

# Interventions for Improving Psychological Detachment From Work: A Meta-Analysis

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Psychological detachment from work during off-job time is crucial to sustaining employee health and well-being. However, this can be difficult to achieve, particularly when job stress is high and recovery is most needed. Boosting detachment from work is therefore of interest to many employees and organizations, and over the last decade numerous interventions have been developed and evaluated. The aim of this meta-analysis was to review and statistically synthesize the state of research on interventions designed to improve detachment both at work and outside of it. After a systematic search (covering the period 1998–2020) of the published and unpublished literature, 30 studies with 34 interventions ( $N = 3,725$ ) were included. Data were analyzed using a random-effects model. Interventions showed a significant positive effect on detachment from work ( $d = 0.36$ ) on average. Moderator analyses revealed that it did not matter how the different studies conceptualized detachment but that the context in which detachment was measured (outside or at work) significantly influenced intervention effectiveness. Furthermore, using the stressor-detachment model as the organizing framework, we found that while interventions addressing job stressors or altering primary and secondary appraisal were all effective, only the interventions that addressed primary appraisal were more effective than those that did not. Additionally, while the delivery format did not moderate intervention effectiveness, interventions with longer durations and higher dosages were more effective than shorter and lower dosage interventions. Finally, interventions were more effective among older participants and participants with initial health or recovery-related impairments.

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Due to the general trends of work intensification and digitalization and the associated blurring of work–life boundaries (Kelliher & Richardson, 2019; Kubicek & Tement, 2016), an increasing number of the working population finds it difficult to “switch off” after work. For example, findings from the Sixth European Working Conditions Survey (EWCS) show that a substantial number of employees work during leisure time in order to complete unfinished

tasks (Eurofound, 2017). Coined the “recovery paradox” (Sonnentag, 2018), people particularly struggle with “leaving work at work” when they are faced with high job demands, that is, at times when they would most need to detach (Steed et al., 2019). Psychological detachment from work—that is, individuals’ ability to physically or mentally distance themselves from work during nonwork times (Sonnetag & Fritz, 2007)—is crucial here as it helps to replenish taxed resources and promotes successful recovery from work strain. In support of this, several meta-analyses have evidenced that psychological detachment from work (hereafter, detachment) is associated with increased well-being and improved performance, as well as a reduction in fatigue and exhaustion (Bennett et al., 2018; Steed et al., 2019; Wendsche & Lohmann-Haislah, 2017).

Recognizing the value of detachment and recovery for important work-related outcomes, scholars and practitioners have, over recent years, developed and evaluated interventions that seek to support employees’ detachment from work. These interventions are highly heterogeneous. They focus on different conceptualizations of detachment and various contexts in which detachment takes place (e.g., outside work or at work); they incorporate diverse intervention contents (e.g., job design, boundary management) and use training methods that vary by delivery mode (e.g., face-to-face training programs, web-based interventions), training schedule, and time frame. They also have different target groups (e.g., participants with stress- or detachment-related impairments). Similarly,

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the studies evaluating detachment interventions also greatly differ in terms of their design (e.g., with and without control groups, with and without randomization), all of which hampers comparison-making across the different programs.

