovery, psychological detachment, resilience, self-efficacy for recovery, app intervention

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Introduction

Work stress is omnipresent in our society and almost every worker is affected at some point, regardless of their job field and job position (Diestel & Schmidt, 2012). Todays' acceleration of life domains such as fast-paced work environment and high job demands are conducive contributors to a heightened stress level. This becomes even more crucial because work stress has major impact on workers' psychological and physical well-being (Ebert et al., 2014; Schneiderman, Ironson, & Siegel, 2005; Sonnentag, 2012).

To counteract this stress issue, workers need to recover and relax effectively in order to release feelings of stress and to prevent work strain (Sonnentag, Kuttler, & Fritz, 2012). It is even more important that workers can detach from work mentally and physically during non-work time. There is a general consensus, that the ability to recover from job strain predicts the individuals' need for recovery and the perceived work stress (Sonnentag, 2012). Due to the nature of work, it is inherently linked to effort thus often resulting in strain especially when recovery has not taken place (Sonnentag & Fritz, 2015). Therefore, continuous work-related stress may lead to job burnout. People suffer from high job strain when they do not have enough resources to handle job demands (Hobfoll, 2001) resulting in the inability to cope successfully with work stress (Yu, Wang, Zhai, Dai, & Yang, 2015). Therefore, the relevance for workers to detach from work stress during leisure time has been emphasized in numerous studies (Hahn, Binnewies, Sonnentag, & Mojza, 2011; Hülsheger, Feinholdt, & Nübold, 2015; Sonnentag, 2012; Sonnentag & Fritz, 2015).

Recovery refers to a replenishment of resources (Meijman & Mulder, 1998). Therefore, especially workers with high demanding work issues need to recover fully during their non-work time since they are exposed to higher amount of strain hence needing more resources for coping (Cropley & Millward Purvis, 2003; Lazarus & Folkmann, 1984; Sonnentag, 2012). According to the *Effort Recovery Model* (Meijman & Mulder, 1998) overused resources due to work demands can impede recovery processes during non-work time as all resources are depleted and none are left for recovery processes. If proper recovery is not taking place, individuals cannot recharge to master further tasks and demands at work which might lead to a continuous cycle of exhaustion (Sonnentag, 2012).

In recent years, interventions have flourished in this field aiming to improve psychological health outcomes also related to work. Research has shown that relaxation interventions may influence workers' stress level and well-being (de Bloom et al., 2017; Kaspereen, 2012; Michel, Bosch, & Rexroth, 2014; Shapiro, Astin, Bishop, & Cordova, 2005; Wright, 2018). Further, stress reduction interventions for workers do also have a large organizational and economical relevance. For example, a study was able to show that mindfulness-based stress reduction interventions, delivered online, were associated with a decrease in absenteeism (Heber, Lehr, Ebert, Berking, & Riper, 2016; Neumeier, Brook, Ditchburn, & Sckopke, 2017).

During the past decades, research has focused on exploring possible effects of stress interventions mainly in samples of workers occupied in social or clinical settings. Therefore, nurses (Duarte & Pinto-Gouveia 2016; Wright, 2018), teachers (Ancona et al., 2014; Kaspereen, 2012; Roeser et al., 2013) and general human service workers (Brooker et al., 2013; Hülsheger et al., 2012; Kemper & Khirallah, 2015; McGarrigle & Walsh, 2011) were the preferred sample for research, since they are notorious for having a high stress level due to their job demands. Nevertheless, there are studies which examined potential effects on workers of diverse occupations (Hülsheger, Alberts, Feinholdt, & Lang, 2013; Hülsheger et al., 2015; Michel et al., 2014).

Lately, intervention programs that are delivered online are widely conducted and it was demonstrated that these web-based trainings can in fact be a helpful tool to improve psychological well-being among healthy workers (Ahtinen et al., 2013; Feicht, Wittmann, Mock, Hirschhausen, Esch, 2013; Howells, Ivtzan, & Eiroa-Orosa, 2016; van Emmerik, Berings, & Lancee, 2018; Wright, 2018) also demonstrable in physiological markers such a decrease in anabolic hormones (Hasson, Anderberg, Theorell, & Arnetz, 2005). According to recent reviews, web-based interventions are defined as any intervention that is delivered via website, email or smartphone application (Ryan, Bergin, Chalder, & Wells, 2017). These are often used by so-called happiness seeker (Howells et al., 2016) who want to enhance their well-being level continuously. However, holding a job will inevitably be stressful occasionally. Therefore, general workers represent an appropriate sample for examining the hypotheses concerning a relaxation promoting while stress reducing intervention program.

In this recent age of internet and smartphones, several online trainings have been developed, many of them targeting work-related stress (Bostock, Crosswell, Prather, & Steptoe, 2019; Donker et al., 2013; Jayawardene, Lohrmann, Erbe, & Torabi, 2016; Rose et al., 2013), which are used extensively. In fact, there are more than three thousand mental health apps available for download in app stores (Donker et al., 2013). Countless app-based interventions have emerged helping people to cope better with stress (Shapiro et al., 2005) and to achieve relaxation through self-guided training (Bostock et al., 2019; Donker et al., 2013; Rose et al., 2013). Some of those could help decrease blood pressure (Bostock et al., 2019), heart rate reliability and salivary cortisol levels (Dolbier & Rush, 2012) hence also influencing physiological factors.

In fact, such new transformed interventions are gaining more attention and popularity not only because of their cost-effectiveness (Ebert et al., 2014; Mitchell, Vella-Brodrick, & Klein, 2010; Neumeier et al., 2017; van Emmerik et al., 2018) but also due to their applicability (Bostock et al., 2019) since they are quite flexible in nature, so exercises can be done virtually anywhere at any time.

Specifically, research on mindfulness-based interventions has yielded scientific support for their effectiveness so far (Duarte & Pinto-Gouveia, 2016; Feicht et al., 2013; Hülsheger et al., 2013; Jayawardene et al., 2016; Ouweneel, Le Blanc, & Schaufeli, 2013; Querstret, Cropley, & Fife-Schaw, 2017). Research is pointing to the suggestion that mindfulness-based interventions may lead to well-being (Bostock et al., 2019; Howells et al., 2016), life satisfaction (Weinstein, Brown, & Ryan, 2009) as well as job satisfaction (Fortney, Luchterhand, Zakletskaia, Zgierska, & Rakel, 2013; Shonin, Van Gordon, Dunn, Singh, & Griffiths, 2014) while it may reduce psychological distress (Bostock et al., 2019; Feicht et al., 2013; Jain et al., 2007). In accordance with that, most online mindfulness-based interventions indicated small to moderate effect sizes in studies (Ryan et al., 2017; Spijkerman & Bohlmeijer, 2016). Interestingly, a mindfulness-based intervention showed only small effect size for mindfulness itself though reporting high stress reduction effects (Jayawardene et al., 2016). Another study showed an increase in subjective and work-related well-being with small to medium effect sizes (Neumeier et al., 2017). Further, small to moderate effect sizes for affectivity were captured in an app-based intervention (Howells et al., 2016) while medium effect sizes for mindfulness at follow up indicated

sustainability (Jayawardene et al., 2016). With regards to that, it seems reasonable to posit mindfulness-based intervention having the potential to improve recovery- and work-related outcomes.

A systematic literature review regarding commercially available meditation apps confirmed positive outcomes resulting from online interventions (Bostock et al., 2019). Nonetheless, only few studies have evaluated the effectiveness of such online-based interventions (Donker et al., 2013; Gu, Cavanagh, & Strauss, 2018). Despite the positive relations, less is known about how such treatments enhance well-being outcomes since only a few studies examined potential mediation effects (Gao, Curtiss, Liu, & Hofmann, 2018; Gu et al., 2018; Jain et al., 2007). Therefore, it is necessary to not only test if but also how these web-based trainings might improve positive outcomes in users.

Meanwhile, an understanding of the significance of mindfulness-based interventions has spread also among people who had no experience with this kind of therapy in their past. However, most of the participants in mindfulness-based intervention studies are females (Dolbier & Rush, 2012; Feldman, Greeson, & Senville, 2010; Jayawardene et al., 2016; McGarriagle & Walsh, 2011). Suitably a study showed women to have a higher number of stressors than men although no gender differences in mindfulness resulted (Weinstein et al., 2009).

Research Rationale

Approaching relaxation states, in a mental sense, is a thousand-year-old sagacity in Eastern cultures, especially rooted in Buddhism (Brown, Ryan, & Creswell, 2007). Luckily, this kind of simple yet useful stress reduction technique has spread all over the world also arriving in the Western culture. Relaxation starts mentally namely by psychologically detaching from (work) stress (Sonnentag & Fritz, 2015). This approach of relaxation is presently well-investigated in research but still barely known amongst lays.

When looking at the state of the art, researchers have begun to incorporate diverse scholars into one intervention therapy in order to investigate the effectiveness. Interventions included parts of behavioral therapy, positive psychology and meditation practice (Kim et al., 2018). As face-to-face interventions may reduce perceived stress in employees (Eisen, Allen, Bollash, & Pescatello, 2008), so may online delivered interventions (Gu et al., 2018; Hasson

et al., 2005; Jayawardene et al., 2016; Querstret et al., 2017). In fact, results indicated mobile-based intervention and in-person intervention to be equally effective (Kim et al., 2018). There is a substantial body of research promoting mindfulness-based therapies to enhance health-related outcomes but current apps providing such treatments still lack scientific evidence about their efficacy (Donker et al., 2013). Further, interventions must better fit the requirements of the working population. Therefore, self-administered app-based interventions need to be implemented more since working people lack time and the capacity to attend face-to-face sessions (Neumeier et al., 2017).

One purpose of this study is therefore, the emphasis on the importance and advantages of self-guided mobile intervention. Subject of our study is a module of an app-based program with scientifically supported relaxation exercises based on mindfulness which are grounded in positive psychology, striving for greater well-being in a healthy working population. Indeed, interventions based on positive psychology have been shown to promote positive outcomes while reducing negative ones (Feicht et al., 2013) also when delivered via an app (Howells et al., 2016; Neumeier et al., 2017).

In the present work, we build upon stress management, recovery and mindfulness literature linked to the content of our app-based relaxation intervention. To fully understand how our mindfulness-based intervention might help, we dedicated the next part to theoretical and practical evidence of stress, mindfulness and recovery processes and their influence on several psychological outcomes trying to embed these factors in a conceptualized research frame.

The Origin of Stress

Tremendously important for understanding stress is having fundamental knowledge about it, including its triggers, causes and the manageability and controllability of it. Although, everyone may know what is meant by the term stress, it has a wide range of definitions. Commonly, it is negatively connoted as a feeling of perceived threat due to a lack of required resources to tackle the situation effectively.

However, stress is not only a psychological issue but also a physiological one, as it emerges in the brain. Further, it may not just lead to mental unease but to somatic health problems as well (Mariotti, 2015). According to Selye (1956) it

refers to a nonspecific response of the body to any kind of stressor. However, when being permanently exposed to such stress responses, several health issues may result.

Resulting from evolution, humans possess an adaptation system in order to handle stress more effectively. The anatomy of stress is a complex and profound adaptive process of the body also involving neuroendocrine hormones and the immune system (Mariotti, 2015). Stress is a threat to homeostasis, which is a process for maintaining the internal balance, therefore stress may endanger well-being. For that reason, adaptation process is necessary to maintain homeostasis meaning to keep stability of the internal milieu despite facing occasional challenging situations (McEwen & Lasley, 2002). In the short-run, this process is quite helpful and efficient but in the long-run, it can lead to several negative psychological and physiological consequences (Mariotti, 2015). When experiencing intense stress phases without any chance of recovery, the phenomenon allostatic load can occur which implies an inability to turn the allostatic process – the neuroendocrine response – off again. This maladaptation may then lead to high glucose levels and a rise in blood pressure that abet chronic diseases (McEwen & Stellar, 1993). Therefore, regular exercise of meditation and other stress reducing techniques may help to cope and maintain a healthy stress level even during intense stress phases that cannot be avoided (Ludwig & Kabat-Zinn, 2008).

Whether a potential stressor is perceived as threatening or tradable solely depends on our perception of it (Mariotti, 2015; McEwen & Lasley, 2002). When we feel threatened, the body responds to that potential stressor by increasing the heart rate and respiration function. Further, hormones such as glucocorticoids are increased whereas gastrointestinal function processes are decreased drawing the entire attention towards the stressor in order to cope (McEwen & Lasley, 2002).

There is consistent empirical evidence, that the emergence of stress involves several body processes, acting not only one-directional but also retroactive (Mariotti, 2015). With regard to the hypothalamic-pituitary-adrenal-axis (HPA axis), the biological regulation of stress starts in the hypothalamus, releasing corticotropin-releasing hormone (CRH) in response to stress. This hormone acts on the pituitary gland, which in turn leads to a release of adrenocorticotrophic

hormone (ACTH). After that, the adrenal cortex is requested to release cortisol consequently. The activation frequency of this loop depends on the stress level. The higher the stress level, the more this biological response system is activated (Smith & Vale, 2006). If stress is experienced frequently, there is sustained activation of the HPA axis meaning that cortisol is released permanently which is detrimental to health.

Furthermore, research states that the limbic system may contribute to regulation of stress as well, in the way that it is highly activated during stress phases. In particular, the amygdala is in charge for the emotional response thus serves as link between the appraisal of the potential stressor and the reaction to it (Smith & Vale, 2004). With regards to that, a study (Creswell, Way, Eisenberger, & Liebermann, 2007) suggested mindfulness to have an influence on neuronal systems and also on the amygdala when engaged in affectivity hence mindfulness could play an important role in influencing stress perception and reaction. However, the emergence of stress refers to cognitive appraisal meaning that stress only appears when the individual evaluates the current situation as unmanageable which is explained in the *Lazarus' Transactional Model* (Lazarus & Folkman, 1984).

Lazarus' Transactional Stress Model

According to Lazarus, we firstly evaluate whether the situation is harmful or not and subsequently check if we have enough resources (social, material or personal) to cope. If so, we face the challenge and our body will not be on alert. Contrary, when we think we do not have resources in our repertoire to handle it, our body starts to be on high alert. In such condition, our heart rate and glucose level rise and endocrine and immune system are involved (Smith & Vale, 2006) as described above.

The transaction related to stress between the person and the environment is called the person-environment-fit which is embedded in a two-phase way process (Lazarus & Folkman, 1984). First, individuals go through a primary appraisal when facing an environmental potential stressor. This phase includes assessing how strongly the stressor could influence us. Whether or not this stressor is perceived as threatening depends on our secondary appraisal. In that phase individuals determine if enough resources are available to handle the situation. If there is a

discrepancy, consequently stress occurs. Moreover, in secondary phase, individuals are affected by their levels of self-efficacy regarding their ability to cope with stressful events, for instance a low perceived self-efficacy was associated with a stronger negative evaluation of work issues (Yu et al., 2015). Therefore, several other aspects such as the amount of qualitative coping strategies (Duhachek & Kelting, 2009) moderate the appraisal process. In this manner, coping is an interaction between the individuals' internal resources and the external situational demands.

Further, this theory posits that there are two main types of coping, namely emotion-oriented and problem-focused coping (Lazarus & Folkman, 1984). The former entails a cognitive reappraisal of the environmental aspects so that the individual may look at them in a different manner, that is less threatening and more positive. The latter, however, refers to a more pragmatically oriented thinking and implies dealing with the stressor itself. Research on coping with regards to mindfulness has yielded that mindfulness promoted rather adaptive coping strategies thus approaching the challenge instead of avoiding it (Weinstein et al., 2009). Additionally, it could be shown that mindful individuals assessed stressors differently, in the way that they made more pleasant appraisals compared to less mindful participants (Weinstein et al., 2009). Previous findings in that context are noteworthy because the type of coping might mediate the relation between mindfulness and well-being.

This short insight should suggest a comprehension of the high complexity of stress for the human mind and body.

Mindfulness

Mindfulness has its roots in Buddhist traditions (Brown et al., 2007). However, no consistent definition of mindfulness exists in science (Jayawardene et al., 2016). Although, mindfulness has various conceptualizations, most of the definitions have commonly termed it as an attentive yet non-judgmentally state of awareness of momentary experiences (Brown & Ryan, 2003; Brown et al., 2007; Kabat-Zinn, 1994). Through mindfulness, individuals learn how to observe their inner reactions towards their thoughts and feelings as well as how to control themselves by not reacting in unawareness and being open to, but still detached from all kind of experiences (Kabat-Zinn, 1994).

By stepping into a neutral position – a meta level – people may gain more reflective insights also by developing a reflexive consciousness of inner and outer experiences thus also called as metacognitive skill (Shapiro et al., 2005). Commonly, humans do not perceive objects or situations in a nonjudgmental way, but rather tend to appraise things as positive or negative (Brown et al., 2007). In fact, mindfulness allows to get into a manner of thinking which is unbiased from previously set concepts thus not related to expectations. Moreover, mindfulness allows to focus not only on the present moment but also to tackle present problems. Therefore, people who practice mindfulness are more likely to apply an effective problem-solving thinking (Weinstein et al., 2009) also because they do not linger emotionally.

Further, mindfulness has been studied in many researches, suggesting it to be a decisive contributor to the association of relaxation exercises with health-related outcomes (Carmody & Baer 2008; Michel, et al., 2014; Querstret, et al., 2017). Mindfulness varies not only between-persons but also within-persons (Brown & Ryan, 2003; Hülsheger et al., 2013). It is not a stable trait but depends on mood, situation and other internal and external factors and switches frequently. Typically, people first generate states of mindfulness, and after some practice trait mindfulness can emerge (Brown & Ryan, 2003) depending on frequency and intensity of practice (Jamieson & Tuckey, 2017). Of course, individuals can only develop a strong state of mindfulness through practicing it regularly (McGarriagle & Walsh, 2011; Kabat-Zinn, 1994) therefore it is often compared with a muscle that needs to be trained on a regular basis in order to grow and get stronger. It needs hard work to obtain this ability (Brown & Ryan, 2003) but holds promising effects when attaining it.

Mindfulness and its Role in Recovery and Stress Relations

In the last decades, mindfulness has been discussed mainly in clinical settings (Bränström, Kvillemo, Brandberg, & Moskowitz, 2010) but lately there is also growing attention in non-clinical settings investigating the impact on healthy people, in particular among workers (Hülsheger et al., 2014; Koncz et al., 2016).

Considering the benefits of developing a nonjudgmental state of awareness led to the emergence of mindfulness-based programs in the work context (Coo & Salanova, 2018; Feicht, et al., 2013; Koncz et al., 2016; van Emmerik et al., 2018).

Essentially, mindfulness could aid people to recover from work or other demands because of a decrease in need for recovery, since mindfulness could have a significant impact on work-related rumination (Querstret, et al., 2017).

In fact, stressful situations are inevitable in daily life. Especially at the workplace, workers are often confronted with highly demanding tasks and challenges. In order to handle stress in a more effective way, it can be quite useful to become more aware of present surroundings. Through this mental preparedness, individuals cope better with current stressors while at the same detaching from these (Hülsheger et al., 2013). Based on that idea, researchers showed a decrease in perceived work-stress (Weinstein, et al., 2009) as a consequence of mindful approaches. Regarding these evidences, mindfulness may lead to a more positive view of current stressors in the way that they are interpreted as transitory and controllable and maybe even necessary when considering the whole picture (Garland, Gaylord, & Park, 2009).

In fact, studies showed that mindfulness might also act as a significant mediator between relaxation interventions and recovery outcomes (Bränström et al., 2010; Carmody & Baer, 2008; Gao et al., 2018; Gu et al., 2018).

Mindfulness and its Influence on Well-being and Job Satisfaction
According to Seligman (2002) who developed and characterized the concept of well-being in his theories, well-being is a complex construct consisting of different factors. Positive and negative affect can be defined as components of subjective well-being (Diener, 1984). The extent to which an individual feels either positive or negative depends on how experiences in the environment are perceived. To be in a positive affective state means to feel energized, enthusiastic and alert. While being in a negative affective state refers to feelings of distress, sadness and anger (Watson, Clark, & Tellegen, 1988). These two affective states are conceptualized as distinctive dimensions.