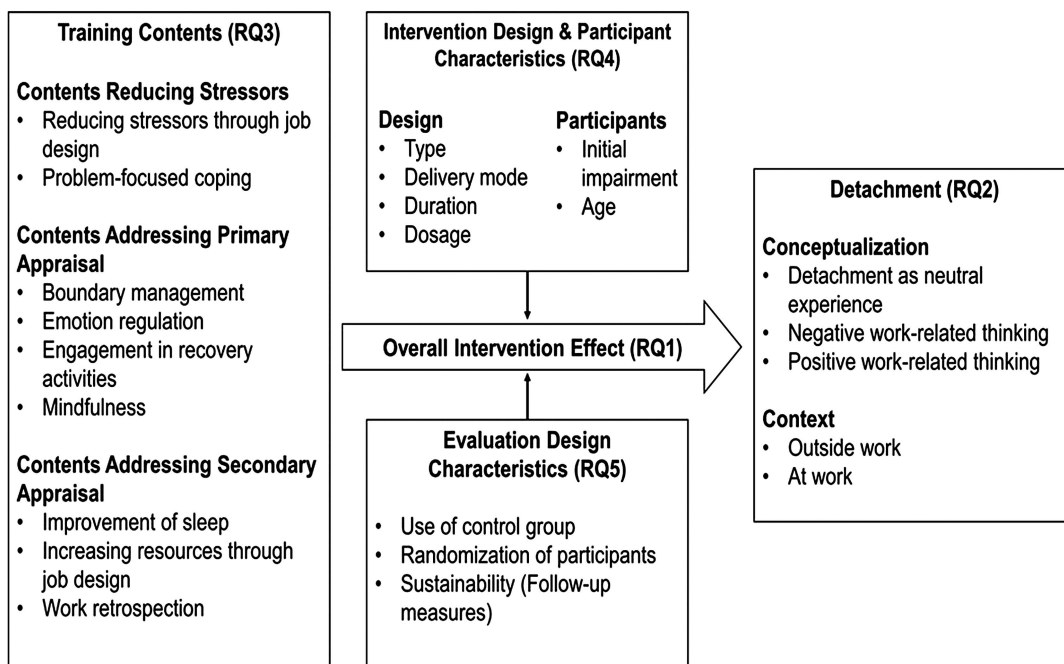
In the present study, we aim to systematically summarize, statistically synthesize, and compare these different approaches and findings and, thus, provide more clarity regarding their meaning and value. In doing so, we first aim to answer the question of whether detachment interventions are effective and if so, does it matter how detachment is conceptualized and where it takes place. Second, using the stressor-detachment model (SDM; [Sonnentag & Fritz, 2015](#)) as a theoretical framework for organizing and categorizing intervention contents, we assess whether the interventions that target different elements of the SDM are equally effective. Specifically, we examine if interventions are more effective when they focus on reducing stressors or if it is better to increase aspects that foster primary or secondary appraisal after the stressors have already occurred (e.g., promoting mindfulness or increasing job resources). Third, we look at the following intervention characteristics: intervention type (targeting the person or the work environment), delivery mode, duration and dosage, and participant-related aspects, to establish which are most important and “work best.” Finally, we will investigate how the characteristics of the evaluation designs (i.e., randomization, use of control groups vs. pre-post designs, and time of measurements) influence program effectiveness. The research framework of this study is displayed in [Figure 1](#).

Our study seeks to make several important contributions to the literature. First, we answer the call for systematic and quantitative reviews of different intervention strategies, which was made by [Verbeek et al. \(2019\)](#) in their recent scoping review on recovery interventions. While these authors provided a first overview of the

interventions that aim to improve recovery in general, we seek to systematically and quantitatively review interventions that specifically focus on detachment from work, given that this has been identified in the literature as the most powerful driver of recovery ([Bennett et al., 2018](#); [Sonnentag & Fritz, 2007, 2015](#)). By differentiating between detachment outside of work (i.e., during the evening, weekends, vacations) and at work (i.e., during breaks) and between detachment and various forms of nondetachment (i.e., positive and negative forms of work-related thinking), we improve our understanding of the conceptual make-up, malleability, and trainability of the construct, thus aiding future theory building and research.

Second, by explicitly testing how intervention effectiveness differs when targeting different parts of the SDM ([Sonnentag & Fritz, 2015](#)), we contribute to an integration of the SDM mechanisms proposed to underlie detachment with antecedents (e.g., boundary management) that have been empirically tested in intervention research. Historically, these mechanisms and antecedents have been tested piecemeal rather than in concert. Thus, our findings go beyond a simple focus on interventions and thereby further our understanding of the nomological network of detachment per se. By providing the “big picture” regarding the relative meaning and value of different types of antecedents of detachment along the lines of the SDM (i.e., stressors, primary appraisal, secondary appraisal), we contribute to a more holistic understanding of detachment. Such insights may promote further adjustment of theory in different directions. Our research may reveal that one of the proposed processes is more meaningful for increasing detachment than others (e.g., detachment is promoted more by reducing stressors than by improving appraisal processes) or it may find that all these antecedents are equally important, thus allowing for compensation in

**Figure 1**  
*Research Framework*



Note. RQ = research question.

circumstances where it is not possible or desirable to reduce stressors or improve relevant appraisal resources.

Third, from a practical viewpoint, identifying the most effective “ingredients” of detachment interventions and training characteristics (e.g., delivery mode, duration, dosage) may help human resource professionals to select the optimal elements for their programs, allowing them to economically streamline their interventions. Furthermore, knowledge about person-related contingencies that restrict or boost program effectiveness may also help in tailoring interventions to specific target groups (e.g., older or impaired workers), and thereby strengthen the effectiveness of organizational resources. In sum, knowledge about what to train, how (long) to train, and whom to train (first) in “switching off” may help organizations and employees alike to make the most out of often costly and time-consuming interventions.

In the following section, we briefly introduce the concept of detachment and explain its role in employee recovery. Next, we summarize the theoretical considerations and empirical findings related to the SDM (Sonnentag & Fritz, 2015) as we use this research to structure the types of intervention content used to improve detachment. We then highlight the basic approaches and formats employed in such interventions and review how current evaluation studies have tested program effectiveness so far. We end by presenting the research questions we address in this study.