Emphasizing affectivity in this context is quite relevant because it has also strong impact on further states (Fritz, Sonnentag, Spector, & McInroe, 2010; Hülsheger et al., 2014; Sonnentag & Grant, 2012). For instance, *Fredricksons' Broaden-and-Build theory* gives the suggestion that positive emotions can be extended to different areas of life, consequently leading to a greater sense of

general well-being, which in turn may reinforce psychological resources including resilience (Fredrickson, 2004). For that reason, a possible improvement in positive affectivity is a crucial outcome resulting from an intervention. Mindfulness-based apps may convey a host of psychological benefits regarding well-being outcomes such as an increase in positive and a decrease in negative affect (Brown & Ryan, 2003; Howells et al., 2016). Since we wanted to investigate a working population, we additionally focused a well-being aspect in work relations (Neumeier et al., 2017) namely job satisfaction.

Job satisfaction is not a new phenomenon instead it has a long history in psychology being studied much since Hackman & Oldham (1974) defined it as the degree to which an employee is satisfied with their job. Mindfulness might relate to job satisfaction in the way that stressful situations are perceived from a different - more neutral - perspective. Job satisfaction may rise if workers' perception of their work environment shifts (Shonon et al., 2014). In that way, individuals may encounter challenges and demanding situations in a more calm and receptive way. Therefore, mindfulness may affect the employees' appraisal leading to a higher job satisfaction (Hülsheger, et al., 2013). Medium effect sizes in enhancing job satisfaction and happiness among workers and reducing emotional stress were reported (Feicht et al., 2013). Although there is lot of supportive evidence for mindfulness-based interventions, some studies did not find significant effect in their investigation. For example, a study that investigated employees from a disability sector showed decreasing tendencies in external satisfaction and an increase in negative affect after mindfulness-based intervention while intrinsic and general job satisfaction remained stable from pre- to post-test (Brooker et al., 2013).

However, to our knowledge, there is no study investigating mindfulness as a mediator between a mindfulness-based relaxation intervention and job satisfaction. Albeit, there is one study that examined the contribution of mindfulness to job satisfaction showing that there is indeed a positive association between these variables (Charoensukmongkol, 2013). This correlation can be explained by a rise in general well-being when practicing mindfulness, implying that the satisfaction at the workplace also improves. Regular mindfulness practice may enhance one's satisfaction with the job both directly (Shonin et al., 2014;

Steinberg, Klatt, & Duchemin, 2017) and indirectly (Charoensukmongkol, 2013) even if the effect might regress back at follow up (Shonin et al., 2014).

Short Overview of Mindfulness-based Relaxation Approaches

According to studies investigating evidence-based stress reduction treatments, programs including Mindfulness-Based-Stress-Reduction (MBSR) and Progressive Muscle Relaxation (PMR) are well-established and good-functioning in practice (Varvogli & Darviri, 2011). Evidently grounded, the engagement of mind and body during intervention phases is shown to have tremendous effects on participants' perceived work stress (Wolever et al., 2012; Wright, 2018). Although, such interventions have been developed primarily for clinical purpose, mindfulness-based stress reduction therapy has also shown to have benefits for healthy people, indicating significant results in stress reduction (Chiesa & Serretti, 2009; Roeser et al., 2013; Wright, 2018).

While research on app-based interventions including components of MBSR is still in its infancy, studies about relaxation therapy in a face-to-face setting or through other analog deliveries are already far-spread and researches may take advantage of this. The following part explicates the integration of those attempts into relaxation and stress management interventions.

Progressive Muscle Relaxation (PMR). The progressive muscle relaxation (PMR) therapy created by Jacobson (1934) is one very common way to cope with stress. It is widely used in clinical as well as non-clinical settings and well-accepted in science (Gao et al., 2018; Kaspeeren, 2012). The exercises consist of alternately tensing and relaxing muscle groups, mostly starting at the head and successively working downwards to the feet. The reason behind alternately tensing and relaxing muscles lies within reaching a feeling of relaxation when the tension is relieved (McCallie, Blum, & Hood, 2006). This feeling of relaxation is not just unfolded physically but also mentally by letting go of any negative sensation. The logic is as simple as effective, namely an absence of contradiction is the opposite of any tension thus a state of relaxation should be achieved (Jacobson, 1934). But also, during this exercise, individuals need to stay focused, keeping their attention on each muscle group thus including a mindfulness component (Gao et al., 2018).

Several intervention studies integrated progressive muscle relaxation training and other relaxation techniques such as Yoga and meditation into their intervention program (Ancona et al., 2014; Jain et al., 2007; McCallie, et al., 2006). Therefore, a combination of more than one therapeutic attempt is often included in an intervention. In fact, our examined module also includes a combination of sitting meditation and somatic relaxation exercises. Indeed, both attempts showed high effectiveness in research recently (Gao et al., 2018).

Mindfulness-Based Stress Reduction (MBSR). Jon Kabat-Zinn (1979) has paved the way for incorporating mindfulness in a stress reduction program. Mindfulness-based stress reduction (MBSR) is the most frequently mentioned and examined intervention type in research which focuses on reducing stress symptoms through mindful activities (Ludwig & Kabat-Zinn, 2008).

Many studies have taken content from the MBSR program as a basis for their own interventions (Gao et al., 2018; Fortney et al., 2013; Hülsheger et al., 2015; Querstret et al., 2017; Shapiro et al., 2005). Most of them examined modified and shortened versions of MBSR programs on work-related outcomes, although researchers have to be cautious since such adaptive interventions could also lead to detrimental outcomes (Jamieson & Tuckey, 2017). However, the MBSR program consists of different content and keeps an inherent flexibility allowing practitioners to vary the single components (Kabat-Zinn, 1990). MBSR refers to a merger of Buddhistic tradition regarding meditation and mindfulness and modern psychological hands-on practice and knowledge. The program does not follow a religious or spiritual procedure but is a well-supported method to relieve suffering effectively through enhancing the moment-to-moment awareness which leads to a decrease in negative outcomes and an increase in positive outcomes such as a gain in energy and coping skills (Shapiro et al., 2005). For example, MBSR interventions were associated with reduced rumination in participants (Chiesa & Serretti, 2009) which is logical, because of the negative association of mindfulness and rumination (Brown & Ryan, 2003). Moreover, mindfulness correlated with the ability to decenter oneself from distress and ruminative thinking whereas progressive muscles relaxation did not (Gao et al., 2018; Feldman et al., 2010; Jain et al., 2007). This can be easily explained as mindfulness is an underlying mechanism that is more strongly involved in direct meditation exercises than in progressive muscle relaxation. However, PMR also indicated a trend towards

improvement in mindfulness because participants need to focus muscle groups thus also increasing their ability to be mindful (Gao et al., 2018). Normally, MBSR is scheduled as an 8-week program, consisting of different exercises such as meditation, Yoga and body scan (Carmody & Baer, 2008). Since mindfulness enables facing and relieving loads at the level of both mind and body, the two components cannot be separated from each other (Kabat-Zinn, 2003). In fact, a comparison between MBSR methods and standard relaxation training yielded both to have the same effect on reducing participants' stress level (Chiesa & Serretti, 2009). Possibly, it is not crucial what type of relaxation exercise people do but that they do one at all.

Psychological Detachment

Psychological detachment refers to a state of mind where people are able to disconnect from their work demands both physically and mentally. That includes people not thinking about job-related issues during non-work time (Sonnentag & Fritz, 2007; Sonnentag, 2012). Being in a state of mental distance from any work issues may help to regenerate previous depleted resources (Meijman & Mulder, 1998) which in turn increases well-being outcomes (Newman, Tay, & Diener, 2014; Sonnentag & Fritz, 2015). In fact, the ability to detach psychologically from work is indicated to have huge influence on many variables such as affectivity (Sonnentag, 2012; Sonnentag & Fritz, 2015), work performance (Fritz & Yankelevich, Zarubin, & Barger, 2010; Sonnentag, 2012), work stress and life satisfaction (Sonnentag & Fritz, 2015).

According to the *Conservation of Resources Theory* (Hobfoll, 1989), individuals aim to conserve their recent resources while gaining new ones at the same time. But in time of stressful situations, individuals need to invest more resources and are probably not as able as in less stressful situations to (re-)gain resources which may lead to a feeling of distress and in turn to a feeling of exhaustion. In this context, psychological detachment is a relevant factor that helps individuals to remove feelings of stress and to recharge their batteries also protecting themselves against upcoming stress phases (Sonnentag & Fritz, 2007).

Psychological Detachment and its Mediating Role

A key factor for recovery is the ability to detach from work (Sonnentag, 2012). There is wide support that psychological detachment and need for recovery are interrelated (Sonnentag, 2012; Sonnentag et al., 2010). In turn, a lack of

detachment predicts high strain levels (Sonnentag & Fritz, 2015). In this regard, emotional exhaustion can also be seen as a possible consequence of unsuccessful recovery during non-work time (Sonnentag et al., 2010). For instance, it was found that psychological detachment is a partial mediator between job load and need for recovery and emotional exhaustion (Sonnentag et al., 2010). Another study echoed these findings in the way that higher detachment levels significantly mitigated levels of emotional exhaustion (Fritz et al., 2010) thus reducing the need for recovery. The importance of psychological detachment and recovery from work is therefore well-supported to be crucial for workers' health, yet there is little research on how to achieve these certain states (Hahn et al., 2011; Hülsheger et al., 2015). In fact, psychological detachment can act as both a mediator and a moderator variable (Hülsheger et al., 2014; Safstrom & Hartig, 2013; Sonnentag & Fritz, 2015) influencing several health- and work-related relations. For example, psychological detachment was shown to stand in interaction with work stress by being a moderator between recovery processes in leisure time and health issues such as lower back pain (Mierswa & Kellmann, 2017). Another study considered psychological detachment as a moderator and a mediator but only yielded significant effects in the mediating association between job demands and life satisfaction but no moderating effects (Safstrom & Hartig, 2013). Therefore, it is logical to assume that psychological detachment could rather act as a possible mediator between our outcomes in the following manner that the more psychological detachment a person achieves, the less he or she feels the need for recovery, and therefore also less emotional exhaustion and more positive affect. However, a study measured detachment weekly, but it did not show a significant influence on affective states (Fritz et al., 2010). Moreover, no relationship between psychological detachment and positive affect was found in within-person analyses (Sonnentag & Binnewies, 2013).

Noteworthy, in earlier studies, rumination was linked to a lack of psychological detachment since individuals who ruminate are predominantly occupied with work-related issues or have other concerns thus are unable to mentally unwind from stressors. Furthermore, several authors have argued ruminative thinking and worrying to play key roles in relations of self-help interventions and well-being outcomes (Gu et al., 2018). According to Sonnentag & Fritz (2015) psychological detachment can be interpreted as a contrasting

component of ruminative thinking yet it is not the exact opposite, since the construct of rumination is more complex. However, it implies an absence of worry and negative thoughts thus constituting a reasonable correlation. In line with that, a study showed that work-related rumination could be diminished through a web-based mindfulness intervention (Querstret et al., 2017). The more individuals were able to detach from negative thinking the stronger the change in outcomes from the mindfulness intervention were (e.g. decrease in distress; Gu et al., 2018; Jain et al., 2007). Further, decreased ruminative thinking explained the positive relation between mindfulness-based intervention and a reduction in negative health-related symptoms such as depression (Snippe et al., 2015). It can be concluded, when participants were able to detach psychologically, they benefited more from the treatment. Further, psychological detachment might also be achieved through pleasant activities (Sonnentag & Fritz, 2015), meditation likely being one of them.

However, it is irrefutable that detaching from negative thoughts and feelings is an inevitable component in the context of stress relief and relaxation. To our knowledge, there is also no study investigating psychological detachment as possible mediator with regards to job satisfaction. For that reason, we decided to incorporate psychological detachment as relevant mediator that could possibly have an impact on our determined outcomes.

Resilience

Resilience is a relevant and valuable ability in the context of stress. It refers to bouncing back quicker and regaining psychological well-being after a difficult phase, which an individual went through. In fact, resilience varies across individuals. The degree to which an individual is able to handle challenges depends not only on their character strengths (Peterson & Seligman, 2004) such as hope, gratitude and different coping styles (Lazarus & Folkman, 1984) but on social, material and general energy resources as well (Hobfoll, Stevens, & Zalta, 2015). Resilient personalities might comprise a higher pile of different resources they benefit from. Resilience contains individuals to have a greater adaptability to current circumstances even in stressful periods of life (Hobfoll et al., 2015). For resilient people, new situations which might be perceived as demanding are not labeled as stressors immediately instead, they have a more differentiated view considering more than one perspective (Hülsheger et al., 2013). Remarkably, people differ in how they react to the exact same stressor depending on their

resilience ability (Logan & Barksdale, 2008). Researchers aimed to develop certain strategies and methods to increase patients' resilience also considering physiological aspects such as the neuroendocrine system. A highly resilient person can be assumed to hold a successful allostasis (McEwen & Lasley, 2002), i.e. maintaining internal processes balanced.

Resilience has been recognized to be associated with stress reduction (Kim et al., 2018; Montanari, Bowe, Chesak, & Cutshall, 2018). For instance, in a recent study an enhancement in resilience was correlated with a decrease in burnout tendencies among nurses (Montanari et al., 2018). Moreover, resilience was shown to have a mediating impact on the relation between mindfulness and emotional exhaustion (Pauls, Schlett, Soucek, Ziegler, & Frank, 2016). That evidence leads to the assumption that resilience could be an important factor in an individuals' ability to regulate stress-related behavior and to achieve a state of relaxation.

It is worth mentioning that there are already web-based interventions that aim to improve resilience in workers (Rose et al., 2013). In this regard, mindfulness-based intervention was shown to be an effective method for bolstering resilience in the workplace (Kim et al., 2018; Pauls et al., 2016; Zołnierczyk-Zreda, Sanderson, & Bedyiska, 2016). To our understanding resilient people better withstand stressors so that they are not impacted as much as less resilient people may be.

To conclude, due to the mentioned reasons, we considered resilience as potential moderator in our model either strengthening or weakening our outcome relations.

Self-Efficacy for Recovery

Importantly, it is not only the practice of exercises and commitment to relaxation interventions but also the extent of self-efficacy to rely on one's ability for recovery that may have an impact on outcomes such as greater well-being and less stress, respectively.

The *Self-efficacy Theory* developed by Bandura (1982) describes the capability of an individual to stay confident achieving a desirable state or maintaining a positive habit even under difficult circumstances, for instance in high stress phases. In line with that, self-efficacy and job burnout were shown to stay in a

negative significant relation to each other (Yu et al., 2015). Self-efficacy for recovery is a main aspect in the sense for achieving a full state of relaxation when being engaged in relaxation-promoting activities (Ströbl, Reusch, & Ellgring, 2004) such as progressive muscle relaxation (Jacobson, 1934) and mindfulness meditation (Kabat-Zinn, 1994). Additionally, motivation also plays a key role in the extent to which an individual perceives self-efficacy (Ströbl et al., 2004).

In conclusion, we think the degree to which the participants feel self-efficient to recover even during difficult and stressful times could moderate the outcome relations.

Putting the Pieces together – The Present Study

The primary objective of this study was to examine whether the exercises of a mindfulness-based relaxation app intervention had an influence on different variables with the motive to improve positive and reduce negative outcomes, respectively.

One of the purposes was to provide the participants with effective skills to better handle stress and to more easily get into a relaxed state compare to before the intervention. Therefore, our key focus was to assess whether the main outcomes differ in time.

More detailed, we expected participants' need for recovery would decrease at all time points after the intervention began since mindfulness-based interventions were associated with an increase in recovery processes in previous studies (Hülsheger et al., 2015). Further, we targeted to assess work-related stress focusing on the component emotional exhaustion since it was investigated often in mindfulness-based interventions and yielded significantly decreased scores (Hülsheger et al., 2013; Pauls et al., 2016). As already described in the introduction, well-being should be enhanced due to increase in relaxation, theorized to be caused by the intervention. Further, we included job satisfaction in our model considering it as a single factor only evaluating the degree to which the workers are satisfied with their job and how they appraise it (Locke & Latham, 1990). Therefore, job satisfaction was measured as a short-term state, namely a difference in variation from week to week with a tendency to increase due to the intervention.

Since we were also interested in investigating possible reinforcing factors, we included moderators in our model. Moderating functions of resilience and self-efficacy for recovery were assumed. Moreover, we specifically examined whether a regular practice of the exercises – the frequency of use – would reinforce the relations of the outcome changes. That is because a regular practice is necessary in order to achieve a habit change (Carden & Wood, 2018). Further, the appraisal of exercises might also play an important role according to the person-intervention-fit (Howells et al., 2016) which states the enjoyment of intervention exercises to be decisive for effectivity. Therefore, we also included these variables as moderators in our model.

According to our theoretical derivations, we proposed the following hypotheses:

H1: Participants show lower levels of need for recovery over time from pre-test to week 1, week 2, week 3 and post-test which is moderated by (a) frequent use, (b) appraisal of exercises, (c) resilience and (d) self-efficacy for recovery.

H2: Participants show lower levels of work-related stress over time from pre-test to week 1, week 2, week 3 and post-test which is moderated by (a) frequent use, (b) appraisal of exercises, (c) resilience and (d) self-efficacy for recovery.

H3: Participants show higher levels of well-being over time from pre-test to week 1, week 2, week 3 and post-test which is moderated by (a) frequent use, (b) appraisal of exercises, (c) resilience and (d) self-efficacy for recovery.

H4: Participants show higher levels of job satisfaction over time from pre-test to week 1, week 2, week 3 and post-test which is moderated by (a) frequent use, (b) appraisal of exercises, (c) resilience and (d) self-efficacy for recovery.

Since we also wanted to explore in-between processes, we considered two mediator variables in our model. As all the exercises are based on mindfulness, we found it obvious to incorporate mindfulness as mediator in our model.

Therefore, we further assume the following hypotheses:

H5: Mindfulness mediates differences in need for recovery over time from pre-test to week 1, week 2, week 3 and post-test.

H6: *Mindfulness mediates the relation of work-related stress over time from pre-test to week 1, week 2, week 3 and post-test.*

H7: *Mindfulness mediates differences in well-being over time from pre-test to week 1, week 2, week 3 and post-test.*

H8: *Mindfulness mediates differences in job satisfaction over time from pre-test to week 1, week 2, week 3 and post-test.*

As we described in the introduction, research on recovery has yielded psychological detachment to be an important factor in recovery relations (Sonnentag et al., 2010). Authors found that mindfulness-based interventions led to decentering from unpleasant thoughts (Feldman et al., 2010) which is linked to detachment. Therefore, we also assumed psychological detachment to be negatively related to need for recovery and work-related stress, whereas it should contribute positively to a positive affective state and job satisfaction in participants.

Therefore, we derived the following hypotheses including psychological detachment as mediator:

H9: *Psychological detachment mediates the relation of need for recovery over time from pre-test to week 1, week 2, week 3 and post-test.*

H10: *Psychological detachment mediates the relation of work-related stress over time from pre-test to week 1, week 2, week 3 and post-test.*

H11*: Psychological detachment mediates the relation of well-being over time from pre-test to week 1, week 2, week 3 and post-test.*

H12: *Psychological detachment mediates the relation of job satisfaction over time from pre-test to week 1, week 2, week 3 and post-test.*

Figure 1 represents our research model including all outcome variables, moderators and mediators divided in different times of measurement. Even though a randomized controlled trial with two groups (experimental and control group) would have been more desirable in research, we decided to examine only one group because finding committed participants that were willing to join our study was complicated. Besides, previous studies could show important findings such as a significant decrease in stress by similarly investigating one group only (Ahtinen

et al., 2013) with an abbreviated mindfulness-based intervention program (Fortney et al., 2013).