### Conceptualizing Psychological Detachment

The concept of detachment is strongly embedded in the recovery literature. Two complementary theories, the effort-recovery model (ERM; Meijman & Mulder, 1998) and the conservation of resources (COR) theory (Hobfoll, 1989; Hobfoll et al., 2018), have predominantly been used as the frameworks for explaining recovery processes. While the ERM (Meijman & Mulder, 1998) holds that effort expenditure at work leads to physiological and psychological load reactions (e.g., fatigue) that can be reversed when an individual stops working, COR theory (Halbesleben et al., 2014; Hobfoll, 1989; Hobfoll et al., 2018) describes recovery as a more active process of resource acquisition and replenishment. According to COR theory, dealing with job demands depletes or threatens an individual’s resources. To recover from job stress, individuals have to proactively engage in activities that help them gain new resources and restore the threatened or depleted resources (e.g., self-efficacy, positive mood). Taken together, ERM and COR theory propose two preconditions for recovery to occur: (a) refraining from job demands and avoiding activities that draw on the same functional systems used for work, and (b) gaining new resources that will help restore threatened or lost resources.

Detachment is one of four recovery experiences (detachment, relaxation, mastery experiences, and control) identified by Sonnentag and Fritz (2007) as helping employees to unwind and recover from job stress because they ensure that no further demands are put on the individual and that new resources can be built up. Detachment refers “to an individual’s sense of being away from the work situation” (Etzion et al., 1998, p. 579) and not only means to refrain from work-related activities during off-job time (e.g., reading work emails), but also implies *mentally* leaving work behind and gaining distance from one’s job demands. Although all four recovery experiences have been shown to be positively associated with health and well-being outcomes (Bennett et al., 2018; Steed et al.,

2019), detachment has received the most research attention (Sonnentag, 2018) because it has emerged as a particularly powerful predictor of recovery (Bennett et al., 2018; Sonnentag & Fritz, 2007, 2015). Indeed, several reviews and meta-analyses indicate that detachment is positively associated with mental and physical health, life satisfaction, vigor, and sleep, and is negatively associated with negative affect, exhaustion, and fatigue (Bennett et al., 2018; Steed et al., 2019; Wendsche & Lohmann-Haislah, 2017).

Detachment (or more specifically, the lack thereof) conceptually and empirically overlaps with other constructs that describe work-related thinking, such as negative work-reflection (e.g., Meier et al., 2016), affective work-related rumination (Querstret & Cropley, 2012), and problem-solving pondering (Querstret & Cropley, 2012). Previous research has shown that these different conceptualizations of (the lack of) work-related thinking are empirically distinct (Weigelt et al., 2019) despite being substantially correlated (e.g., Cropley et al., 2012; Meier et al., 2016; Querstret & Cropley, 2012). While research supports construct distinctiveness (Weigelt et al., 2019), it remains unclear whether these distinctions are relevant in practical terms, that is, whether they are associated with differential antecedents and outcomes.

Detachment, like all recovery processes, can occur both in the work context, for example, during work breaks (e.g., lunch break), and outside of work, such as during free evenings or weekends, vacations, or sabbaticals (Geurts & Sonnentag, 2006). Although most empirical research has focused on employees’ detachment outside work (i.e., *external detachment*), some initial studies have investigated relations between detachment during work breaks while being at work (i.e., *internal detachment*) and well-being outcomes (Bosch et al., 2018; Coffeng et al., 2015; Sianoja et al., 2016; von Dreden & Binnewies, 2017). Similarly, in intervention research, most detachment interventions aim at increasing detachment outside work, although studies exploring the value of fostering detachment during work breaks have increased during the past years (e.g., Coffeng et al., 2014; de Bloom et al., 2017).

### Antecedents of Psychological Detachment

Building on previous theoretical and empirical research on the relations between job stress, detachment, and strain, Sonnentag and Fritz (2015) proposed the *stressor-detachment model (SDM)* as an overarching framework for understanding detachment processes. According to this model, job *stressors* impede detachment from work during leisure time which, in turn, impairs employee well-being. In an extended version of their model, Sonnentag and Fritz (2015) drew on the transactional stress model of Lazarus and Folkman (1984) to further acknowledge that the relation between job stressors and detachment may differ for individuals and situations. The extended SDM holds that employees’ primary and secondary appraisal processes should moderate the relation between job stressors and detachment. During primary appraisal, individuals evaluate if a situation is relevant and if they need to attend to it. If their assessment is that the situation is relevant, they then try to estimate whether it is positive, a challenge, or a threat. During secondary appraisal, employees evaluate if they have sufficient resources to deal with the stressful situation. Sonnentag and Fritz (2015) argue that employees’ attentional processes on the one hand, and their personal and job resources on the other hand, should influence their primary and secondary appraisal processes.