Mainly, this study contributes to the literature because of the focus on underlying mechanisms that drive the relation between the intervention and the different positive outcomes and by including two mediators into our model. Additionally, we provide insight into within-person change processes during the intervention since we measured on a weekly basis. By these means, if any score changes were observed, we could derive precisely at what point in time the intervention started to show an effect on the participants. Altogether, five questionnaires were sent out in a period of four weeks with repeated measurements of the variables. Additionally, the pre-test contained demographic variables and the post-test asked about recommendations of the app intervention.

We aimed to investigate whether an app-based relaxation intervention could improve different outcomes and thus be established as an eligible stress-management tool in future. In the next sector, we will describe our methods, the app itself and the module we investigated in more detail.
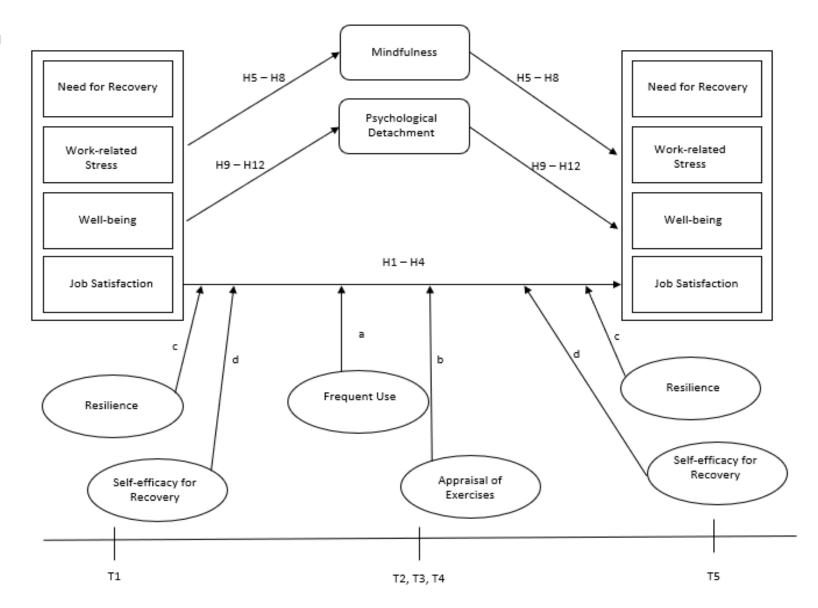
Figure 1. Research Model

Methods

The present study was designed as longitudinal field study. We investigated a single group without control group. Our study had a total duration of four weeks, including three weeks of an intense online self-guided intervention. We examined the effectiveness of the app intervention by comparing pre-test, three weekly questionnaires and post-test. This approach allowed us to identify whether there were changes between the intervention weeks.

The following section describes the method in more detail considering design, procedure, sample and instruments.

Design

According to previous studies, duration for intervention studies investigating relaxation programs varies vastly. For example, the duration of interventions lies between two weeks (Cavanagh et al., 2013; Gu et al., 2018), four weeks (Jain et al., 2007; Querstret et al., 2017), eight weeks (Bostock et al., 2019; Carmody & Baer, 2008; Kim et al., 2018; Roser et al., 2013; van Emmerik et al., 2018) up to 12 weeks (Wolever et al., 2012), whereby the average duration is 4-8 weeks. Although some of the studies had a longer intervention duration, most of those only measured variables at the beginning (scores in pretreatment) and at the very end of the study (scores in posttreatment) comparing these scores without considering weekly variations accurately.

However, our study contained a pre-test, three weeks intense intervention with weekly questionnaires and one week after intervention (post-test). In that way we were able to compare week-based fluctuations in the variables and assess the periodical influences in more detail.

Procedure

All the participants were equally aware of the study and its purpose. Through a general information sheet, they were asked to register with their email addresses first, while giving their commitment to participate, before they got the detailed instructions on how the study will proceed.

As incentive, participants were informed about the possibility of winning one of three one-year eleMental App abonnements free of charge, equaling a monetary amount of approximately 50€.

A total of 106 people registered on the mailchimp landing page[1] which we used to gather potential participants. However, 22 people disqualified by not self-registering to eleMental App during the valid time frame. The remaining 74 participants filled in the baseline questionnaire (pre-test) and were thus eligible to participate.

Participants were invited to do at least three of the ten different audio exercises per week which they could choose based on their preferences. Moreover, Newsletter information was administered 2-3 times per week allowing the participants to inform themselves about stress and relaxation topics more in detail on a voluntary basis.

The online program SoSci Survey[2] was used to design the questionnaires. On the first page of each questionnaire they were given an informed consent clause clarifying the conditions and their right to leave the study at any time. Furthermore, on the second page of each questionnaire they had to create their personal code consisting of six digits in order to match the different questionnaires filled out by the same person to one another while assuring anonymity.

The study was conducted completely self-guided by the participants and except for providing Newsletter information to all the participants and receiving few emails concerning technical difficulties and delivery of feedback, there was no contact with participants during intervention phase.

Sample

Statistical analyses were performed to calculate adequate sample size. Ensuring a power of .80 (to have an 80% chance of rejecting the null hypothesis if it is false) it was determined that 30 subjects would be needed to investigate the interventions' effectiveness properly by conducting a repeated measures ANOVA with one group and for predicting medium effect sizes (Dolbier & Rush, 2012; Jayawardene et al., 2016; Neumeier et al., 2017; Ryan et al., 2017).

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[1] https://mailchimp.com/
[2] https://www.soscisurvey.de/

In the time of three months, recruiting took place in the circle of acquaintances using the snow-ball system, therefore, we recruited and examined a convenience sample. We reached the people via email, flyers and word of mouth. Interested people received information immediately about the topic and the app itself through a detailed information letter. Subsequently, they were asked to enter their email address for participating in the study thus receiving specific instructions for registration and the study's process.

Inclusion criteria. To be eligible for inclusion, participants had to meet the following criteria: (a) a minimum age of 18 years, (b) working a minimum amount of 10 hours per week, (c) good German language skills (d) committing to conduct at least three exercises per week for the duration of the intervention, (e) access to the Internet, (f) not receiving any other form of psychological therapy during the intervention phase.

In total, we included 74 participants from Germany (73%), Austria (21.6%) and other nationality (5.4%) in our analyses. The final sample population consisted of a wide range of workers in different job fields in order to ensure heterogeneity. Participants were employed full-time (33.8%), part-time (35.1%) and on a mini job level (23.2%). See table 1 for more detailed information about the sample.

Table 1
Demographic Variables

Demographics	Participants
Total number	74
Number of females (%)	56 (75.7%)
Age range in years (M; SD)	19-79 (33.99; 14.551)
Number of singles (%)	52 (70.3%)
Mean years in current job (SD)	7.70 (10.912)
Holding a leading position (%)	16 (21.6%)
Number with children (%)	24 (32.5%)
Number university educated (%)	29 (29.3%)
Mean experience with meditation (SD)	2.18 (1.064)

Note. M = mean, SD = standard deviation

Subject of the Intervention

The App. We investigated the module "Chillax Zone" from the App "eleMental[3]" designed by Dr. Bardia Monshi who is a well-experienced professional in psychology. The content is grounded in positive psychology aiming at improving users' well-being, helping them to cultivate their strengths in order to live a more fulfilled, happy and satisfied life. In total, the eleMental App includes four modules (Mindful Now, Happy Flow, Sleep Easy, and Chillax Zone) with each one focusing a different main theme. "Chillax Zone" allows for more relaxation and better stress management among users.

The exercises consist of oral guidance, narrated by the apps' developer and publisher. The audios were spoken in German language but with Austrian accent and by a male voice only. A special fact is, that users do not need to download the app in order to listen to the audios provided by eleMental App instead they may just go into the Internet and listen to them on the official website if they preferably want to use their laptops or computers instead of their smartphone. This opportunity protects attrition due to common problems with smartphones such as low battery or poor internet connection (Howells et al., 2016).

The app is already commercially available in app stores and costs about 5€ per month, however the participants could try the app module "Chillax Zone" for free during intervention phase.

For the present study, we examined the effectiveness of the module "Chillax Zone" to find out if there is an effectiveness on different outcomes when continuously doing the exercises for a specific period. Participants got free access to all other modules of eleMental App after study finished (after post-test). During the study period, participants received reminder via email and push-notification to fill in the questionnaire.

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[3] https://elemental-app.com/

Overview of the Exercises with Short Description.

"Chillax Muskelspiel". Basis of this exercise is Jacobson's progressive muscle relaxation therapy (Jacobson, 1934). Participants are invited to alternately tense and relax different muscle groups in order to achieve a sense of relief and a state of relaxation eventually.

"Wettentspannen". Basis of this exercise is also the progressive muscle relaxation therapy from Jacobson (1934) as it starts with a high intense physical activity added with hypnotic verbalizations (inspired by Milton Erickson) that should lead into a deep state of relaxation in that combination.

"Wettentspannen 2". Same content as Wettenspannen but with a slightly longer duration.

"Chill & Nap". During this exercise, participants are invited to take a short nap in order to detach from daily hassles and tank up energy for the rest of the day.

"Überdrüber-Blick". This exercise helps to clarify listeners' mind when it is full of different issues and enables a short escape from daily loads. This audio was inspired by Vipassana meditation thus it encompasses mindfulness meditation.

"Muskelspiel für Schlaf". This exercise is also inspired by Jacobson's muscle relaxation therapy but chasing to lead or accompany the participants into a well sleep, therefore it is recommended to listen to it rather in the evening.

"8sam Atmen". The content refers to Vipassana meditation and guides the listener to and through a mindful breathing. Since it is the best known and most practiced form of meditation, it should enable achieving a state of relaxation more easily. This kind of breathing technique may also calm you down in critical and stressful situations.

„8sam Gedanken beobachten". Almost the same as „8sam Atmen" but with focus on the thoughts that cross your mind during meditation.

„8sam Gefühle beobachten". Almost the same as „8sam Atmen" and „8sam Gedanken beobachten", however in this exercise participants focus only on their current feelings that are showing up and trying to let them go without judging them.

„8samer Bodyscan". Inspired by Jon Kabat-Zinn, this exercise allows listeners to concentrate on different body parts only recognizing how each part feels but again without judging or trying to change any sensation.

Listeners were led through prerecorded audio sessions all focusing on stress relief and relaxation. The duration of the exercises ranges from 5 to 20 minutes approximately, so there was a wide variety according to different preferences. Moreover, they could configurate different options regarding length and nature sounds as well as the volume from the speaking voice according to their preference. Background information about the exercises were provided on the website as well as know-how points describing important aspects about stress and relaxation in daily life.

In addition, we prepared weekly Newsletters comprising of different topics referring to stress and relaxation providing psychoeducational information in addition to the audios. For instance, participants were offered to try a stress diary in order to analyze their current stressors and problems from a more neutral position. They were invited to follow and read these Newsletters on a voluntary basis.

Instruments

All in all, five questionnaires were handed out, one in every week, whereas the baseline questionnaire took approximately 10 minutes and the others about 5-7 minutes for filling in. They always received the questionnaires on Monday giving them time to fill in until Friday. We sent out two reminders each week for each questionnaire. Most of the questions were asked in a closed design, except for age and nationality in the baseline questionnaire as well as an open field for additional comments in the very last questionnaire, in that way we could generate more qualitative data.

Firstly, they received a baseline questionnaire which measured all relevant demographic variables (see table 1) and main variables, including moderators, mediators and outcomes, for assessing the pretreatment status and comparing it with the in-between and posttreatment status afterwards. In addition, before (pre-test) and after (post-test) the intervention, participants self-reported their level of resilience and self-efficacy for recovery including these measures as moderators.

Mindfulness. To measure state mindfulness, we used the German version (Michalak, Heidenreich, Ströhle, & Nachtigall, 2008) of the Mindfulness Attention Awareness Scale (MAAS) originally developed by Brown and Ryan (2003). The scale consists of 15 items which are negatively formulated therefore a reversion of the answer scores was needed in the analyses. As suggested in the original version of the MAAS scale, answers were collected using a 6-point Likert scale ranging from 1 (never) to 6 (always). The scale is unidimensional and captures the ability to bring awareness into different present moments. We did no segmentation into different facets as for example other researcher did (Carmody & Baer, 2008; Gao et al., 2018; Querstret et al., 2017). Participants were asked to indicate to what extent the items described their states and behaviors, in that way we were able to measure the overall state of mindfulness and awareness regarding different daily activities. Higher scores indicated a higher state of mindfulness. Participants were instructed to refer their answers to the past week. Solid reliability is given with a Cronbach's Alpha of α = .86.
Sample item: "I find it difficult to stay focused on what's happening in the present."

Psychological Detachment. Psychological detachment was measured using the 4-item subscale "Psychological Detachment" from the Recovery Experience Questionnaire by Sonnentag and Fritz (2007). Participants were asked to indicate how strongly they agreed with the four statements referring to their ability to detach from work after work or in their leisure time, respectively. Answers could be given on a 5-point Likert scale ranging from 1 (fully disagree) to 5 (fully agree) Participants were instructed to refer their answers to the past week. High reliability is given with a Cronbach's Alpha of α = .90

Sample item: "After work, I distanced myself from my work."

Need for Recovery (after work). We assessed the workers' need for recovery using the specifically designed scale by van Veldhoven and Broerson's (2003). Items refer to different activities and emotional states after work emphasizing the need for relaxation and the inability to relax properly. Hence, the higher the score individuals indicated, the higher the need for recovery. Answers were given on a 6-point Likert scale with stating 1 (never) up to 6 (always). Again, participants were instructed to refer their answers to the past week. We analyzed a reliable Cronbach's Alpha of α = .88 for that scale.

Sample item: ''Often, after a day's work I feel so tired that I cannot get involved in other activities".

Well-being. Well-being was measured regarding two dimensions of mood, namely positive and negative affect, with 10 items from the Positive and Negative Affect Schedule (PANAS) using the Short Form (I-PANAS-SF) developed and validated by Thompson (2007). Affective states have been often assessed with PANAS (Fritz et al., 2010). We decided to use the short version in order to reduce break offs during the questionnaire and minimizing participants' psychological strain. Luckily, the items of the short form correlate with the long version so that high reliability and validity was still given – the PA items achieve a reported Cronbach's Alpha of .80 and the NA items an alpha of .74 (Thompson, 2007). In concordance, we obtained a Cronbach's Alpha of $\alpha = .74$ in our analysis. Participants reported the extent to which they felt each of ten different adjectives describing five positive and five negative states referring their answers to the past week. Answers were given on a 5-point Likert scale ranging from 1 (very slightly or not at all) to 5 (extremely).

Sample items: "upset"; "inspired"; "alert"; "attentive".

Work-related Stress. We measured this outcome with the subscale "emotional exhaustion" from the well-known Maslach Burnout Inventory by Maslach and Jackson (1981). Holistically, the MBI measures three facets, namely depersonalization, emotional exhaustion and personal accomplishment related to participants' job. Since we only refer to occupational distress which is often related to a feeling of exhaustion, rather than depersonalization and the failure to accomplish personally set goals at work, we excluded the other two facets and considered only emotional exhaustion. Participants were asked to indicate to which extent they felt emotionally overextended and exhausted due to their work demands. Answers were given on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Analyzing the internal consistency of all three items suggest a high degree of consistency with a Cronbach's Alpha of $\alpha = .90$.

Sample item: "I feel used up at the end of a workday."

Job Satisfaction. Job satisfaction was measured using the extra subscale of the Michigan Organizational Assessment Questionnaire (MOAQ-JSS) by

Cammann, Fichman, Jenkins, & Klesh (1983) as it is a well-validated instrument for assessing the general job satisfaction of workers (Bowling & Hammond, 2008). The three items include emotion-oriented propositions about one's current job through what an overall assessment of the job satisfaction was possible. The second item is scored reversely stating a negative formulation about the job. Items were rated from 1 (strongly disagree) to 5 (strongly agree). We reached a Cronbach's Alpha of α = .72.

Sample item: "All in all I am satisfied with my job."

Resilience. We measured resilience with the Brief Resilience Scale developed by Smith et al. (2008) consisting of six items. Noteworthy, contrary to other resilience scales, it assesses resilience itself instead of asking about personal characteristics that might be associated to a more resilient personality (Kim et al., 2018). By this means, we assessed unique and important information about participants' coping ability with stressors (Smith et al., 2008). This measurement was included in pre-test and post-test to assess whether there was a change in the extent to which participants felt resilient before and after intervention. Responses were scaled from 1 (strongly disagree) to 5 (strongly agree). Reliability in this sample was a Cronbach's Alpha of α = .76.

Sample item: "It does not take me long to recover from stressful events."

Self-efficacy for Recovery*.* This measure was included in pre-test and post-test to assess whether a change in this moderator occurred after the intervention. This 10-item scale has a good internal consistency and sufficient reliability of α = .86 (Ströbl et al., 2004). Accordingly, we obtained a Cronbach's Alpha of α = .84. The items describe impediments that might hinder individuals from recovering. Responses show to what extent individuals are confident to achieve a state of relaxation when current mental or physical conditions are rather incriminating. Answers consisted of a 5-point Likert scale reaching from 1 (not confident at all) to 5 (extremely confident).

Sample item: "I am confident to do things to relax, even when I am worried."

Additionally, in order to consider the person-intervention-fit (Howells et al., 2016) that explains the importance for interventions' effectiveness depends on how enjoyable user rate the exercises, we assessed participants' appraisal of the

exercises. Further, Economides and colleagues (2018) argued that it is important to find out how much practice during intervention is needed for results. Even though this is difficult to assess, we tried by asking in every weekly questionnaire how often each exercise was done during the past week. Therefore, we measured participants' frequency of use and appraisal of the exercises by inserting two questions in weekly questionnaires asking how often they did each exercise and how they rate these on pleasantness. We included these two variables as moderators in our model.

Frequent Use: "How often did you do the following exercises this week?" Answers could be given on a 3-point Likert scale ranging from 0 to more than 3 times. **Appraisal of Exercise**: "How did you like the following exercises?" Answers could be given on a 5-point Likert scale ranging from very poor to very good.

Pre-test, one weekly questionnaire and post-test are attached in appendix D.

      Control Variables. Several demographic data were collected including age, gender, nationality, relationship status, number of children and education. Additionally, job relevant data such as job field, job position, weekly working hours and job tenure were assessed. We also asked if they had any previous experience with meditation or other relaxation trainings in order to consider these factors as possible covariates.

Results

Data were collected using the online platform SoSci Survey[4]. After the study was concluded, only the weekly data sets where all the questions had been answered were downloaded. However, not all the five questionnaires had to be filled in by each participant for the data to be included in the analyses. If two questionnaires could be matched to the same person, the data were used.

Preliminary Analysis

We tried to keep our scales as brief as possible to minimize the risk of dropouts due to fatigue since the same items were repeatedly measured. In fact, dropout rates are relatively high in web-based interventions compared to face-to-face interventions (Cavanagh et al., 2013; Eysenbach, 2005). According to a systematic review it ranges from 12.5% to 34.3% (Donker et al., 2013). Likewise,

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[4] https://www.soscisurvey.de/

there were dropouts increasing from week to week (pre-test: $n = 74$; week 1: $n = 54$; week 2: $n = 61$; week 3: $n = 47$; post-test: $n = 51$). However, all the 74 participants met the inclusion criteria and completed the pre-test, and if they filled in at least one other questionnaire, we were able to include them in the analyses. In that way we could ensure to have at least 30 participants for each statistical analysis based on matching and thus meeting the statistical requirements.

Main Analyses

Data were analyzed using the statistical program IBMS SPSS, version 32. We conducted three main sets of analyses. As we wanted to investigate changes in mean scores over all five time points, our measures were not independent using the repeated measures ANOVA. Effect sizes between pre-test, week 1, week 2, week 3 and post-test were calculated by taking difference between mean scores (within-group effect size) into account. According to Cohen (1988) and Eid et al. (2013) we referred to a correlation effect of $<.01$ as small, $>.06$ as medium and $>.14$ as large and a partial eta² effect of <0.01 as small, >0.06 as medium and >0.14 as large effect size, respectively.

Further, to thoroughly explore the effects of the intervention on all outcomes, we tested effects on each outcome with each moderator, separately. Additionally, we were specifically interested in whether potential mediators accounted for the effect of the intervention on the different outcome variables. Table 2 displays results from repeated measures from ANOVA with a Greenhouse-Geisser correction determining differences between measurements for all four outcome variables at all times. Figures 2-5 illustrate trend charts for each outcome variable including pre-test, all three weekly measures and post-test.

Table 2

Repeated Measures ANOVA Results and Within Group Effect Sizes for Outcome Variables

Measurement period	n	Need for Recovery Mean (SD)	Work-related Stress Mean (SD)	Well-being Mean (SD)	Job Satisfaction Mean (SD)
Pre-test (T1)	31	2.90 (0.69)	2.41 (0.74)	3.62 (0.56)	3.25 (0.49)
Week 1 (T2)	31	2.72 (0.77)	2.51 (0.93)	3.77 (0.52)	3.43 (0.62)
Week 2 (T3)	31	2.71 (0.78)	2.42 (0.70)	3.74 (0.51)	3.32 (0.48)
Week 3 (T4)	31	2.49 (0.81)*	2.26 (0.84)	3.90 (0.48)	3.29 (0.64)
Post-test (T5)	31	2.58 (0.63)*	2.20 (0.75)	3.79 (0.51)	3.28 (0.68)
p		0.01*	0.21	0.12	0.67
Partial η^2		0.12	0.05	0.06	0.02

Note. T = Time, T1 = before intervention phase, T2 = after one week of intervention, T3 = after two weeks of intervention; T4 = after three weeks of intervention, T5 = one week after completion of intervention phase, * = statistically significant
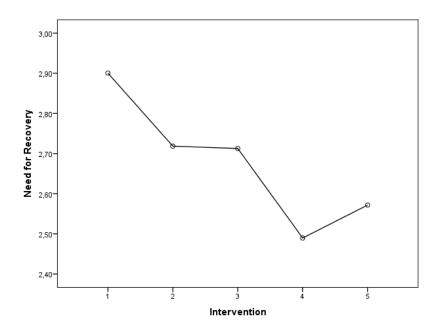

Figure 2. Repeated measures ANOVA for Need for Recovery. X axis shows all measurement times from pre-test (T1) to post-test (T5)
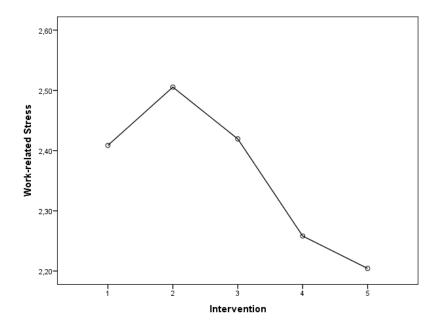
Figure 3. Repeated measures ANOVA for Work-related Stress. X axis shows all measurement times from pre-test (T1) to post-test (T5)
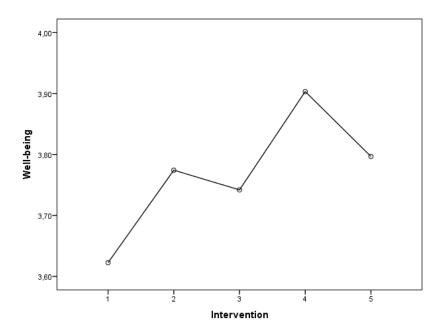

Figure 4. Repeated measures ANOVA for Well-being. X axis shows all measurement times from pre-test (T1) to post-test (T5)
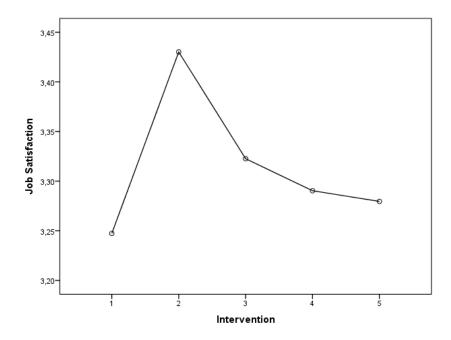
Figure 5. Repeated measures ANOVA for Job Satisfaction. X axis shows all measurement times from pre-test (T1) to post-test (T5)

As we can see need for recovery did change over the different times with a significant main effect of $F_{(2.75, 82.52)} = 4.23$, $p = 0.01$, *partial $\eta^2 = 0.12$*. Paired comparison tests indicated an effect between pre-test (M = 2.9; SD = 0.70) and week 3 (M = 2.49; SD = 0.81) as well as between pre-test and post-test (M = 2.57; SD = 0.63). Remarkably, the score has risen again in post-test compared to week 3. Regarding work-related stress there was no significant main effect thus no significant difference in scores $F_{(2.82, 84.48)} = 1.53$, $p = 0.21$, *partial $\eta^2 = 0.05$*. However, trends are pointing to a decrease in participants' work-related stress at week 3 as well as at post-test. Well-being did also not change significantly over the different times of measurement $F_{(2.92; 87.72)} = 2.03$, $p = 0.12$, *partial $\eta^2 = 0.06$* although there was a notable increase at week 3 and post-test. Similarly, job satisfaction did not reveal a significant main effect $F_{(4.12)} = 0.58$, $p = 0.67$, *partial $\eta^2 = 0.02$*. However, there was a strong increase but only in week 1 seeable, dropped again at week 2, week 3 and post-test. Therefore, hypothesis 1 could be confirmed and hypotheses 2, 3 and 4 could not. To better understand the relations between our outcome variables, a correlation matrix between these was conducted, indicated in table 3.

Table 3

Descriptive statistics and intercorrelations between study variables at T1

	Variable	M	SD	1	2	3	4	5	6	7	8
1	Need for Recovery	2.96	0.76	1							
2	Work-related Stress	2.53	0.94	0.687**	1						
3	Well-being	3.65	0.57	-0.472**	-0.458**	1					
4	Job Satisfaction	3.29	0.58	0.082	-0.281*	0.269*	1				
5	Mindfulness	3.34	0.76	0.506**	0.492**	-0.356**	-0.129	1			
6	Psychological Detachment	3.01	1.00	-0.251*	-0.415**	0.168	0.082	-0.275*	1		
7	Resilience	3.24	0.65	-0.350**	-0.294*	0.428**	0.060	-0.284*	0.109	1	
8	Self-efficacy for Recovery	2.70	0.63	-0.144	-0.077	0.305**	0.112	-0.212	-0.119	0.124	1

Note. M = mean, SD = standard deviation, * = $p < .05$, ** = $p < .01$.

Referring to significant correlations, mindfulness correlated with all other outcome variables except with job satisfaction. Against our expectations, mindfulness correlated positively with need for recovery and negatively with resilience in participants. Further, mindfulness also correlated negatively with psychological detachment.

Moderation Analyses*. In order to check, if any, what moderator variables influenced the relation between the outcome variable at different times before, during and after intervention, moderation was checked and tested using regular linear regression menu item in SPSS but with integrating PROCESS-Makro using Model 1. Subsequently, we will have a look at all outcome variables separately including all times of measurement. The following presentation of results will be limited to significant findings since we have a lot of data output. For all data see tables in appendix B.

Need for Recovery – Moderator (a) Frequent Use, (b) Appraisal of Exercise, (c) Resilience, (d) Self-efficacy for Recovery

We included four moderators and analyzed their impact on need for recovery outcomes at pre-test, week 1, week 2, week 3 and post-test. In fact, frequent use in week 3 moderated the changes in need for recovery with a negative interaction term between pre-test and week 3 (b = -1.236; p = 0.04; CI = [-2.41; -0.06]). That means, the more frequent use was shown, the more negatively affected need for recovery from pre-test to need for recovery in week 3 became. Therefore, if participants had a low need for recovery score right at the beginning, frequent use did only influence the relation marginally as the need for recovery stayed low in week 3 even if participants did not show high frequent use. All other moderators were not significant at any point of time. Therefore, hypothesis 1a could be confirmed and hypotheses 1b, 1c and 1d were rejected. Figure 6 demonstrates the significant interaction effect.
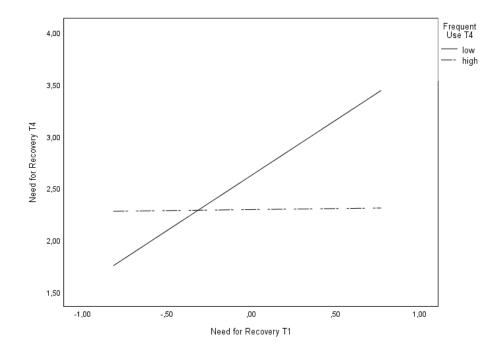
Figure 6. Interaction effect of moderation analysis

Work-related Stress – Moderator (a) Frequent Use, (b) Appraisal of Exercise, (c) Resilience, (d) Self-efficacy for Recovery

We analyzed moderating functions of frequent use, appraisal of exercise, resilience and self-efficacy for recovery on the relation of work-related stress. Indeed, self-efficacy for recovery measured at pre-test had an impact on work-related stress between pre-test and week 1 ($b = -0.979$; $p<0.001$; CI = [-1.44; -0.32]). As well as appraisal of exercises in week 2 moderated differences from pre-test to week 2 ($b = -0.193$; $p = 0.01$; CI= [-0.33; -0.05]). That means, the more participants indicated to have a high self-efficacy for recovery and the more they rated the exercises as pleasant the more negatively affected the scores of work-related stress from pre-test to week 1 and week 2 became. However, this effect only occurred for those who already had a relatively high work-related stress at the beginning. Interestingly, participants with an initially low work-related stress even showed an increase in their stress levels in week 2 when they rated the exercises rather negatively than positively. Therefore, hypothesis 2b and 2d could be confirmed and hypotheses 2a and 2c were rejected. Figure 7 and 8 illustrate the significant interaction effects graphically.
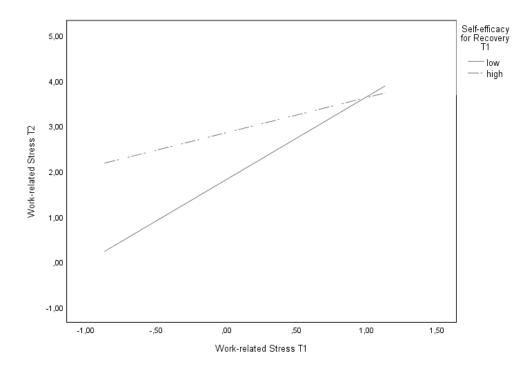
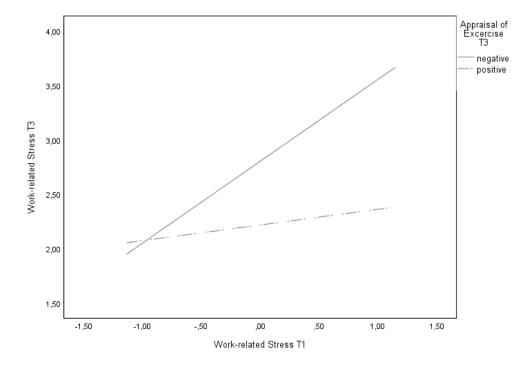*Figure 7.* Interaction effect of moderation analysis

Figure 8. Interaction effect of moderation analysis

Well-being – Moderator (a) Frequent Use, (b) Appraisal of Exercise, (c) Resilience, (d) Self-efficacy for Recovery

No significant moderation could be shown in the relation of well-being from pre-test to any other point of measurement thus no interaction existing between none of the moderators and well-being. Therefore, hypotheses 3a, 3b, 3c and 3d were rejected.

Job Satisfaction – Moderator (a) Frequent Use, (b) Appraisal of Exercise, (c) Resilience, (d) Self-efficacy for Recovery

Two significant interactions regarding the moderator self-efficacy for recovery measured at pre-test and post-test could be shown to influence the relation of job satisfaction from pre-test to post-test. Both, self-efficacy measured at pre-test (b = -0.725, p = 0.01, CI [-1.27; -0.18]) and measured at post-test (b = -1.325, p < .001, CI [-1.87; -0.78]) showed a significant interaction effect while the latter affected the relation slightly stronger. Since our slopes were negatively poled, we could assume that scores in job satisfaction from pre-test to post-test decreased when self-efficacy for recovery was high at pre-test and post-test, respectively. Therefore, hypothesis 4d was accepted and hypotheses 4a, 4b and 4c were rejected. Figure 9 and 10 depict the significant moderation effects.
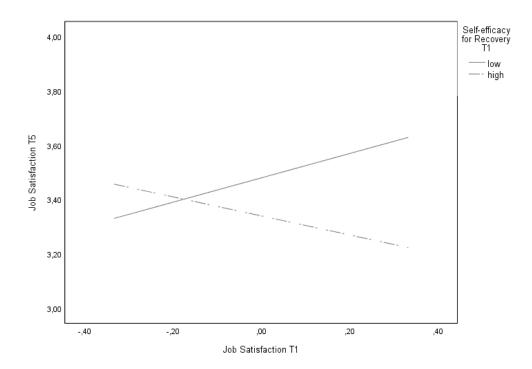

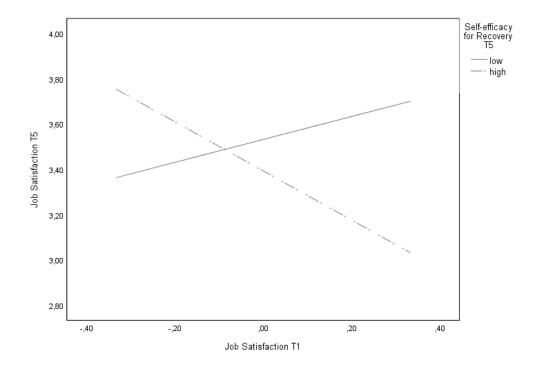*Figure 9.* Interaction effect of moderation analysis

Figure 10. Interaction effect of moderation analysis

Mediation Analyses. In this step, we aimed to understand the mechanisms of change for the main study variables over time thus mediation analyses were performed using the PROCESS macro Model 6 in SPSS (Hayes, 2013).

Effects of Need for Recovery mediated by Mindfulness

To analyze whether mindfulness represented a mediator between differences in need for recovery scores during and after intervention we conducted several mediation analyses considering participants' mindfulness scores in week 1, week 2 and week 3 and post-test. Following, 95% bias corrected bootstrap CIs for the indirect effects are reported. Results showed that there was indeed an indirect effect for need for recovery in pre-test and week 2 mediated by mindfulness in week 2 (b = 0.205, CI [0.02; 0.43]). Moreover, we revealed another indirect effect between need for recovery from pre-test to week 3 mediated by mindfulness in week 3 (b = 0.333, CI [0.11; 0.54]). As the confidence intervals did not include zero, those effects were interpreted as significant. The remaining measures were not significant thus mindfulness did not act as mediator at other points of time in relation of need for recovery. Therefore, hypothesis 5 could be confirmed. Table 3 shows all the indirect effects for need for recovery via mindfulness.

Table 3

Mediation Analysis: Need for Recovery → Mindfulness → Need for Recovery

Time of measurement	Mediator	Indirect effect	95% CI	Effect size (completely standardized)
Pre-test – Week 1	Mindfulness (Week1)	0.025	-0.08; 0.14	0.025
Pre-test – Week 2	Mindfulness (Week2)	0.205*	0.02; 0.43	0.186
Pre-test – Week 3	Mindfulness (Week3)	0.333*	0.11; 0.54	0.301
Pre-test – Post-test	Mindfulness (Post-test)	0.063	-0.01; 0.17	0.079

Note. Pre-test = T1, Week 1 = T2, Week 2 = T3, Week 3 = T4, Post-test = T5, * = statistically significant

Since we gained significant effects in two times, we show detailed values of all paths from that mediation analyses in table 4 and 5 followed by figure 11 and 12 demonstrating the indirect effects in visualized models.

Table 4

Results of mediation analysis of the effect of need for recovery from pre-test to week 2 via mindfulness of week 2

Pathway	β	SE	t	p
Path a	0.323	0.142	2.28	0.03
Path b	0.635	0.133	4.7818	<.001
Total effect, path c	0.698	0.125	5.581	<.001
Direct effect, path c'	0.567	0.135	4.199	<.001
	Effect	Boot SE	LLCI	ULCI
Indirect effect, path a x b	0.205	0.101	0.025	0.427

Note. Path a = need for recovery pre-test → mindfulness week2, path b = mindfulness week 2 → need for recovery week 2, path c = need for recovery pre-test → need for recovery week 2, path c' = need for recovery pre – test → need for recovery week 2 without mediator

Referring to table 4, we have a partial mediation since all paths are significant.

Figure 11. Indirect effect

Table 5
Results of mediation analysis of the effect of need for recovery from pre-test to week 3 via mindfulness of week 3

Pathway	β	SE	t	p
Path a	0.456	0.157	2.89	0.01
Path b	0.731	0.163	4.48	<.001
Total effect, path c	0.617	0.151	4.09	<.001
Direct effect, path c'	0.262	0.171	1.53	0.13
	Effect	**Boot SE**	**LLCI**	**ULCI**
Indirect effect, path a x b	0.301	0.09	0.106	0.456

Note. Path a = need for recovery pre-test → mindfulness week3, path b = mindfulness week 3 → need for recovery week 3, path c = need for recovery pre-test → need for recovery week 3, path c' = need for recovery pre-test → need for recovery week 3 without mediator

According to our values from table 5, we have a full mediation since path c' (predicting need for recovery from pre-test to week 3 after controlling for mediator) is not significant.
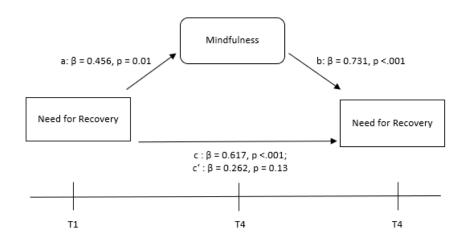

Figure 12. Indirect effect

Effects of Work-Related Stress mediated by Mindfulness

We took all three weeks and post-test into account again, for analyzing differences in the outcome work-related stress possibly mediated by mindfulness. Results showed no significant mediation effects. Therefore, hypothesis 6 could not be confirmed. Table 6 lists all indirect effects and confidence intervals.

Table 6

Mediation Analysis: Work-related Stress → Mindfulness → Work-related Stress

Time of measurement	Mediator	Indirect effect	95% CI	Effect size (completely standardized)
Pre-test – Week 1	Mindfulness (Week 1)	0.005	-0.12; -0.73	0.002
Pre-test – Week 2	Mindfulness (Week 2)	0.187	-0.02; 0.39	0.198
Pre-test – Week 3	Mindfulness (Week 3)	0.169	-0.09; 0.39	0.161
Pre-test – Post-test	Mindfulness (Post-test)	0.043	0.07; 0.13	0.056

Note. Pre-test = T1, Week 1 = T2, Week 2 = T3, Week 3 = T4, Post-test = T5

Effects of Well-being mediated by Mindfulness

We also tested whether mindfulness mediated differences in well-being scores at all determined times of measurement. However, analyses did not reveal any significant mediation regarding mindfulness mediating well-being. Therefore, hypothesis 7 could not be confirmed. Table 7 contains all indirect effects and confidence intervals.

Table 7

Mediation Analysis: Well-being → Mindfulness → Well-being

Time of measurement	Mediator	Indirect effect	95% CI	Effect size (completely standardized)
Pre-test – Week 1	Mindfulness (Week1)	0.022	-0.05; 0.11	0.021
Pre-test – Week 2	Mindfulness (Week2)	0.059	-0.05; 0.22	0.056
Pre-test – Week 3	Mindfulness (Week3)	0.052	-0.11; 0.23	0.059
Pre-test – Post-test	Mindfulness (Post-test)	0.017	-0.14; 0.19	0.019

Note. Pre-test = T1, Week 1 = T2, Week 2 = T3, Week 3 = T4, Post-test = T5

Effects of Job Satisfaction mediated by Mindfulness

Finally, we analyzed mindfulness as mediator for differences in the outcome job satisfaction for all intervention weeks and post-test. We did also not find any mediation effect with regards to job satisfaction at any point of time. Therefore, hypothesis 8 could not be confirmed. Table 8 shows indirect effects of all weeks as well as confidence intervals and standardized effect sizes.