With regard to *primary appraisal* processes, Sonnentag and Fritz argue that evaluating a stressor as harmful or benign implies paying attention to the stressor. However, if employees do not pay attention to the stressor, it should not become relevant to their well-being (Sonnentag & Fritz, 2015). Accordingly, if employees direct their attention away from stressors by engaging in leisure time activities, job stressors should lose their detrimental impact on detachment. Further, an employee's capability and willingness to shift attention from one life domain to another should attenuate the impact of job stressors on detachment. For example, mindfulness (i.e., paying attention to present moment experiences with an accepting and nonjudgmental mindset; Brown & Ryan, 2003) has been shown to attenuate relations between job stressors and detachment (Haun et al., 2018). In addition, managing the boundaries between the work and home domain (e.g., segmenting work and home) makes it is less likely that job stressors can enter the home domain and capture employees' attention (e.g., Kinnunen et al., 2016; Wepfer et al., 2018).

With regard to *secondary appraisal* processes, Sonnentag and Fritz (2015) proposed that employees' personal (e.g., self-efficacy) and contextual resources (e.g., social support from one's colleagues or spouse) should mitigate the relation between job stressors and detachment because they affect employees' secondary appraisal. In line with this idea, a study by Schulz et al. (2019) found that coworker support, viewed as a job resource, buffered the relation between job stressors and detachment. Moreover, Haun et al. (2017) found that a partner's social support (i.e., a home resource) attenuated the relation between time pressure and detachment.

While the SDM (Sonnentag & Fritz, 2015) proposes that the factors that influence primary and secondary appraisal processes affect detachment by attenuating the stressor-detachment relations, we extend this view by proposing that the factors affecting primary and secondary appraisal should also be directly related to detachment. This proposition is in line with the transactional stress theory that views primary and secondary appraisal as mediators—rather than as moderators—in the stress process (Lazarus & Folkman, 1984). Accordingly, the factors influencing primary and secondary appraisal can be seen as direct antecedents of detachment. Previous empirical work supports the proposition that the factors identified as moderators in the SDM (e.g., engagement in leisure time activities, mindfulness, boundary management, personal, and contextual resources) not only impact the relation between job stressors and detachment, but also directly promote detachment. For example, recent meta-analyses have evidenced that contextual and personal resources (i.e., factors affecting secondary appraisal processes) as well as engagement in recovery activities (i.e., factors affecting primary appraisal processes) are associated with increased detachment (Steed et al., 2019; Wendsche & Lohmann-Haislah, 2017).

### Intervention Approaches for Promoting Detachment

Over the past decade, different intervention approaches have been designed and evaluated; some target detachment at work during work breaks (e.g., de Bloom et al., 2017), some are focused on detachment outside work (i.e., in the evening, on weekends, during vacations; e.g., Hahn et al., 2011; Virtanen et al., 2019) while others examine both (e.g., Coffeng et al., 2014). Other approaches include person-directed interventions (e.g., Thiart et al., 2015), work-directed interventions (e.g., Niks et al., 2018), and

combinations thereof (Coffeng et al., 2014). While person-directed interventions focus on changing employees' behaviors, cognitions, and skills (e.g., mindfulness, boundary management skills), work-directed approaches aim at modifying employees' work environments and job characteristics (e.g., job design interventions) (Sonnentag & Frese, 2013). Combined interventions integrate person-directed and work-directed strategies.

While in some interventions the primary goal is improving detachment, often in conjunction with other recovery experiences (Ebert et al., 2015; Hahn et al., 2011; Poulsen et al., 2015; Thiart et al., 2015), in other interventions improving detachment is only a secondary aim. For example, such intervention approaches have been aimed at increasing employee stress management skills (Ebert, Heber, et al., 2016; Ebert, Lehr, et al., 2016; Heber et al., 2016), mindfulness (Crain et al., 2017; Hülshager et al., 2015; Querstret et al., 2017), boundary management (Michel et al., 2014; Rexroth et al., 2016), positive work reflection (Bono et al., 2013; Meier et al., 2016), planning (Smit & Barber, 2016), and decreasing workplace embitterment (Michailidis & Cropley, 2019), all of which may have secondary effects on employee detachment from work.