Table 8

Mediation Analysis: Job Satisfaction → Mindfulness → Job Satisfaction

Time of measurment	Mediator	Indirect effect	95% CI	Effect size (completely standardized)
Pre-test – Week 1	Mindfulness (Week1)	-0.000	-0.06; 0.06	-0.000
Pre-test – Week 2	Mindfulness (Week2)	-0.031	-0.11; 0.06	-0.027
Pre-test – Week 3	Mindfulness (Week3)	-0.052	-0.34; 0.05	-0.042
Pre-test – Post-test	Mindfulness (Post-test)	0.130	-0.06; 0.35	0.111

Note. Pre-test = T1, Week 1 = T2, Week 2 = T3, Week 3 = T4, Post-test = T5

Effects of Need for Recovery mediated by Psychological Detachment

We did the same mediation analyses for psychological detachment to analyze whether it may represent a mediator between differences in need for recovery scores. Table 9 shows 95% bias corrected bootstrap CIs and the indirect effects for all weeks. However, none of the measures revealed significant indirect effects. Therefore, hypothesis 9 could not be confirmed.

Table 9
Mediation Analysis: Need for Recovery → Psychological Detachment → Need for Recovery

Time of measurement	Mediator	Indirect effect	95% CI	Effect size (completely standardized)
Pre-test – Week 1	Psychological Detachment (Week 1)	0.019	-0.04; 0.10	0.019
Pre-test – Week 2	Psychological Detachment (Week 2)	0.048	-0.08; 0.18	0.044
Pre-test – Week 3	Psychological Detachment (Week 3)	0.004	-0.11; 0.24	0.003
Pre-test – Post-test	Psychological Detachment (Post-test)	0.074	-0.09; 0.25	0.093

Note. Pre-test = T1, Week 1 = T2, Week 2 = T3, Week 3 = T4, Post-test = T5

Although, we could not find any significant mediation effect between scores at all measured times, results indicated a positive relation between psychological detachment and need for recovery in week 2 (b = -0.359, p = 0.01, CI [-0.61; -0.11]). Similar findings could be revealed for psychological detachment and need for recovery in post-test (b = -0.407, p = <0.001, CI [-0.54; -0.28]). Although, we were not able to present a mediation in this regard, we could declare a significant association between these variables.

Effects of Work-related Stress mediated by Psychological Detachment

We also tested a mediating role of psychological detachment regarding changes in the perception of work-related stress over time but did not find any significant effects. Therefore, hypothesis 10 could not be confirmed. Table 10 indicates all indirect effects and confidence intervals.

Table 10
Mediation Analysis: Work-related Stress → Psychological Detachment → Work-related Stress

Time of measurement	Mediator	Indirect effects	95% CI	Effect size (completely standardized)
Pre-test – Week 1	Psychological Detachment (Week 1)	-0.101	-0.35; 0.40	-0.051
Pre-test – Week 2	Psychological Detachment (Week 2)	0.046	-0.12; 0.19	0.049
Pre-test – Week 3	Psychological Detachment (Week 3)	0.025	-0.08; 0.36	0.024
Pre-test – Post-test	Psychological Detachment (Post-test)	0.077	-0.05; 0.20	0.0994

Note. Pre-test = T1, Week 1 = T2, Week 2 = T3, Week 3 = T4, Post-test = T5

Effects of Well-being mediated by Psychological Detachment

By analyzing psychological detachment as mediator in well-being relations, we did not find any significant effects. Therefore, hypothesis 11 could not be confirmed. Table 11 demonstrates values and confidence intervals for all weeks.

Nevertheless, we could reveal a significant relation between psychological detachment and well-being at week 2 (b = 0.35, p<0.001, CI [0.18; 0.52]) indicating a positive correlation.

Table 11

Mediation Analysis: Well-being → Psychological Detachment → Well-being

Time of measurement	Mediator	Indirect effects	95% CI	Effect size (completely standardized)
Pre-test – Week 1	Psychological Detachment (Week 1)	-0.001	-0.03; 0.06	-0.001
Pre-test – Week 2	Psychological Detachment (Week 2)	-0.000	-0.13; 0.09	-0.000
Pre-test – Week 3	Psychological Detachment (Week 3)	-0.012	-0.08; 0.09	-0.014
Pre-test – Post-test	Psychological Detachment (Post-test)	0.052	-0.02; 0.17	0.059

Note. Pre-test = T1, Week 1 = T2, Week 2 = T3, Week 3 = T4, Post-test = T5

Effects of Job Satisfaction mediated by Psychological Detachment

We analyzed psychological detachment as possible mediator regarding job satisfaction at all times of measurement but could not find any mediation effects. Therefore, hypothesis 12 could not be confirmed. Table 12 represents indirect effects for all measures regarding psychological detachment and job satisfaction.

However, correlation analysis showed a positive interrelation between psychological detachment and job satisfaction in week 3 (b = 0.37, p<0.001, CI [0.20; 0.53]).

Table 12

Mediation Analysis: Job Satisfaction → Psychological Detachment → Job Satisfaction

Time of measurement	Mediator	Indirect effect	95% CI	Effect size (completely standardized)
Pre-test – Week 1	Psychological Detachment (Week 1)	0.069	-0.13; 0.18	0.061
Pre-test – Week 2	Psychological Detachment (Week 2)	0.009	-0.09; 0.13	0.008
Pre-test – Week 3	Psychological Detachment (Week 3)	0.129	-0.18; 0.36	0.106
Pre-test – Post-test	Psychological Detachment (Post-test)	0.087	-0.13; 0.27	0.068

Note. Pre-test = T1, Week 1 = T2, Week 2 = T3, Week 3 = T4, Post-test = T5

Further notable results

Regarding week 1 most used exercises were "*Chillax Muskelspiel*" (M = 1.57; SD = 1.61) and "*8sam Atmen*" (M = 1.78; SD = 0.72) corresponding on a scale of 5. Additionally, they received also the highest positive appraisal rate: "*Chillax Muskelspiel*" (M = 3.45; SD = 1.06) and "*8sam Atmen*" (M = 3.4; SD = 0.99), respectively.

Resilience and self-efficacy for recovery were both assessed at pre-test and at post-test in order to check if there was an enhancement. T-test comparison revealed no significant changes between the measurements (see table 13 for more details) though there was a slight tendency towards improvement.

Table 13
Mean Comparison T-test of Resilience and Self-efficacy for Recovery

	n	M	SD	p
Resilience Pre-test	44	3.19	0.70	0.33
Resilience Post-test	44	3.28	0.53	
Self-efficacy for Recovery Pre-test	44	2.74	0.57	0.83
Self-efficacy for Recovery Post-test	44	2.76	0.60	

Note. M = mean, SD = standard deviation, p = significance

Control Variables

We found significant correlations between some outcome variables measured at pre-test and demographic variables which were considered as possible covariate variables in our analyses. Participants' sex correlated with need for recovery ($r = -0.35$, $p < .01$) possibly due to a strong imbalance of female and male participants in our study. Further, age ($r = -0.37$, $p < .01$) and job tenure ($r = -0.33$, $p < .01$) correlated with need for recovery as well. Participants' work-related stress was significantly associated with their education level ($r = -0.34$, $p < .01$). Moreover, holding a leading position and well-being were slightly correlated ($r = -0.28$, $p = 0.02$) and job satisfaction was associated with participants' job position ($r = 0.26$, $p = 0.03$). However, no control variable correlated at all times of measurement thus by including them into our analyses they made no difference in our hypothesized relations between independent and dependent variables.

Taken together, hypotheses *H1, H1a, H2b, H2d, H4d* and *H5* were significant whereas the others could not be supported by our statistical results, so only a fifth of our hypotheses was accepted.

Discussion

There is a growing interest in the effectiveness of mindfulness-based treatments which addresses stress reduction and well-being improvement. Following empirical evidence suggesting that web-based, specifically app-based interventions can be effectively delivered (Heber et al., 2016; Pauls et al., 2016; Querstret et al., 2017), in the present study we explored the effectiveness of a mindfulness-based relaxation app intervention. Taken together, results of the present study indicated support for six of the 28 hypotheses (including sub-hypotheses) tested. Since we considered many different times of measurement and analyzed influences on every single outcome variable for each mediator and moderator, we indeed found some effects. In that way, we were also able to discover when exactly and under which conditions the intervention started being effective for participants.

The main findings of the current study substantiated our initial hypothesis that the intervention would directly reduce the need for recovery, namely from pre-test to week 3 and further to post-test with medium size effect. This shows that the exercises indeed had a recovery supportive influence on participants. Besides that, frequent use of exercises moderated relations in need for recovery as the higher the usage the lower the need for recovery but only in week 3. As anticipated, participants who carried out the exercises on a regular basis indeed showed an improvement in recovery relations. However, since the effect is significant only at week 3, we can assume that a specific duration of learning must lapse in order to gain relevant enhancements. Nevertheless, incorporating the frequency of use was a good choice since it acted as an intensifier on the relation we wanted to emphasize.

Moreover, as discussed extensively in the introduction mindfulness was expected to mediate the differences in outcomes over time. The intervention should enhance awareness, which in turn should lead to an increase in positive and decrease in negative outcomes, respectively. Indeed, mindfulness was revealed as a mechanism underlying changes in need for recovery. It was shown to be a significant mediator related to need for recovery changes in week 2 and in week 3 compared to baseline scores. These findings are in line with evidence from other mindfulness-based interventions supporting mindfulness to facilitate recovery processes due to better recognizing current needs (Feicht et al., 2013;

Hülsheger et al., 2014). Obviously, the need for recovery was the outcome indicating constant effects in all analyses which revealed informative findings about the effectiveness of the intervention.

Contrary to our expectations, work-related stress did not change significantly over time directly but when having a look at the trend chart, we could indicate a decrease from week 3 on. Further, as we analyzed moderating effects on that relation we could indeed reveal significant findings. Noteworthy in this regard, there is no need for a previous main effect between the dependent and independent variable in order to conduct moderation or mediation analyses (Sweet & Grace-Martin, 2011; Zhao, Lynch, & Chen, 2010). In the means of mediation, the previously missing main effect can be equalized to total effects in mediating analyses (Zhao et al., 2010). In the means of moderation, interaction effects may be interpreted though when the missing main effect might be explained by obtaining almost similar scores in these variables (Sweet & Grace-Martin, 2011). This issue is indeed in line with our hypotheses since we measured the same variables as independent and dependent variable only at different times. Therefore, we were eligible to conduct mediation and moderation analyses without needing previous significant main effects. In that sense, our findings demonstrated self-efficacy for recovery moderating relations in work-related stress from pre-test to week 1. In line with that, self-esteem was previously investigated as an important moderator in the relation between stress relieving techniques such as progressive muscle relaxation and perceived stress in participants (Tavousi, 2014). Therefore, the reliability on one's ability to recover is crucial for achieving stress reduction. Analyses showed, if participants' self-efficacy for recovery was low at pre-test, work-related stress did not decrease in a relevant manner in the next week.

Further, the appraisal of exercise also moderated a change in scores in week 2 regarding work-related stress. Remarkably, participants with an initially low work-related stress showed an increased stress level as they rated the exercises as more unpleasant than pleasant. This finding supports the person-intervention-fit approach (Howells et al., 2016) which postulates that participants' desires have to fit the intervention exercises otherwise the intervention can even lead to impaired outcomes.

However, work-related stress was not mediated by mindfulness although mindfulness might facilitate stress processing (Brown et al., 2007; Jayawardene et al., 2016; Kabat-Zinn, 2003; Weinstein et al., 2009). This could be explained by the fact that negative thoughts may be recognized more intensively as well (Brooker et al., 2013) which in turn might lead to no improvement in stress levels.

Similarly, although mindfulness is inherently linked to well-being, we neither found a main effect of, nor moderating or mediating effects on well-being relations. Nevertheless, an increase in scores was revealed in week 3 and post-test. Indeed, as argued by Lyumbomirsky and Layous (2013) people who showed lower scores in well-being would probably benefit more from the intervention based on positive psychology. However, participants in this study probably started the intervention with already high scores in well-being thus no significant improvement could be indicated. Moreover, on closer inspection, previous studies investigating well-being factors included aspects of the PERMA[5] Model developed by Seligman (2011) basing their program more on positive psychological exercises such as gratitude (Neumeier et al., 2017) and positive reflections about work (Meier, Cho, & Dumani, 2017) as they revealed significant enhancement in well-being outcomes. However, one study also did not find an improvement in positive affective states instead an increase in negative affectivity through mindfulness-based intervention was reported (Brooker et al., 2013). However, our module was predominantly targeted to facilitate relaxation and recovery in participants rather than to improve affective states. Perhaps a longer intervention duration would have yielded significant effects as well-being scores have already risen from week 3.

Furthermore, there was no significant difference of job satisfaction over time. In accordance with these findings, stress management techniques could not improve job satisfaction in past interventions though they stood in positive relation to each other (Kröll, Doebler, & Nüesch, 2017). Further, a study showed no significant difference on the variables stress and job satisfaction after an online delivered 4-week program either (Shimazu, Kawakami, Irimajiri, Sakamoto, & Amano, 2005). Perhaps, more likely job characteristics such as new flexible work arrangements would have enhanced and predicted job satisfaction in workers as these are proven to have a huge impact (Kröll et al., 2017). However, self-efficacy

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[5] PERMA = (Positive emotion, Engagement, positive Relationships, Meaning, and Accomplishment)

for recovery moderated job satisfaction from pre-test to post-test but in an unexpected way. Theoretically, we expected this pathway to be of the opposite direction: our analyses revealed participants who had low job satisfaction at pre-test and low self-efficacy for recovery at both pre- and post-test indeed showed a slightly increase in job satisfaction at post-test. Similarly, participants who had a high job satisfaction at pre-test showed a strong decrease at post-test but only when their self-efficacy for recovery was high. A plausible yet cautious explanation for that finding may be as follows: workers who previously felt satisfied with their job and indicated to have a high self-efficacy for recovery probably devoted more energy to recovery-related activities during the intervention phase which resulted in a neglect of their job. According to the *Conservation of Resources Model* (Hobfoll, 1989) these individuals might rather invest their regained resources in non-work activities than in work issues which might result in a drop of job satisfaction.

Against our expectations and previous findings that have reported psychological detachment to be a relevant variable and even a profound mediator in the relation of recovery- and stress-related outcomes (Hülsheger et al., 2014; Jain et al., 2007; Michel et al., 2014), we found no significant mediation effects in this regard. In fact, Hülsheger et al. (2015) could also not reveal effects on psychological detachment as they investigated the influence of mindfulness-based exercises on recovery processes in their study. A possible explanation could be that our sample consisted of people who were already able to detach from their work stress before the intervention since we did not recruit highly stressed participants thus no improvement was detectable.

However, we could reveal dynamic interplays between the outcome variables. Psychological detachment showed medium correlations with need for recovery at all measurements except in week 1. Further, it was correlated with well-being and at least one time with job satisfaction in week 3. The relation between psychological detachment and well-being showed a similar pattern, although slightly lower magnitudes than the relation between psychological detachment and need for recovery. In fact, other studies could not find any correlation between psychological detachment and affective states (Hülsheger et al., 2015; Sonnentag & Binnewies, 2013) also not when measuring it on a weekly basis (Fritz et al., 2010) as we did. However, earlier studies found psychological

detachment to mediate the relationship between job demands and well-being related outcomes such as life satisfaction (Safstrom & Hartig, 2013). Possibly, psychological detachment was not rightly placed in our research context since it is stronger embedded in job relations. For example, researchers found psychological detachment to be influenced by the work itself (Hülsheger et al., 2014) thus more variables assessing participants' job characteristics might have been illuminating in this regard.

There is daily change in the ability to be mindful and to detach mentally (Snippe et al., 2015). According to Hülsheger et al. (2014) the individuals' mean level of mindfulness explained whether an individual was able to detach from work or not. Retrospectively, it would have been more useful to include psychological detachment as an outcome variable rather than a mediator, since studies showed that mindfulness had an influencing effect on reduced ruminative thinking (Querstret et al., 2017) which is related to psychological detachment. Eventually, there is a more complex and reciprocal intercorrelation between these variables as we assumed. Further, psychological detachment may not happen by itself but requires effort to be invested in order to achieve a recovery state (Sonnentag & Fritz, 2015). Participants had to invest time and energy to benefit from the exercises. However, probably not all of them did also due to short intervention duration. They had to integrate the newly learned exercises into their daily life (Eisen et al., 2008). As revealed by a focus group discussion, participants described stress reduction as a challenge to self-care but relying on individual responsibility to attain it (McGarriagle & Walsh, 2011).

Moreover, resilience and self-efficacy for recovery were assessed at pre-test and post-test, as they are trainable abilities having the possibility to increase due to the intervention exercises (Kemper & Khirallah, 2015). Comparison analyses showed no significant differences in scores, however there were slight increases. Similarly, this was observed in a mindfulness-based intervention measuring resilience before and after the intervention phase, revealing a tendency towards improvement, but no significant difference (Fortney et al., 2013). Nevertheless, while self-efficacy acted as moderator in work-related stress and job satisfaction relations, resilience did not moderate any relation at any time of measurement. The most plausible explanation for that occurrence is that resilience

is only influencing recovery relations in a noticeable manner when high stress phases are currently present since it is a trait that plays an important role in times of high adversity (Hobfoll et al., 2015). It is assumed that the sample probably did not consist of people who had to struggle with such issues during the intervention and therefore their resilience scores could not moderate outcome relations. This possible explanation stands in line with our findings that for instance self-efficacy for recovery, which only refers to daily hassles hence less intense stressors, could indeed show some significant interactions.

The program used in this study was customized to fit the participants' needs regarding psychoeducation and helpful advice on how to handle stress in a more constructive way. Our findings suggested a three-week intervention to be sufficient in order to result in significant findings as also previously demonstrated for example in reducing stress among students (Jain et al., 2007) and enhancing recovery in employees (Michel et al., 2014). Putting aside that most of our hypotheses could not be accepted, we still generated valuable findings namely that the intervention did improve participants' need for recovery. We also found mindfulness to have a mediating function between need for recovery scores and to stand in high correlation with all the other outcomes. Besides that, we could reveal that our moderators self-efficacy for recovery, frequent use and appraisal of exercise, even if not all the time, at least at one stage intensify some relations.

Altogether, eleMental App represents an appealing app-intervention with an intentional lack of seriousness regarding the topics stress and relaxation in order to create relief and ease among users. Unfortunately, it is still not possible to argue what the specific reason for the observed recovery improvement is. Perhaps it is the often-claimed "mindfulness" itself, but since the "Chillax Zone" consists of many different exercises and many other components played a role it was not possible to cause a specification. Through the increase in mindfulness, the awareness of current stress rises as well (McGarriagle & Walsh, 2011) enabling a better evaluation of one's need for recovery. The exercises were not only comprised of sitting meditation but also of elements of progressive muscle relaxation (somatic exercises). Hence this combination of actively changing physical states and changing nothing at all yielded a promising tool for improving

mindfulness, supporting recovery and reducing stress symptoms also shown in previous research (Gao et al., 2018).

Admittedly, most of the apps available on the market are mostly economically driven (Donker et al., 2013). Nonetheless, as health-related issues have become a main topic in today's society a large variety of "survival kits" have been generated in order to help affected people to master life better. As we described in the results, mindfulness correlated with all the outcome variables at least at some stages of time. However, we still do not know exactly how mindfulness really influences the outcomes since several possible pathways could be considered through which mindfulness might affect psychological processes - such as stress perception (Brown & Ryan, 2007). Previous studies also showed that workers who were devoted to the intervention and wanted to enhance their well-being finally did, whereas those who dropped out obtained fewer positive effects out of it (Ouweneel et al., 2013). So, if participants will not continue practicing the exercises positive effects would only be temporary and not detectable in follow-ups anymore.

Practical Relevance and Implications

Given the reality of work-related stress it is certainly necessary to develop interventions for affected workers. Therefore, more research addressing this issue is necessary, as high stress rates are not only detrimental for workers but are also very expensive for the organization and the economy. The purpose of this study can be warranted regarding the call for more evidential research of mental health apps (Donker et al., 2013).

As argued earlier, if workers regularly practice relaxation exercises, they may reduce their stress level substantially (Chiesa & Serretti, 2009). Such mobile-based interventions have high accessibility and are especially attractive for young people for whom smartphone technology and the usage of apps is prevailing however they also remain appropriate for older users. Although, old Buddhistic traditions are no longer mystic and unapproachable for Western societies, many people are still suspicious when it comes to meditation. Nevertheless, there is an acceptance for stress reduction programs within lay people (Ahtinen et al., 2013; Duarte & Pinto-Gouveia, 2016; Ebert et al., 2014) and a willingness to attend.

Emphasizing again the current issue of stress among workers, there are not enough therapists and coaches to help every single worker, since almost everybody is affected by stress now and then. The point is, workers' occasional distress is indeed unpleasant and might lead to several detrimental consequences in the long-run thus it needs to be treated immediately. Furthermore, workers might feel stigmatized when going to a specialist, confessing that they cannot handle their stress on their own anymore and may be plagued with feelings of shame (Ryan et al., 2017). This interface of people is a perfect target group for such (self-help) app-based interventions. It is simply more convenient (Ebert et al., 2014) especially for busy but digitally accessible (Jayawardene et al., 2016) happiness seeking people (Howells et al., 2016).

Limitations

Several limitations of the present study must be mentioned. Firstly, our study is lacking internal control as it was a field study. However, it has high ecological validity. The participants of the present study were predominantly female, well-educated backgrounded and constituted a self-selecting sample. This is not necessarily harmful since these individuals probably represent target users for this kind of app intervention in reality. Another weakness of our study is that we relied on only one modality to collect data (survey questionnaires). Additionally, our findings relied on self-reported measures using subjective not objective instruments thus social desirability in responding behavior could not be excluded. Further, outcome variations could not be attributed to the intervention exercises since we only conducted a one group intervention without control group, missing the RCT (Randomized Controlled Trial) as the "gold standard" (Sullivan, 2011). The lack of control group made it difficult to interpret the results in this intervention context since we could not assess whether the app exercises influenced the outcomes or if the changes were caused by other external variables. It is possible that effects that were supposedly revealed from the intervention itself are triggered by different non-specific external factors that could also not be controlled for in the study such as social factors or expectation of benefit (Gu et al., 2018). Despite hiding the hypotheses of the intervention from the participants, it was quite clear for them what the intervention aimed for, namely reducing stress and enhancing relaxation possibly leading to expectation biases. Not to be ignored in this manner,

even though participants could tailor the intervention in their preferable way, they were restricted to ten exercises. In future, they should be given more variability. Besides that, a guided intervention with an eCoach could have been more helpful providing participants with clear instructions (Heber et al., 2016). Nevertheless, an unguided intervention should demonstrate improved outcomes compared to no treatment at all (Ebert et al., 2014). Additionally, a review posited no significant difference between unguided and guided interventions (Carolan, Harris, & Cavanagh, 2017). Furthermore, the sample was recruited conveniently not probabilistically and was self-selective. This implies that maybe those who participated found meditation and the topic itself more appealing than others did. Moreover, three intensive weeks of intervention, were perhaps not enough to capture decisive changes in all the outcomes. However, a one-shot MBSR therapy session yielded valuable changes in psychological (affective state) and physiological (heart rate) outcomes among stressed college students with medium size effects (Dolbier & Rush, 2012). Additionally, even a brief 1-hour online intervention reduced participants stress level (Kemper & Khirallah, 2015) as well as another 4-week mobile-intervention did (Ahtinen et al., 2013). Hence, it is still reasonable to provide even short interventions to stressed people.

Ideas for Future Research

Although, our findings did not give support to all hypotheses, they lead to important implications for future research and practice since there is still much to investigate in this field.

Firstly, a comparison between intervention group and wait-list control group, possibly also categorizing subgroups by age, education or any other segmentation that seems to be applicable and useful in the research context, could lead to relevant intervention effects. Moreover, comparing app-based intervention groups with face-to-face intervention group or with another active group doing other tasks during intervention phase (Economides et al., 2018) could lead to relevant findings as well. Also, it is important to focus on long-term effects of the intervention on stress perception, for example including follow-up tests. In this regard, investigating long-term practitioners would be recommended.

Future research should also not miss the opportunity to investigate interventions when delivered at the workplace since there is already evidence for

effectiveness (Neumeier et al., 2017). Noteworthy, an interesting study investigating resilience at the workplace, focused not on the individual but on the whole team (Bennett, Neeper, Linde, Lucas, & Simone, 2018). Since we could not find any effect of resilience, this approach might lead to relevant findings. The idea is quite new and has only been applied and investigated in two different studies so far (Bennett et al., 2018; Kim et al., 2018). Normally, most of the web-based interventions are individual-focused (Ryan et al., 2017). Building on that, investigating spill-over effects (Sonnentag & Binnewies, 2013) would disclose far-reaching influence of variables in the context of work and private life also considering workers' preferences to either segment or integrate their life domains (work and private life). Interestingly, mindfulness was shown to act as cognitive-emotional segmentation strategy so that participants were able to set boundaries between work and private life, thus better in handling stress and detaching from work (Michel et al., 2014).

Including physiological measures such as heart rate variability and blood pressure (Bostock et al., 2019; Roeser et al., 2013; Wolever et al., 2012) would be beneficial to study since stress is strongly related to internal body reactions. Conducting a mixed method design (Montanari et al., 2018; Weinstein et al., 2009) could improve the analyses and lead to a better understanding regarding the interventions' effectiveness and involved processes in more detail. Especially diary studies in this context are growing on attention (Cropley & Millward Purvis, 2003; Hülsheger et al., 2012; Sonnentag & Binnewiese, 2013).

Since all four modules of eleMental App have already been evaluated separately from each other within the scope of other master's theses, investigating with all four modules together in a randomized control design would facilitate direct comparison of each module's effectiveness.

Another recommendation is to integrate a personal coach ("eCoach") into the eleMental App since significantly higher effect sizes for guided interventions than for unguided or self-guided interventions were shown previously (Spijkerman & Bohlmeijer, 2016). Further, developers should consider inserting more configurative options for example a female voice. Users' feedback will be helpful to set better interventions regarding person-intervention-fit (Howells et al., 2016). In that spirit, exercises should be customized for workers' specific needs because the

origin of their stress lies within elsewhere the coping strategies also have to be modified and adapted individually.

We only assessed job satisfaction as an organizational reference, but it would be interesting if there are further organizational relations such as job performance or work engagement that are also influenced through carrying out the app exercises since mindfulness could show to have an influence on those outcomes as well (Koncz et al., 2016). Furthermore, researching any improvement or impairment of work variables such as absenteeism and job performance (Hafenbrack, 2017; Kröll et al., 2017) could also yield interesting results.

Lastly, this study only examined German and Austrian participants, as for our purpose of research it was sufficient since we only wanted to investigate the effectiveness within German speaking population. However, for establishing generalizability of the current findings in the regard of mindfulness-based online interventions, future research should investigate other cultures possibly by adding an English version of the audios.

Conclusion

There is still a need to expand on the research body regarding different methods of relaxation app interventions and our study provides a relevant contribution. Online mindfulness interventions based on positive psychology have successfully been used to reduce stress (Gu et al., 2018; Querstret et al., 2017) and enhance well-being (Howells et al., 2014; Neumeier et al., 2017) by acting in a preventive manner (Ahtinen et al., 2013). Nevertheless, as mentioned in previous studies, for assessing the effectiveness of an intervention adequately, a longer intervention duration is necessary (Montanari et al., 2018) since individuals need time to ritualize the exercises into their daily life and absorb noticeable changes. We only conducted a short intervention phase, but we obtained statistical significance regarding need for recovery in week 3 and in post-test therefore a longer intervention phase could have revealed differences over time in the other variables as well. Yet, statistically significant findings should be interpreted cautiously because of the multiple comparisons we did hence considering the exploratory nature of this study. Furthermore, mediators and outcomes were partially measured at the same point in time, thus we need to be careful about the strength of any causal claims. However, such findings raise the possibility of

providing mental health improvement through web-based interventions, particularly through a mobile device (Donker et al., 2013; Howells et al., 2016). The current study showed that even a brief intervention may have an influence on participants' need for recovery. Additionally, mindfulness was indicated as potent mediator in relations of recovery.

Finally, an important strength of our research is it being a field study in a naturalistic context thus we reached more authenticity getting results that might be generalizable for the real app users.

Learning more about the potential of app-based interventions for workers' mental health may be crucial when it comes to developing health programs for employees in organizations. It is in researchers' hands to develop and test interventions for workers providing useful help to them.

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Appendix A – Abstract German

Die Forschung in der Psychologie hat Achtsamkeit als Interventionsansatz für Stressreduktion angenommen und akzeptiert. Während bisherige Forschungen schon ausgiebig die Wirksamkeit von persönlich abgehaltenen achtsamkeitsbasierten Interventionen untersucht haben, steht die Überprüfung von onlinebasierten Achtsamkeitsinterventionen im arbeitspsychologischen Kontext noch ganz am Anfang. Aus diesem Grund widmet sich die aktuelle Studie einer Evaluierung der Durchführbarkeit und Wirksamkeit einer achtsamkeitsbasierten, entspannungs-fördernden App-Intervention. Als Untersuchungsgegenstand wurde ein Modul der eleMental App anhand einer Langzeitstudie in der Arbeitspopulation untersucht. Es wurden insgesamt fünf Fragebögen versendet (Prä-Test, drei wöchentliche Fragebögen und Post-Test). Insofern war es möglich statistisch relevante Variationen in den Hauptvariablen zu erforschen. An der Studie nahmen 74 Versuchspersonen teil, welche sich bereit erklärten, mindestens drei Übungen pro Woche, innerhalb der dreiwöchigen Interventionsphase zu absolvieren. Die Hauptvariablen, die untersucht wurden, waren Erholungsbedürfnis, arbeitsbezogener Stress, Wohlbefinden und Arbeitszufriedenheit. Des Weiteren wurden zwei Mediatoren - Achtsamkeit und mentales Abschalten – sowie vier Moderatoren - Resilienz, erholungsbezogene Selbstwirksamkeit, Häufigkeit der Nutzung und Bewertung der Übungen ins Modell eingebunden. Die Hauptergebnisse der Studie zeigten, dass das Erholungsbedürfnis der Versuchspersonen in der dritten Interventionswoche und im Post-Test signifikant gesunken war sowie dass dieser Effekt von Achtsamkeit mediiert wurde. Mentales Abschalten mediierte keinen der Effekte. Des Weiteren zeigten die Moderationsanalysen einen moderierenden Effekt von der Häufigkeit der Nutzung auf das Erholungsbedürfnis sowie von der Bewertung der Übungen und der erholungsbezogenen Selbstwirksamkeit auf das Stressempfinden der Versuchspersonen. Diese Ergebnisse erlauben eine Befürwortung der Wirksamkeit app-basierter Interventionen. Ideen zur praktischen Verwendung dieser Erkenntnisse werden im Diskussionsteil angeführt.

Schlüsselbegriffe: Achtsamkeit, Erholungsbedürfnis, mentales Abschalten, Resilienz, erholungsbezogene Selbstwirksamkeit, App-Intervention

Appendix B – Tables of all moderation analyses

Table 1
*Moderation effects in **Need for Recovery** over time - unstandardized regression coefficients, significance values and 95% bias-corrected confidence intervals for the moderators at different times*

Time of measure	Moderator	Coefficients (unstandardized b)	SE	t	p	CI
Pre-test – Week 1	Resilience (Pre-Test)	0.028	0.129	0.214	0.83	-0.23; 0.29
	Self-efficacy (Pre-Test)	0.101	0.117	0.858	0.40	-0.14; 0.34
	Frequent Use (Week 1)	-0.169	0.189	-0.898	0.37	-0.55; 0.21
	Appraisal (Week 1)	-			-	-
Pre-test – Week 2	Resilience (Pre-Test)	-0.006	0.182	-0.031	0.98	-0.37; 0.36
	Self-efficacy (Pre-Test)	0.193	0.176	1.097	0.28	-0.16; 0.55
	Frequent Use (Week 2)	-0.136	0.321	-0.423	0.67	-0.78; 0.51
	Appraisal (Week 2)	-0.139	0.090	-1.549	0.13	-0.32; 0.04
Pre-test – Week 3	Resilience (Pre-Test)	0.031	0.209	0.146	0.88	-0.40; 0.46
	Self-efficacy (Pre-Test)	0.262	0.192	1.365	0.18	-0.13; 0.65
	Frequent Use (Week 3)	-1.236	0.578	-2.137	0.04*	-2.41; -0.06
	Appraisal (Week 3)	0.225	0.137	1.644	0.11	-0.05; 0.50
Pre-test – Post-test	Resilience (Pre-Test)	0.029	0.157	0.187	0.85	-0.29; 0.35
	Self-efficacy (Pre-Test)	-0.149	0.168	-0.889	0.38	-0.49; 0.19
	Resilience (Post-Test)	0.036	0.204	0.174	0.86	-0.38; 0.49
	Self-efficacy (Post-Test)	-0.246	0.169	-1.453	0.15	-0.59; 0.09

Note. Pre-test = T1, Week 1 = T2, Week 2 = T3, Week 3 = T4, Post-test = T5, * = statistically significant

Table 2
*Moderation effects in **Work-related Stress** over time - unstandardized regression coefficients, significance values and 95% bias-corrected confidence intervals for the moderators at different times*

Time of measure	Moderator	Coefficient (unstandardized b)	SE	t	p	CI
Pre-test – Week 1	Resilience (Pre-Test)	-0.164	0.298	-0.548	0.59	-0.78; 0.44
	Self-efficacy (Pre-Test)	-0.979	0.276	-3.187	0.00*	-1.44; -0.32
	Frequent Use (Week 1)	-0.022	0.244	-0.090	0.93	-0.51; 0.47
	Appraisal (Week 1)	-			-	-
Pre-test – Week 2	Resilience (Pre-Test)	0.230	0.159	1.445	0.16	-0.09; 0.55
	Self-efficacy (Pre-Test)	-0.095	0.176	-0.539	0.59	-0.45; 0.26
	Frequent Use (Week 2)	0.007	0.226	0.031	0.98	-0.45; 0.46
	Appraisal (Week 2)	-0.193	0.069	-2.816	0.01*	-0.33; -0.05
Pre-test – Week 3	Resilience (Pre-Test)	0.135	0.217	0.622	0.54	-0.31; 0.58
	Self-efficacy (Pre-Test)	0.139	0.202	0.688	0.50	-0.27; 0.55
	Frequent Use (Week 3)	-0.959	0.531	-1.807	0.08	-2.04; 0.12
	Appraisal (Week 3)	-0.084	0.128	-0.659	0.51	-0.34; 0.18
Pre-test – Post-test	Resilience (Pre-Test)	0.119	0.147	0.817	0.42	-0.18; 0.42
	Self-efficacy (Pre-Test)	-0.154	0.195	-0.792	0.43	-0.55; 0.24
	Resilience (Post-Test)	0.062	0.219	0.284	0.78	-0.38; 0.51
	Self-efficacy (Post-Test)	-0.236	0.204	-1.159	0.25	-0.65; 0.18

Note. Pre-test = T1, Week 1 = T2, Week 2 = T3, Week 3 = T4, Post-test = T5, * = statistically significant

Table 3

*Moderation effects in **Well-being** over time - unstandardized regression coefficients, significance values and 95% bias-corrected confidence intervals for the moderators at different times*

Time of measure	Moderator	Coefficient (unstandardized b)	SE	t	p	CI
Pre-test – Week 1	Resilience (Pre-Test)	0.023	0.157	0.148	0.88	-0.29; 0.34
	Self-efficacy (Pre-Test)	-0.051	0.146	0.348	0.73	-0.35; 0.24
	Frequent Use (Week 1)	0.116	0.215	0.538	0.59	-0.32; 0.55
	Appraisal (Week 1)	-	-	-	-	-
Pre-test – Week 2	Resilience (Pre-Test)	0.008	0.167	0.049	0.96	-0.33; 0.35
	Self-efficacy (Pre-Test)	0.082	0.179	0.459	0.65	-0.28; 0.44
	Frequent Use (Week 2)	0.033	0.308	0.107	0.91	-0.59; 0.65
	Appraisal (Week 2)	0.059	0.099	0.595	0.56	-0.14; 0.26
Pre-test – Week 3	Resilience (Pre-Test)	0.162	0.197	0.822	0.42	-0.24; 0.56
	Self-efficacy (Pre-Test)	0.101	0.185	0.546	0.59	-0.28; 0.48
	Frequent Use (Week 3)	-0.262	0.749	-0.349	0.73	-1.78; 1.26
	Appraisal (Week 3)	-0.060	0.175	-0.343	0.73	-0.42; 0.29
Pre-test – Post-test	Resilience (Pre-Test)	0.104	0.191	0.546	0.59	-0.28; 0.49
	Self-efficacy (Pre-Test)	-0.150	0.252	-0.597	0.55	-0.66; 0.36
	Resilience (Post-Test)	0.158	0.278	0.567	0.57	-0.41; 0.72
	Self-efficacy (Post-Test)	-0.195	0.249	-0.782	0.44	-0.70; 0.31

Note. Pre-test = T1, Week 1 = T2, Week 2 = T3, Week 3 = T4, Post-test = T5

Table 4
*Moderation effects in **Job Satisfaction** over time - unstandardized regression coefficients, significance values and 95% bias-corrected confidence intervals for the moderators at different times*

Time of measure	Moderator	Coefficient (unstandardized b)	SE	t	p	CI
Pre-test – Week 1	Resilience (Pre-Test)	0.267	0.257	1.039	0.31	-0.25; 0.79
	Self-efficacy (Pre-Test)	0.242	0.209	1.162	0.25	-0.18; 0.66
	Frequent Use (Week 1)	0.117	0.103	1.142	0.26	-0.09; 0.32
	Appraisal (Week 1)	-	-	-	-	-
Pre-test – Week 2	Resilience (Pre-Test)	0.012	0.262	0.046	0.96	-0.52; 0.54
	Self-efficacy (Pre-Test)	-0.132	0.228	-0.575	0.57	-0.59; 0.33
	Frequent Use (Week 2)	0.487	0.627	0.777	0.44	-0.78; 1.75
	Appraisal (Week 2)	-0.129	0.159	-0.809	0.42	-0.45; 0.19
Pre-test – Week 3	Resilience (Pre-Test)	0.155	0.268	0.577	0.57	-0.39; 0.70
	Self-efficacy (Pre-Test)	-0.341	0.215	-1.588	0.12	-0.78; 0.09
	Frequent Use (Week 3)	0.750	0.603	1.244	0.22	-0.48; 1.98
	Appraisal (Week 3)	0.052	0.149	0.349	0.73	-0.25; 0.36
Pre-test – Post-test	Resilience (Pre-Test)	0.315	0.329	0.959	0.34	-0.35; 0.98
	Self-efficacy (Pre-Test)	-0.725	0.267	-2.714	0.01*	-1.27; -0.18
	Resilience (Post-Test)	0.262	0.308	0.848	0.40	-0.36; 0.89
	Self-efficacy (Post-Test)	-1.325	0.268	-4.941	<.001*	-1.87; -0.78

Note. Pre-test = T1, Week 1 = T2, Week 2 = T3, Week 3 = T4, Post-test = T5, * = statistically significant

Appendix C - Eidesstattliche Erklärung

Eidesstattliche Erklärung

Ich versichere, dass ich die vorliegende Masterarbeit selbst verfasst und dazu keine anderen als die angeführten Quellen verwendet habe, und dass die Arbeit in gleicher oder ähnlicher Form noch keiner anderen Prüfungsbehörde vorgelegen hat. Alle Ausführungen der Arbeit, die wörtlich oder sinngemäß übernommen wurden, sind als solche gekennzeichnet.