The training characteristics of detachment interventions display large variations. For example, they have been delivered in diverse *formats* (e.g., face-to-face classes, self-guided interventions with written and audio materials, web-based programs with and without guidance by a professional e-coach), with a variety of *durations* (ranging from one-day workshops to programs of several weeks), and *doses* (participants' time investment ranged from less than an hour to more than 30). Further, some intervention approaches preselected participants based on stress- and detachment-related *impairments* (e.g., high levels of perceived stress and rumination, low sleep quality) while other programs were open to all workers. Similarly, the studies that have evaluated the effectiveness of interventions differ in their design characteristics (e.g., use of randomized designs, active vs. passive control groups, timing of measurements).

### Research Questions

Given the marked heterogeneity of programs, the first aim of this study is to answer the question of whether and to what extent detachment can be promoted via interventions. Further, we seek to explore whether intervention effectiveness differs according to the conceptualization of detachment and the context in which it takes place. We account for diverse intervention contents that target different elements of the SDM, and various design- and participant-related characteristics, as well as the design of the evaluations.

### Overall Intervention Effect

Given that intervention approaches differed in their effectiveness, with some interventions showing no effect (e.g., Coffeng et al., 2014; Hülshager et al., 2015; Meier et al., 2016) and others causing significant increases in detachment (e.g., Ebert et al., 2015; Hahn et al., 2011), we seek first to quantify the overall effect size of detachment interventions. This effect size can, in turn, be put into context and may be compared with the effects achieved by other intervention approaches, such as stress management, work engagement, or mindfulness interventions (Bartlett et al., 2019; Carolan



et al., 2017; Dreison et al., 2018; Maricuțoiu et al., 2016; Richardson & Rothstein, 2008).

*Research Question 1:* Can detachment be promoted via interventions and if so, to what extent?

## Conceptualizations and Temporal Context of Detachment

The second goal of this meta-analysis is to answer the question of whether it matters how detachment is conceptualized and where or when it takes place. Following Wendsche and Lohmann-Haislah (2017) and in line with previous research (Cropley & Zijlstra, 2011), we distinguish between the categories of detachment as neutral experience,<sup>1</sup> engagement in negatively valenced work-related thinking (e.g., affective rumination, negative work reflection), and engagement in positively valenced work-related thinking (e.g., positive work reflection, problem-solving pondering<sup>2</sup>). Given that previous nonintervention research revealed inconsistent findings for the antecedents of different conceptualizations of detachment (Wendsche & Lohmann-Haislah, 2017), we aim to explore whether these various conceptualizations differ in their malleability and trainability and whether they are differently affected by different training approaches. Knowing about such variations is important to the design of effective interventions in the future. For example, our analyses might reveal that it is easier to reduce negatively valenced thinking through training than it is to foster detachment as a neutral experience, or vice versa.

*Research Question 2a:* Does detachment intervention effectiveness differ depending on the conceptualization of detachment (i.e., detachment as neutral experience, positive work-related thinking, and negative work-related thinking)?

Furthermore, we test whether *context* matters and if interventions that focus on external detachment (i.e., detachment outside work) differ from those that focus on internal detachment (i.e., detachment at work). Given that research on detachment during work breaks is still in its infancy (Sianoja et al., 2016; Sonnentag et al., 2017), little is known about the predictors of detachment during work breaks. Recent reviews and meta-analyses either did not include detachment at work (Wendsche et al., 2016) or did not distinguish the temporal context in which recovery experiences occur (Sonnentag et al., 2017; Steed et al., 2019; Wendsche & Lohmann-Haislah, 2017). Hence, it remains unclear whether detachment at work is associated with antecedents similar to those for detachment outside work and if the SDM equally applies to detachment at work. Similarly, it is unclear if the approaches and strategies for improving detachment outside work are equally effective at improving detachment at work. Hence, we investigate whether the context of detachment moderates intervention effectiveness.

*Research Question 2b:* Does detachment intervention effectiveness differ depending on the context of detachment (i.e., outside work and at work)?

## Intervention Contents

The third goal of this meta-analysis is to identify which training approaches and contents are effective at promoting detachment. Based on the theoretical propositions of the SDM (Sonnentag & Fritz, 2015) and the transactional stress theory (Lazarus & Folkman,

1984), we identified intervention components that either tried to reduce job stressors or to alter employees' primary and secondary appraisal processes. Thus, we aim to answer the question of whether interventions targeting stressors or aspects related to primary or secondary appraisal differ in their effectiveness and, thus, which training contents work best. Given that some intervention contents may not exclusively map onto these three categories, but may alter primary and secondary appraisal, for example, at the same time, we categorize intervention contents based on the mechanism (e.g., primary appraisal) in the SDM that is *primarily* targeted through this content. This does not exclude, however, that other mechanisms (e.g., secondary appraisal) may be affected by the intervention content as well. Intervention elements that primarily aim at reducing job *stressors* include work design and problem-focused coping. While work design refers to organizational attempts to reduce job demands (e.g., hiring more staff to reduce workload), problem-focused coping refers to individual strategies that use cognitive or behavioral efforts to actively influence a stressful situation in a positive way (Ebert, Heber, et al., 2016; Heber et al., 2016). These strategies may include elements of problem-solving therapy (D'Zurilla & Goldfried, 1971) as well as planning strategies (e.g., goal setting and using implementation intentions).

Intervention components that primarily alter employees' *primary appraisal* either divert attention away from stressors and/or facilitate employees' reappraisal of stressors. These intervention components include promoting engagement in recovery activities, boundary management, mindfulness, and emotion regulation. *Promoting engagement in recovery activities* refers to contents aimed at increasing engagement in recovery-conducive activities. This can involve identifying favorite or most beneficial recreational activities, setting goals to increase their frequency, and taking precautions against hindrances to engaging in these activities. *Boundary management* includes contents that help employees erect strong work-home boundaries. These contents include temporal, physical, behavioral, or mental strategies for separating work and private life (e.g., setting specific work times, working only in the office) or establishing physical or mental transition rituals between work and home (cf. Kreiner et al., 2009). *Mindfulness intervention components* include elements derived from mindfulness-based stress reduction programs (Kabat-Zinn, 1982) such as body scan, breathing-space, mindful movement, or sitting meditations. *Emotion regulation* refers to techniques that help individuals to calm down by managing difficult emotions such as anger, disappointment, or sadness that can result from work-related thinking. These techniques may include muscle- and breathing-relaxation exercises, acceptance of negative emotions, and self-support in difficult situations (Ebert, Heber, et al., 2016; Heber et al., 2016).

<sup>1</sup> Throughout the paper, we use the term "detachment" to refer to the broader concept of detachment, including detachment as neutral experience as well as positive and negative forms of work-related thinking. We speak of detachment as neutral experience when referring to detachment in the narrower sense.

<sup>2</sup> Following the conceptualization of Cropley and Zijlstra (2011), we categorized problem-solving pondering as a positively valenced form of work-related thinking. While affective rumination is negatively valenced, problem-solving pondering can be positively valenced because people may enjoy thinking about their work or because it helps them to find solutions to their work-problems.

Intervention elements that may primarily alter employees' *secondary appraisal* (i.e., the evaluation of coping resources) include increasing job resources through work design, work retrospection, and improving sleep. Work design refers to any organizational attempts to increase physical, social, or cognitive job resources (e.g., granting more decision latitude, providing break rooms). Work retrospection contents prompt employees to think (and often write) about their work experiences and their reactions to these work experiences. The aim of the retrospection is to help employees become aware of the resources they have and thus improve how they reevaluate their coping options. Elements may include noting three good things that happened at work and thinking about why they may have happened in order to identify the available contextual and personal resources (Seligman et al., 2005). Sleep improvement content includes cognitive-behavioral strategies to ensure restful sleep, such as psycho-sleep hygiene education, sleep restriction, or stimulus control (Morin et al., 1994).

Building on the assumptions of the transactional stress theory (Lazarus & Folkman, 1984) and the SDM (Sonnentag & Fritz, 2015), we expect that interventions aimed at either addressing job stressors or altering primary or secondary appraisal processes will increase detachment. However, it is unclear whether these interventions approaches are (equally) effective. Previous research showed strong relations between detachment and demands, and smaller correlations between detachment and resources (Steed et al., 2019). Hence, interventions that address demands could have stronger effects than interventions that increase resources (i.e., secondary appraisal). With regard to factors affecting individuals' primary appraisal, only engagement in recovery activities has been examined in a recent meta-analysis that showed a moderate correlation with detachment (Steed et al., 2019), which implies that training content addressing primary appraisal processes could be more effective than content that focuses on secondary appraisal coping resources.

*Research Question 3:* Does detachment intervention effectiveness differ depending on intervention content (i.e., content targeted at reducing job stressors [reducing stressors through job design, problem-focused coping], altering primary appraisal [boundary management, emotion regulation, engagement in recovery activities, mindfulness], and secondary appraisal [improvement of sleep, increasing resources through job design, work retrospection])?

## Intervention Design and Participant Characteristics

As a fourth goal of this study, we aim to test whether certain training and participant characteristics impact the effectiveness of detachment interventions. First, we test whether intervention effectiveness depends on the *type* of intervention, that is, on whether person- or work-directed interventions or a combination of the two are equally effective. Given that job stressors are among the strongest predictors of detachment (Steed et al., 2019), approaches that reduce job stressors should be effective. However, work design changes might be harder to implement than person-directed interventions. For example, a meta-analysis on stress management interventions revealed that person-directed cognitive-behavioral and relaxation interventions were effective whereas organizational interventions were not (Richardson & Rothstein, 2008; van der Klink et al., 2001).