Wien, am: Unterschrift: _____

Kim Teixeira Hoogestraat

Appendix D - Questionnaires

Liebe/r TeilnehmerIn,

vielen Dank für dein Interesse und Engagement an meiner Untersuchung teilzunehmen!

Diese besondere Studie hat zum Ziel, die Wirksamkeit der Übungen aus dem Modul „Chillax Zone" auf das Stresserleben der TeilnehmerInnen zu untersuchen.

In Kooperation mit Herrn Dr. Bardia Monshi, vom Institut für Vitalpsychologie, führe ich, Kim Hoogestraat, Studentin an der Universität Wien, diese Untersuchung zum Thema *„Wirksamkeit einer App-basierten Intervention im Arbeitskontext"* durch.

Bei der Beantwortung der Fragen gibt es keine richtigen und falschen Antworten – es zählt lediglich dein individuelles Befinden.

Die Bearbeitung des Fragebogens dauert etwa **10-15 Minuten**. Nimm dir bitte ausreichend Zeit und versuche Ablenkungen und Störungen zu vermeiden.

Die Daten werden nur für wissenschaftliche Forschungszwecke verwendet. Die Auswertung erfolgt anonym und unter Einhaltung der gesetzlichen Vorschriften des Datenschutzes.

DEIN PERSÖNLICHER CODE

Ich bitte dich deinen eigenen Code zu generieren, den nur du kennst. Damit können wir deine Daten der Befragungen (insgesamt 5 Fragebögen) unter Wahrung deiner Anonymität zusammenführen.

Der Code besteht aus deinem Geburtstag (TT), deinem Geburtsjahr (JJ), dem ersten Buchstaben des Vornamens deiner Mutter (N) und dem ersten Buchstaben deines Geburtsortes (N).

Beispiel: Du wurdest am 06.01.1968 geboren, deine Mutter heißt Maria und dein Geburtsort lautet Düsseldorf. Dein 6-stelliger Code würde also: **06 68 M D** lauten.

Bitte erstelle hier deinen persönlichen Code.

Merke dir diesen Code gut, denn du wirst ihn bei jeder Befragung erneut angeben müssen, damit wir die Daten richtig zuordnen und zugleich Anonymität gewährleisten können!

Dein Geburtstag (TT): [____]

Dein Geburtsjahr (JJ): [____]

Der erste Buchstabe des Vornamens deiner Mutter (N): [____]

Der erste Buchstabe deines Geburtsortes (N):
[____]

CODE: [_____]

Geschlecht

○ weiblich

○ männlich

○ anderes

Seite 04

Wie alt bist du?

Ich bin [____] Jahre alt

Seite 05

Nationalität

○ Deutsch

○ Österreichisch

○ Andere [____]

Seite 06

Familienstatus

○ ledig

○ verheiratet

○ geschieden

○ verwitwet

Seite 07

Anzahl der Kinder

○ 0

○ 1-2

○ 3-4

○ 5 oder mehr

Seite 15

Inwiefern treffen folgende Aussagen auf dich zu?

Ich neige dazu, mich nach schwierigen Zeiten schnell zu erholen.

trifft völlig zu
trifft überwiegend zu
trifft mittelmäßig zu
trifft wenig zu
trifft gar nicht zu

Es fällt mir schwer, stressige Situationen durchzustehen.

trifft völlig zu
trifft überwiegend zu
trifft mittelmäßig zu
trifft wenig zu
trifft gar nicht zu

Seite 08

Welchen höchsten Bildungsabschluss hast du?

○ Pflichtschule

○ Abgeschlossene Lehre

○ Fachabitur, Fachhochschulreife

○ Abitur/Matura, Hochschulreife

○ Fachhochschul-/Hochschulabschluss

Seite 09

Wie viele Stunden arbeitest du etwa im Durchschnitt pro Woche?
Arbeitsstunden/Woche

○ <10h

○ 10-20h

○ 21-30h

○ 31-40h

○ >40h

Seite 10

In welcher Branche arbeitest du?

[Bitte auswählen] ⌄

Seite 11

In welcher Position arbeitest du hauptberuflich?

○ Angestellt

○ Selbständig

Seite 12

Hast du eine Führungsposition in deinem Job?

○ Ja

○ Nein

Seite 13

Wie lange bist du bereits in deinem aktuellen Job tätig?

[____] Jahre

Seite 14

Hast du bereits Vorerfahrungen mit Meditation und/oder Entspannungsübungen?

Sehr wenig oder gar nicht	Eher wenig	Mittel	Eher viel	Sehr viel
○	○	○	○	○

Ich brauche nicht viel Zeit, um mich von einem stressigen Ereignis zu erholen.

trifft völlig zu
trifft überwiegend zu
trifft mittelmäßig zu
trifft wenig zu
trifft gar nicht zu

Es fällt mir schwer, zur Normalität zurückzukehren, wenn etwas Schlimmes passiert ist.

trifft völlig zu
trifft überwiegend zu
trifft mittelmäßig zu
trifft wenig zu
trifft gar nicht zu

Normalerweise überstehe ich schwierige Zeiten ohne größere Probleme.

trifft völlig zu
trifft überwiegend zu
trifft mittelmäßig zu
trifft wenig zu
trifft gar nicht zu

Ich brauche tendenziell lange, um über Rückschläge in meinem Leben hinwegzukommen.

trifft völlig zu
trifft überwiegend zu
trifft mittelmäßig zu
trifft wenig zu
trifft gar nicht zu

Seite 16

Nachfolgend findest du eine Sammlung von Aussagen zu tagtäglichen Erlebnissen. Bitte gib mittels der Skala von 1 bis 6 an, wie häufig oder selten du derzeit jedes dieser Erlebnisse hast.

Inwiefern treffen die folgenden Aussagen auf dich zu?

Ich könnte ein Gefühl haben und mir dessen erst irgendwann später bewusst werden.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich zerbreche oder verschütte Dinge aus Achtlosigkeit, ohne den Dingen Aufmerksamkeit zu schenken oder weil ich an anderes denke.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich finde es schwierig, auf das konzentriert zu bleiben, was im gegenwärtigen Augenblick passiert.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich neige dazu, schnell zu gehen, um dorthin zu kommen, wo ich hingehe, ohne darauf zu achten, was ich unterwegs erlebe.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich neige dazu, Gefühle körperlicher Anspannung oder Unwohlsein nicht wahrzunehmen, bis sie meine Aufmerksamkeit vollständig in Anspruch nehmen.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich vergesse den Namen einer Person fast sofort nachdem er mir erstmals gesagt wurde.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Es sieht so aus, als würde ich "automatisch funktionieren", ohne viel Bewusstsein für das, was ich tue.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich hetze durch Aktivitäten, ohne wirklich aufmerksam für sie zu sein.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich bin so auf das Ziel konzentriert, das ich erreichen möchte, dass ich den Kontakt dazu verliere, was ich hier und jetzt tue, um dieses Ziel zu erreichen.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich erledige Aufträge oder Aufgaben automatisch, ohne mir bewusst zu sein, was ich tue.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich bemerke, wie ich jemandem nur mit einem Ohr zuhöre, während ich gleichzeitig etwas anderes tue.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich fahre zu Orten wie von einem "Autopiloten" gesteuert und frage mich dann, wie ich dorthin gekommen bin.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich bemerke, dass ich gedankenverloren der Zukunft oder der Vergangenheit nachhänge.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich bemerke, dass ich gedankenverloren der Zukunft oder der Vergangenheit nachhänge.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich merke, wie ich Dinge tue, ohne auf sie zu achten.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich esse eine Kleinigkeit, ohne mir bewusst zu sein, dass ich esse.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Gib bitte an, wie du dich in den letzten Tagen gefühlt hast.

Die folgenden Wörter beschreiben unterschiedliche Gefühle und Empfindungen.

Lies jedes Wort und trage dann bitte in die Skala unter jedem Wort die Intensität ein.

verärgert

| Sehr stark |
| Ziemlich |
| Mittelmäßig |
| Ein wenig |
| Gar nicht |

feindselig

| Sehr stark |
| Ziemlich |
| Mittelmäßig |
| Ein wenig |
| Gar nicht |

wach

| Sehr stark |
| Ziemlich |
| Mittelmäßig |
| Ein wenig |
| Gar nicht |

beschämt

| Sehr stark |
| Ziemlich |
| Mittelmäßig |
| Ein wenig |
| Gar nicht |

Inwiefern treffen folgende Aussagen auf dich zu?

„In meiner Freizeit" bzw. „Am Feierabend"

...vergesse ich die Arbeit.

| trifft völlig zu |
| trifft überwiegend zu |
| trifft mittelmäßig zu |
| trifft wenig zu |
| trifft gar nicht zu |

...denke ich überhaupt nicht an die Arbeit.

| trifft völlig zu |
| trifft überwiegend zu |
| trifft mittelmäßig zu |
| trifft wenig zu |
| trifft gar nicht zu |

...gelingt es mir, mich von meiner Arbeit zu distanzieren.

| trifft völlig zu |
| trifft überwiegend zu |
| trifft mittelmäßig zu |
| trifft wenig zu |
| trifft gar nicht zu |

...gewinne ich Abstand zu meinen beruflichen Anforderungen.

| trifft völlig zu |
| trifft überwiegend zu |
| trifft mittelmäßig zu |
| trifft wenig zu |
| trifft gar nicht zu |

angeregt

| Sehr stark |
| Ziemlich |
| Mittelmäßig |
| Ein wenig |
| Gar nicht |

nervös

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

entschlossen

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

aufmerksam

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

ängstlich

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

aktiv

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

Seite 19

Bitte gib an, wie du dich in den letzten Tagen durchschnittlich nach einem Arbeitstag gefühlt hast.

Es fällt mir schwer, am Ende eines Arbeitstages abzuschalten.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Am Ende eines Arbeitstages fühle ich mich total kaputt.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Meine Arbeit führt dazu, dass ich am Ende eines Arbeitstages ziemlich erschöpft bin.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Nach dem Abendessen fühle ich mich noch recht fit.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Ich komme erst am zweiten arbeitsfreien Tag zur Ruhe.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Es fällt mir schwer, mich in den Stunden nach Feierabend zu konzentrieren.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Wenn ich von der Arbeit nach Hause komme, fällt es mir schwer, mich auf andere einzulassen.

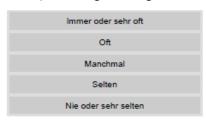| |
|---|
| Immer oder sehr oft |
| Oft |
| Manchmal |
| Selten |
| Nie oder sehr selten |

Ich brauche mehr als eine Stunde, um mich nach Feierabend wieder völlig zu regenerieren.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Wenn ich vom Arbeiten nach Hause komme, will ich einige Zeit in Ruhe gelassen werden.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Ich bin nach einem Arbeitstag so abgekämpft, dass ich es einfach nicht mehr schaffe, andere Dinge zu erledigen.

| Immer oder sehr oft |
| Oft |
| Manchmal |
| Selten |
| Nie oder sehr selten |

Meine Müdigkeit hindert mich daran, meine Arbeit am Ende eines Arbeitstages so gut zu erledigen, wie ich das gewohnt bin.

| Immer oder sehr oft |
| Oft |
| Manchmal |
| Selten |
| Nie oder sehr selten |

Seite 20

Inwiefern treffen die folgenden Aussagen auf dich zu?

Ich fühle mich durch meine Arbeit emotional erschöpft.

| Immer oder sehr oft |
| Oft |
| Gelegentlich |
| Selten |
| Nie oder sehr selten |

Ich fühle mich am Ende eines Arbeitstages verbraucht.

| Immer oder sehr oft |
| Oft |
| Gelegentlich |
| Selten |
| Nie oder sehr selten |

Ich fühle mich durch meine Arbeit ausgebrannt.

| Immer oder sehr oft |
| Oft |
| Gelegentlich |
| Selten |
| Nie oder sehr selten |

Seite 21

Die folgenden Aussagen beziehen sich auf deine Arbeitszufriedenheit.

Alles in allem bin ich zufrieden mit meinem Job.

| stimme voll zu |
| stimme eher zu |
| neutral |
| stimme eher nicht zu |
| stimme gar nicht zu |

Grundsätzlich gefällt mir mein Job nicht.

| stimme voll zu |
| stimme eher zu |
| neutral |
| stimme eher nicht zu |
| stimme gar nicht zu |

Grundsätzlich arbeite ich gerne hier.

| stimme voll zu |
| stimme eher zu |
| neutral |
| stimme eher nicht zu |
| stimme gar nicht zu |

Seite 22

Wie zuversichtlich bist du, dennoch Dinge zum Ausgleich, zur Erholung, zur Entspannung oder zum Krafttanken zu unternehmen, ...

... wenn du ärgerlich bist.

| Äußerst |
| Eher mehr |
| Unterschiedlich |
| Eher wenig |
| Gar nicht |

... wenn du während der Übung durch äußere Einflüsse (z.B. Lärm, Hitze, Kälte) gestört wirst.

| Äußerst |
| Eher mehr |
| Unterschiedlich |
| Eher wenig |
| Gar nicht |

... wenn du Sorgen hast.

| Äußerst |
| Eher mehr |
| Unterschiedlich |
| Eher wenig |
| Gar nicht |

... wenn du noch viel zu erledigen hast.

Äußerst
Eher mehr
Unterschiedlich
Eher wenig
Gar nicht

... wenn du dich niedergeschlagen fühlst.

Äußerst
Eher mehr
Unterschiedlich
Eher wenig
Gar nicht

... wenn andere Personen (z.B. Familie, Partner, Freunde) dich beanspruchen.

Äußerst
Eher mehr
Unterschiedlich
Eher wenig
Gar nicht

... wenn du dir die Zeit dafür im Tagesablauf selbst einteilen musst.

Äußerst
Eher mehr
Unterschiedlich
Eher wenig
Gar nicht

... wenn du nicht jedes Mal den erwarteten Erfolg spürst.

Äußerst
Eher mehr
Unterschiedlich
Eher wenig
Gar nicht

... wenn ein interessantes Fernsehprogramm läuft.

Äußerst
Eher mehr
Unterschiedlich
Eher wenig
Gar nicht

... wenn du müde bist.

Äußerst
Eher mehr
Unterschiedlich
Eher wenig
Gar nicht

Vielen Dank für deine Teilnahme!

Deine Antworten wurden gespeichert, du kannst das Browser-Fenster nun schließen.

Bis zum nächsten Mal - der nächste Fragebogen folgt dann am **01.04.2019!** :)

Bei Fragen oder Anmerkungen kannst du mich gerne jederzeit kontaktieren: kimhoogestraat@yahoo.de

---

Möchten Sie in Zukunft an interessanten und spannenden Online-Befragungen teilnehmen?

Wir würden uns sehr freuen, wenn Sie nicht-kommerzielle, wissenschaftliche Forschung unterstützen. Melden Sie sich hier für das SoSci Panel an:

E-Mail: [   ]

[Am Panel teilnehmen]

Die Teilnahme am SoSci Panel ist freiwillig, unverbindlich und kann jederzeit widerrufen werden.
Das SoSci Panel speichert Ihre E-Mail-Adresse nicht ohne Ihr Einverständnis, s keine Werbung und gibt Ihre E-Mail-Adresse nicht an Dritte weiter.

Sie können das Browserfenster selbstverständlich auch schließen, ohne am SoSci Panel teilzunehmen.

chillaxzone → week1   16.06.2019, 21:53

Seite 01

Liebe/r TeilnehmerIn,

nachdem du schon fleißig die Übungen des Moduls „Chillax Zone" ausprobiert hast, folgt nun die erste wöchentliche Befragung.

Einige Fragen werden dir bereits vom ersten Fragebogen bekannt vorkommen. Auch hier gilt wieder: es gibt keine richtigen und falschen Antworten – es zählt lediglich dein individuelles Befinden.

Die folgenden Fragen beziehen sich auf die vergangene Woche, außer es steht explizit etwas anderes in der Fragestellung.

Die Bearbeitung des Fragebogens dauert etwa **5 Minuten**. Nimm dir bitte kurz Zeit und versuche Ablenkungen und Störungen zu vermeiden.

Die Daten werden nur für wissenschaftliche Forschungszwecke verwendet. Die Auswertung erfolgt anonym und unter Einhaltung der gesetzlichen Vorschriften des Datenschutzes.

Danke und viel Spaß! :)

Seite 02

DEIN PERSÖNLICHER CODE

Ich bitte dich deinen eigenen Code zu generieren, den nur du kennst. Damit können wir deine Daten der Befragungen (insgesamt 5 Fragebögen) unter Wahrung deiner Anonymität zusammenführen.

Der Code besteht aus deinem Geburtstag (TT), deinem Geburtsjahr (JJ), dem ersten Buchstaben des Vornamens deiner Mutter (N) und dem ersten Buchstaben deines Geburtsortes (N).

Beispiel: Du wurdest am 06.01.1968 geboren, deine Mutter heißt Maria und dein Geburtsort lautet Düsseldorf. Dein 6-stelliger Code würde also: 06 68 M D lauten.

Bitte erstelle hier deinen persönlichen Code.

Merke dir diesen Code gut, denn du wirst ihn bei jeder Befragung erneut angeben müssen, damit wir die Daten richtig zuordnen und zugleich Anonymität gewährleisten können!

Dein Geburtstag (TT): [ ]

Dein Geburtsjahr (JJ): [ ]

Der erste Buchstabe des Vornamens deiner Mutter (N): [ ]

Der erste Buchstabe deines Geburtsortes (N): [ ]

CODE: [ ]

Ich neige dazu, schnell zu gehen, um dorthin zu kommen, wo ich hingehe, ohne darauf zu achten, was ich unterwegs erlebe.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich neige dazu, Gefühle körperlicher Anspannung oder Unwohlsein nicht wahrzunehmen, bis sie meine Aufmerksamkeit vollständig in Anspruch nehmen.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich vergesse den Namen einer Person fast sofort nachdem er mir erstmals gesagt wurde.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Es sieht so aus, als würde ich "automatisch funktionieren", ohne viel Bewusstsein für das, was ich tue.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich hetze durch Aktivitäten, ohne wirklich aufmerksam für sie zu sein.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Seite 03

Nachfolgend findest du eine Sammlung von Aussagen zu tagtäglichen Erlebnissen. Bitte gib mittels der Skala von 1 bis 6 an, wie häufig oder selten du derzeit jedes dieser Erlebnisse hast.

Inwiefern treffen die folgenden Aussagen auf dich zu?

Ich könnte ein Gefühl haben und mir dessen erst irgendwann später bewusst werden.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich zerbreche oder verschütte Dinge aus Achtlosigkeit, ohne den Dingen Aufmerksamkeit zu schenken oder weil ich an anderes denke.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich finde es schwierig, auf das konzentriert zu bleiben, was im gegenwärtigen Augenblick passiert.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich bin so auf das Ziel konzentriert, das ich erreichen möchte, dass ich den Kontakt dazu verliere, was ich hier und jetzt tue, um dieses Ziel zu erreichen.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich erledige Aufträge oder Aufgaben automatisch, ohne mir bewusst zu sein, was ich tue.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich bemerke, wie ich jemandem nur mit einem Ohr zuhöre, während ich gleichzeitig etwas anderes tue.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich merke, wie ich Dinge tue, ohne auf sie zu achten.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich esse eine Kleinigkeit, ohne mir bewusst zu sein, dass ich esse.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Inwiefern treffen folgende Aussagen auf dich zu?

„In meiner Freizeit" bzw. „Am Feierabend"

...vergesse ich die Arbeit.

trifft völlig zu
trifft überwiegend zu
trifft mittelmäßig zu
trifft wenig zu
trifft gar nicht zu

...denke ich überhaupt nicht an die Arbeit.

trifft völlig zu
trifft überwiegend zu
trifft mittelmäßig zu
trifft wenig zu
trifft gar nicht zu

...gelingt es mir, mich von meiner Arbeit zu distanzieren.

trifft völlig zu
trifft überwiegend zu
trifft mittelmäßig zu
trifft wenig zu
trifft gar nicht zu

...gewinne ich Abstand zu meinen beruflichen Anforderungen.

trifft völlig zu
trifft überwiegend zu
trifft mittelmäßig zu
trifft wenig zu
trifft gar nicht zu

Bitte gib an, wie du dich in den letzten Tagen durchschnittlich nach einem Arbeitstag gefühlt hast.