*Research Question 4a:* Does detachment intervention effectiveness differ depending on the type of intervention (i.e., work-directed, person-directed, combined)?

Second, we test whether the effectiveness of an intervention depends on the *delivery format*. Given that self-guided (online) interventions may offer greater flexibility in accommodating different schedules and employees at different locations and may be more cost-effective, it is important to know if such self-guided formats are as effective as face-to-face interventions led by a facilitator. Previous research comparing the effectiveness of occupational health interventions with different delivery formats yielded inconsistent results. While a meta-analysis on workplace mindfulness interventions did not find differences in the effectiveness of face-to-face interventions versus other formats (Bartlett et al., 2019), a meta-analysis on web- and computer-based stress management interventions revealed that guided interventions were more effective than unguided interventions (Heber et al., 2017).

*Research Question 4b:* Does detachment intervention effectiveness differ depending on the delivery format (i.e., face-to-face format and other formats)?

In addition, we will test how time-intensive interventions need to be in order to be most effective. Specifically, we focus on *program duration* in weeks and *program dosage* in participants' time investment hours. Knowledge about the minimum and maximum duration and dosage is important from a practical point of view because it assists with designing cost-effective interventions. Previous research exploring duration and dosage as moderators of occupational health intervention effectiveness yielded inconclusive results. A meta-analysis of workplace stress management interventions suggests that shorter interventions with a duration of between one and 4 weeks were most effective, compared to longer interventions (Richardson & Rothstein, 2008). However, a meta-analysis on web-based stress management interventions found that interventions that were shorter than 4 weeks were less effective than medium-long (i.e., 5–8 weeks) interventions, while long interventions of more than 9 weeks produced a nonsignificant effect (Heber et al., 2017). A recent meta-analysis of mindfulness interventions revealed no differences in effectiveness between lower and higher dosage interventions (Bartlett et al., 2019).

*Research Question 4c:* Does detachment intervention effectiveness differ depending on intervention duration and dosage?

To answer the question about for whom detachment interventions work best, we focus on two participant characteristics: their *initial level of impairment* and their *age*. Understanding who benefits most from an intervention is as relevant to the efficient use of organizational resources as are questions of focus, format, duration, and dosage. Scholars have argued that participants of stress- or resource-oriented interventions who do not have significant well-being problems will not gain much benefit from the intervention because there is little room for improvement (Briner & Walshe, 2015; Bunce & Stephenson, 2000). Also, the age of participants has been considered as a potential influencing factor. While meta-analytic results of correlational studies did not reveal an association between age and detachment (Wendsche & Lohmann-Haislah, 2017), intervention research has suggested that workplace health promotion

programs are more effective for younger (<40 years) than older workers (Rongen et al., 2013).

*Research Question 4d:* Does detachment intervention effectiveness differ depending on participant characteristics (i.e., with and without stress- and detachment-related impairment, age)?

## Evaluation Design Characteristics

As a final goal, we seek to test whether the design characteristics of the studies evaluating the intervention determine the findings on program effectiveness. Specifically, we aim to answer the question about whether the quality of design (i.e., control group designs vs. pre-post designs, randomization, follow-up measures) plays a significant role for intervention effectiveness results. Rather than excluding evaluation studies with weaker designs (e.g., those that lack a no-treatment control or comparison group, quasi-experimental studies), we investigate whether the effect sizes of studies with weaker designs significantly differ from those with stronger designs.

Further, we examine if intervention effectiveness differs with regard to when the outcomes are measured. In other words, we address the question of how sustainable the effects of detachment interventions are. Knowledge about the sustainability of intervention effects is necessary for planning the timing of potential booster or refresher sessions aimed at prolonging intervention effects, and indeed for evaluating the long-term usefulness of an intervention. Heber et al. (2017) showed that web- and computer-based stress management interventions can sustain their effects in terms of stress reduction in a small to moderate range for up to 6 months. Bartlett et al. (2019) reported that the beneficial effects of workplace mindfulness interventions on well-being indicators appeared to remain stable over 3 months or even longer.

*Research Question 5:* Does detachment intervention effectiveness differ depending on evaluation design characteristics (i.e., use of control group, random allocation of participants, follow-up measurements)?