Es fällt mir schwer, am Ende eines Arbeitstages abzuschalten.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Am Ende eines Arbeitstages fühle ich mich total kaputt.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Meine Arbeit führt dazu, dass ich am Ende eines Arbeitstages ziemlich erschöpft bin.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Nach dem Abendessen fühle ich mich noch recht fit.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Ich komme erst am zweiten arbeitsfreien Tag zur Ruhe.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Es fällt mir schwer, mich in den Stunden nach Feierabend zu konzentrieren.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Wenn ich von der Arbeit nach Hause komme, fällt es mir schwer, mich auf andere einzulassen.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Ich brauche mehr als eine Stunde, um mich nach Feierabend wieder völlig zu regenerieren.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Wenn ich vom Arbeiten nach Hause komme, will ich einige Zeit in Ruhe gelassen werden.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Gib bitte an, wie du dich in den letzten Tagen gefühlt hast.

Die folgenden Wörter beschreiben unterschiedliche Gefühle und Empfindungen.

Lies jedes Wort und trage dann bitte in die Skala unter jedem Wort die Intensität ein.

verärgert

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

feindselig

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

wach

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

beschämt

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

angeregt

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

nervös

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

entschlossen

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

aufmerksam

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

ängstlich

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

aktiv

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

Bitte gib an, wie du dich in den letzten Tagen durchschnittlich nach einem Arbeitstag gefühlt hast.

Es fällt mir schwer, am Ende eines Arbeitstages abzuschalten.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Am Ende eines Arbeitstages fühle ich mich total kaputt.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Meine Arbeit führt dazu, dass ich am Ende eines Arbeitstages ziemlich erschöpft bin.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Nach dem Abendessen fühle ich mich noch recht fit.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Ich komme erst am zweiten arbeitsfreien Tag zur Ruhe.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Es fällt mir schwer, mich in den Stunden nach Feierabend zu konzentrieren.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Wenn ich von der Arbeit nach Hause komme, fällt es mir schwer, mich auf andere einzulassen.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Ich brauche mehr als eine Stunde, um mich nach Feierabend wieder völlig zu regenerieren.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Wenn ich vom Arbeiten nach Hause komme, will ich einige Zeit in Ruhe gelassen werden.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Ich bin nach einem Arbeitstag so abgekämpft, dass ich es einfach nicht mehr schaffe, andere Dinge zu erledigen.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Meine Müdigkeit hindert mich daran, meine Arbeit am Ende eines Arbeitstages so gut zu erledigen, wie ich das gewohnt bin.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Die folgenden Aussagen beziehen sich
auf deine Arbeitszufriedenheit.

Alles in allem bin ich zufrieden mit meinem
Job.

| stimme voll zu |
| stimme eher zu |
| neutral |
| stimme eher nicht zu |
| stimme gar nicht zu |

Grundsätzlich gefällt mir mein Job nicht.

| stimme voll zu |
| stimme eher zu |
| neutral |
| stimme eher nicht zu |
| stimme gar nicht zu |

Grundsätzlich arbeite ich gerne hier.

| stimme voll zu |
| stimme eher zu |
| neutral |
| stimme eher nicht zu |
| stimme gar nicht zu |

Seite 09

Wie oft hast du die folgenden Übungen
diese Woche gemacht?

Chillax Muskelspiel

| 0 | 1x | 2x | 3x oder mehr |
| ○ | ○ | ○ | ○ |

Wettentspannen

| 0 | 1x | 2x | 3x oder mehr |
| ○ | ○ | ○ | ○ |

Wettentspannen 2

| 0 | 1x | 2x | 3x oder mehr |
| ○ | ○ | ○ | ○ |

Chill & Nap

| 0 | 1x | 2x | 3x oder mehr |
| ○ | ○ | ○ | ○ |

Überdrüber-Blick

| 0 | 1x | 2x | 3x oder mehr |

Body Scan

| 0 | 1x | 2x | 3x oder mehr |
| ○ | ○ | ○ | ○ |

8sam Gefühle beobachten

| 0 | 1x | 2x | 3x oder mehr |
| ○ | ○ | ○ | ○ |

8sam Gedanken beobachten

| 0 | 1x | 2x | 3x oder mehr |
| ○ | ○ | ○ | ○ |

8sam Atmen

| 0 | 1x | 2x | 3x oder mehr |
| ○ | ○ | ○ | ○ |

Muskelspiel für Schlaf

| 0 | 1x | 2x | 3x oder mehr |
| ○ | ○ | ○ | ○ |

Seite 10

Wie haben dir die folgenden Übungen
gefallen?
Falls du die Übung (noch) nicht gemacht
hast, gib bitte „kann ich nicht beurteilen" an.

Chillax Muskelspiel

| Sehr wenig | Wenig | Akzeptabel | Gut | Sehr gut | kann ich nicht beurteilen |
| ○ | ○ | ○ | ○ | ○ | ○ |

Wettentspannen

| Sehr wenig | Wenig | Akzeptabel | Gut | Sehr gut | kann ich nicht beurteilen |
| ○ | ○ | ○ | ○ | ○ | ○ |

Wettentspannen 2

| Sehr wenig | Wenig | Akzeptabel | Gut | Sehr gut | kann ich nicht beurteilen |
| ○ | ○ | ○ | ○ | ○ | ○ |

Chill & Nap

| Sehr wenig | Wenig | Akzeptabel | Gut | Sehr gut | kann ich nicht beurteilen |
| ○ | ○ | ○ | ○ | ○ | ○ |

Überdrüber-Blick

| Sehr wenig | Wenig | Akzeptabel | Gut | Sehr gut | kann ich nicht beurteilen |
| ○ | ○ | ○ | ○ | ○ | ○ |

Body Scan

	Sehr wenig	Wenig	Akzeptabel	Gut	Sehr gut	kann ich nicht beurteilen
	○	○	○	○	○	○

8sam Gefühle beobachten

	Sehr wenig	Wenig	Akzeptabel	Gut	Sehr gut	kann ich nicht beurteilen
	○	○	○	○	○	○

8sam Gedanken beobachten

	Sehr wenig	Wenig	Akzeptabel	Gut	Sehr gut	kann ich nicht beurteilen
	○	○	○	○	○	○

8sam Atmen

	Sehr wenig	Wenig	Akzeptabel	Gut	Sehr gut	kann ich nicht beurteilen
	○	○	○	○	○	○

Muskelspiel für Schlaf

	Sehr wenig	Wenig	Akzeptabel	Gut	Sehr gut	kann ich nicht beurteilen
	○	○	○	○	○	○

Seite 11

Wie oft hast du die Informationen aus dem wöchentlichen Newsletter genutzt?

Nie oder sehr selten	Eher wenig	Gelegentlich	Eher häufig	Immer oder sehr oft
○	○	○	○	○

chillaxzone → Post   16.06.2019, 21:52

Seite 01

Liebe/r TeilnehmerIn,

vielen lieben Dank, dass du so fleißig am Ball geblieben bist und es bis hier her geschafft hast!

Nach dem Ausfüllen dieses Fragebogens ist die Studie offiziell beendet für dich.

Die Fragen beziehen sich auf die vergangene Woche, außer es steht explizit etwas anderes in der Fragestellung. Es gibt keine richtigen und falschen Antworten – es zählt lediglich dein individuelles Befinden.

Die Bearbeitung des Fragebogens dauert etwa **5 Minuten**. Nimm dir bitte kurz Zeit und versuche Ablenkungen und Störungen zu vermeiden.

Die Gewinner der 3 Jahresabos werden noch im Laufe der Woche kontaktiert!

Die Daten werden nur für wissenschaftliche Forschungszwecke verwendet. Die Auswertung erfolgt anonym und unter Einhaltung der gesetzlichen Vorschriften des Datenschutzes.

Danke und viel Spaß! :)

Vielen Dank für deine Teilnahme!

Deine Antworten wurden gespeichert, du kannst das Browser-Fenster nun schließen.

Der nächste Fragebogen folgt am 08.04.2019!

Bei Fragen oder Anmerkungen kannst du mich gerne jederzeit kontaktieren: kimhoogestraat@yahoo.de

Möchten Sie in Zukunft an interessanten und spannenden Online-Befragungen teilnehmen?

Wir würden uns sehr freuen, wenn Sie nicht-kommerzielle, wissenschaftliche Forschung unterstützen. Melden Sie sich hier für das SoSci Panel an:

E-Mail: [   ]

[Am Panel teilnehmen]

Die Teilnahme am SoSci Panel ist freiwillig, unverbindlich und kann jederzeit widerrufen werden.
Das SoSci Panel speichert Ihre E-Mail-Adresse nicht ohne Ihr Einverständ keine Werbung und gibt Ihre E-Mail-Adresse nicht an Dritte weiter.

Seite 02

DEIN PERSÖNLICHER CODE

Ich bitte dich deinen eigenen Code zu generieren, den nur du kennst. Damit können wir deine Daten der Befragungen (insgesamt 5 Fragebögen) unter Wahrung deiner Anonymität zusammenführen.

Der Code besteht aus deinem Geburtstag (TT), deinem Geburtsjahr (JJ), dem ersten Buchstaben des Vornamens deiner Mutter (N) und dem ersten Buchstaben deines Geburtsortes (N).

Beispiel: Du wurdest am 06.01.1968 geboren, deine Mutter heißt Maria und dein Geburtsort lautet Düsseldorf. Dein 6-stelliger Code würde also: 06 68 M D lauten.

Bitte erstelle hier deinen persönlichen Code.

Merke dir diesen Code gut, denn du wirst ihn bei jeder Befragung erneut angeben müssen, damit wir die Daten richtig zuordnen und zugleich Anonymität gewährleisten können!

Dein Geburtstag (TT): [   ]

Dein Geburtsjahr (JJ): [   ]

Der erste Buchstabe des Vornamens deiner Mutter (N): [   ]

Der erste Buchstabe deines Geburtsortes (N):
[   ]

CODE: [   ]

Die folgenden Aussagen beziehen sich auf deine Arbeitszufriedenheit.

Alles in allem bin ich zufrieden mit meinem Job.

stimme voll zu
stimme eher zu
neutral
stimme eher nicht zu
stimme gar nicht zu

Grundsätzlich gefällt mir mein Job nicht.

stimme voll zu
stimme eher zu
neutral
stimme eher nicht zu
stimme gar nicht zu

Grundsätzlich arbeite ich gerne hier.

stimme voll zu
stimme eher zu
neutral
stimme eher nicht zu
stimme gar nicht zu

Inwiefern treffen folgende Aussagen auf dich zu?

„In meiner Freizeit" bzw. „Am Feierabend"

...vergesse ich die Arbeit.

trifft völlig zu
trifft überwiegend zu
trifft mittelmäßig zu
trifft wenig zu
trifft gar nicht zu

...denke ich überhaupt nicht an die Arbeit.

trifft völlig zu
trifft überwiegend zu
trifft mittelmäßig zu
trifft wenig zu
trifft gar nicht zu

...gelingt es mir, mich von meiner Arbeit zu distanzieren.

trifft völlig zu
trifft überwiegend zu
trifft mittelmäßig zu
trifft wenig zu
trifft gar nicht zu

...gewinne ich Abstand zu meinen beruflichen Anforderungen.

trifft völlig zu
trifft überwiegend zu
trifft mittelmäßig zu
trifft wenig zu
trifft gar nicht zu

Nachfolgend findest du eine Sammlung von Aussagen zu tagtäglichen Erlebnissen. Bitte gib mittels der Skala von 1 bis 6 an, wie häufig oder selten du derzeit jedes dieser Erlebnisse hast.

Inwiefern treffen die folgenden Aussagen auf dich zu?

Ich könnte ein Gefühl haben und mir dessen erst irgendwann später bewusst werden.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich zerbreche oder verschütte Dinge aus Achtlosigkeit, ohne den Dingen Aufmerksamkeit zu schenken oder weil ich an anderes denke.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich finde es schwierig, auf das konzentriert zu bleiben, was im gegenwärtigen Augenblick passiert.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich neige dazu, schnell zu gehen, um dorthin zu kommen, wo ich hingehe, ohne darauf zu achten, was ich unterwegs erlebe.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich neige dazu, Gefühle körperlicher Anspannung oder Unwohlsein nicht wahrzunehmen, bis sie meine Aufmerksamkeit vollständig in Anspruch nehmen.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich vergesse den Namen einer Person fast sofort nachdem er mir erstmals gesagt wurde.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Es sieht so aus, als würde ich "automatisch funktionieren", ohne viel Bewusstsein für das, was ich tue.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich hetze durch Aktivitäten, ohne wirklich aufmerksam für sie zu sein.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich bin so auf das Ziel konzentriert, das ich erreichen möchte, dass ich den Kontakt dazu verliere, was ich hier und jetzt tue, um dieses Ziel zu erreichen.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich erledige Aufträge oder Aufgaben automatisch, ohne mir bewusst zu sein, was ich tue.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich bemerke, wie ich jemandem nur mit einem Ohr zuhöre, während ich gleichzeitig etwas anderes tue.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich merke, wie ich Dinge tue, ohne auf sie zu achten.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Ich esse eine Kleinigkeit, ohne mir bewusst zu sein, dass ich esse.

Fast nie	Sehr selten	Eher selten	Eher häufig	Sehr häufig	Fast immer
○	○	○	○	○	○

Bitte gib an, wie du dich in den letzten Tagen durchschnittlich nach einem Arbeitstag gefühlt hast.

Es fällt mir schwer, am Ende eines Arbeitstages abzuschalten.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Am Ende eines Arbeitstages fühle ich mich total kaputt.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Meine Arbeit führt dazu, dass ich am Ende eines Arbeitstages ziemlich erschöpft bin.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

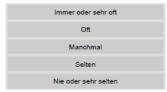Nach dem Abendessen fühle ich mich noch recht fit.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Ich komme erst am zweiten arbeitsfreien Tag zur Ruhe.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Es fällt mir schwer, mich in den Stunden nach Feierabend zu konzentrieren.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Wenn ich von der Arbeit nach Hause komme, fällt es mir schwer, mich auf andere einzulassen.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Ich brauche mehr als eine Stunde, um mich nach Feierabend wieder völlig zu regenerieren.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Wenn ich vom Arbeiten nach Hause komme, will ich einige Zeit in Ruhe gelassen werden.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Ich bin nach einem Arbeitstag so abgekämpft, dass ich es einfach nicht mehr schaffe, andere Dinge zu erledigen.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Meine Müdigkeit hindert mich daran, meine Arbeit am Ende eines Arbeitstages so gut zu erledigen, wie ich das gewohnt bin.

Immer oder sehr oft
Oft
Manchmal
Selten
Nie oder sehr selten

Gib bitte an, wie du dich in den letzten Tagen gefühlt hast.

Die folgenden Wörter beschreiben unterschiedliche Gefühle und Empfindungen.

Lies jedes Wort und trage dann bitte in die Skala unter jedem Wort die Intensität ein.

verärgert

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

feindselig

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

wach

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

beschämt

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

angeregt

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

nervös

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

entschlossen

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

aufmerksam

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

ängstlich

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

aktiv

Sehr stark
Ziemlich
Mittelmäßig
Ein wenig
Gar nicht

Inwiefern treffen folgende Aussagen auf dich zu?

Ich neige dazu, mich nach schwierigen Zeiten schnell zu erholen.

trifft völlig zu
trifft überwiegend zu
trifft mittelmäßig zu
trifft wenig zu
trifft gar nicht zu

Es fällt mir schwer, stressige Situationen durchzustehen.

trifft völlig zu
trifft überwiegend zu
trifft mittelmäßig zu
trifft wenig zu
trifft gar nicht zu

Ich brauche nicht viel Zeit, um mich von einem stressigen Ereignis zu erholen.

trifft völlig zu
trifft überwiegend zu
trifft mittelmäßig zu
trifft wenig zu
trifft gar nicht zu

Es fällt mir schwer, zur Normalität zurückzukehren, wenn etwas Schlimmes passiert ist.

trifft völlig zu
trifft überwiegend zu
trifft mittelmäßig zu
trifft wenig zu
trifft gar nicht zu

Normalerweise überstehe ich schwierige Zeiten ohne größere Probleme.

trifft völlig zu
trifft überwiegend zu
trifft mittelmäßig zu
trifft wenig zu
trifft gar nicht zu

Ich brauche tendenziell lange, um über Rückschläge in meinem Leben hinwegzukommen.

trifft völlig zu
trifft überwiegend zu
trifft mittelmäßig zu
trifft wenig zu
trifft gar nicht zu

Wie zuversichtlich bist du, dennoch Dinge zum Ausgleich, zur Erholung, zur Entspannung oder zum Krafttanken zu unternehmen, ...

... wenn du ärgerlich bist.

Äußerst
Eher mehr
Unterschiedlich
Eher wenig
Gar nicht

... wenn du während der Übung durch äußere Einflüsse (z.B. Lärm, Hitze, Kälte) gestört wirst.

Äußerst
Eher mehr
Unterschiedlich
Eher wenig
Gar nicht

... wenn du Sorgen hast.

Äußerst
Eher mehr
Unterschiedlich
Eher wenig
Gar nicht

... wenn du noch viel zu erledigen hast.

Äußerst
Eher mehr
Unterschiedlich
Eher wenig
Gar nicht

... wenn du dich niedergeschlagen fühlst.

Äußerst
Eher mehr
Unterschiedlich
Eher wenig
Gar nicht

... wenn andere Personen (z.B. Familie, Partner, Freunde) dich beanspruchen.

Äußerst
Eher mehr
Unterschiedlich
Eher wenig
Gar nicht

... wenn du dir die Zeit dafür im Tagesablauf selbst einteilen musst.

Äußerst
Eher mehr
Unterschiedlich
Eher wenig
Gar nicht

... wenn du nicht jedes Mal den erwarteten Erfolg spürst.

Äußerst
Eher mehr
Unterschiedlich
Eher wenig
Gar nicht

... wenn ein interessantes Fernsehprogramm läuft.

Äußerst
Eher mehr
Unterschiedlich
Eher wenig
Gar nicht

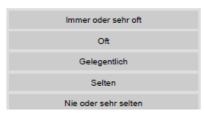... wenn du müde bist.

Äußerst
Eher mehr
Unterschiedlich
Eher wenig
Gar nicht

Inwiefern treffen die folgenden Aussagen auf dich zu?

Ich fühle mich durch meine Arbeit emotional erschöpft.

Immer oder sehr oft
Oft
Gelegentlich
Selten
Nie oder sehr selten

Ich fühle mich am Ende eines Arbeitstages verbraucht.

Immer oder sehr oft
Oft
Gelegentlich
Selten
Nie oder sehr selten

Ich fühle mich durch meine Arbeit ausgebrannt.

Immer oder sehr oft
Oft
Gelegentlich
Selten
Nie oder sehr selten

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Inwiefern stimmst du folgender Aussage zu?

„Ich würde die App weiterempfehlen."

stimme gar nicht zu	stimme eher nicht zu	unent- schieden	stimme eher zu	stimme voll zu
○	○	○	○	○

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Hast du abschließend noch Anmerkungen, die du uns mitteilen möchtest?

Letzte Seite

Vielen Dank für deine Teilnahme!

Deine Antworten wurden gespeichert, du kannst das Browser-Fenster nun schließen.

Die Studie ist nun vorbei für dich!

Bei Fragen oder Anmerkungen kannst du mich gerne jederzeit kontaktieren: kimhoogestraat@yahoo.de

Danke für dein Commitment! Du hast mir wirklich sehr geholfen. :)

Möchten Sie in Zukunft an interessanten und spannenden Online-Befragungen teilnehmen?

Wir würden uns sehr freuen, wenn Sie nicht-kommerzielle, wissenschaftliche Forschung unterstützen. Melden Sie sich hier für das SoSci Panel an:

E-Mail: [   ]