## Methods

### Literature Search and Study Selection

We conducted a systematic literature search in several databases (PsycINFO, PsycARTICLES, PubMed) in September 2018 in line with current guidelines for systematic reviews (Daniels, 2019) and the PRISMA scheme (Moher et al., 2009). We created a search string that was both sensitive and specific by combining important terms (as well as their synonyms) from the detachment and occupational health intervention literature (see supplemental materials). We complemented our search by manually searching retrieved articles. In addition, we created an alert for our search string in Google Scholar so we could remain informed about new publications. Further, we updated our database of literature in January and June 2020 with extended inclusion criteria to include a broader range of studies (e.g., interventions addressing detachment during work breaks) and also to incorporate the ProQuest dissertation database. Moreover, we used the following strategies to identify relevant unpublished research. First, we posted requests on several listservs for unpublished studies on interventions. Second, we emailed more than 100 researchers who had in the past published research on detachment, requesting their unpublished intervention

research. Third, we searched the programs of several conferences over the past 5 years (e.g., Academy of Management Meeting, Conference of the European Academy of Occupational Health Psychology, Congress of the European Association of Work and Organizational Psychology) for relevant abstracts, and we contacted the authors of these abstracts to request the necessary coding information for the studies.

### Inclusion Criteria

Studies were included in the meta-analysis if they met the following criteria: (a) written in English or German, (b) published or made available by the authors between 1998<sup>3</sup> and June 2020; (c) included a person-directed or work-directed or combined intervention; (d) included employees as participants (i.e., student samples were excluded); (e) measured detachment or work-related thoughts (e.g., affective rumination, problem-solving pondering, negative work reflection) either outside work (e.g., during the evening, weekend, vacation) or at work during work breaks (e.g., the lunch break, microbreaks) as outcomes; and (f) reported statistics necessary for calculating an effect size.

### Study Coding and Data Extraction

We recorded the following study characteristics: name and year of study, and context and conceptualization of detachment. That is, we recorded where detachment took place (at or outside work) and whether it was measured as neutral experience (i.e., the absence of work-related thoughts; Sonnentag & Fritz, 2007) or as the presence of negatively valenced (e.g., affective rumination, negative work reflection) or positively valenced work-related thoughts (e.g., problem-solving pondering, positive work reflection). We reverse-coded the measures of the presence of work-related thoughts so that high values mean high detachment.

Regarding intervention contents, we coded broad content categories based on both the SDM (i.e., addressing stressors, primary appraisal, secondary appraisal) and more specific intervention contents (i.e., boundary management, emotion regulation, engagement in recovery activities, improvement of sleep, mindfulness, problem-focused coping, reducing stressors through work design, increasing resources through work design, and work retrospection). With regard to intervention characteristics, we coded the type of intervention (i.e., combined, person-directed, work-directed), delivery format (face-to-face vs. other formats), intervention duration in weeks (shorter than 2 weeks vs. longer than 2 weeks) as well as intervention dosage in hours (fewer than 4 hr vs. more than 4 hr). Concerning the sample, we coded sample size, mean age in years, and initial stress- or detachment-related impairments. We coded a sample as having a stress- or detachment-related impairment if intervention participants were prescreened and selected based on elevated values of the primary outcomes of the respective intervention study (e.g., having high perceived stress, insomnia, or rumination scores). Finally, regarding the evaluation design, we coded if there was a control group, if participants were randomly assigned to the intervention and control groups, and when the outcome was measured.

<sup>3</sup> We chose this time period because the concept of “psychological detachment from work” was introduced by Etzion et al. (1998).



## Meta-Analytic Procedures

We coded the effect sizes of the single studies according to the formulas of Borenstein et al. (2009). Data were extracted and entered into Excel; thereafter they were entered into Comprehensive Meta-Analysis (CMA) in a standardized format for later calculations (Borenstein et al., 2005). For the pooling of effect sizes, we used a random-effects model (Borenstein et al., 2005, 2009). Cohen's  $d$  is reported as the effect size measure for all interventions. To calculate Cohen's  $d$ , the means and standard deviations ( $SD$ ) of the detachment variable before and after treatment in the intervention group and control group were recorded. If these means were not reported, correlations or  $SD$ s from the baseline were used instead. For interventions with a pre-post-design without control group, we calculated effect sizes due to  $SD$ s before and after measurement, together with correlation between the measurement points.

Analogous to the procedure of data aggregation in the meta-analyses of Maricuțoiu et al. (2016) and Richardson and Rothstein (2008), multiple effect sizes stemming from one study were averaged into a single effect size in order to fulfill the condition of independence. First, for studies using multiple conceptualizations of detachment (e.g., detachment as neutral experience and negative work reflection), an average combined effect was calculated according to the formula of Borenstein et al. (2009) that adjusts standard errors of effect sizes by considering the correlations between the different constructs. Finally, total effects for studies with more than one post-intervention measurement were generated by calculating mean values using intercorrelations between pre- and postmeasurements. Since only a few studies reported these, we used the average correlation from these values for those that did not report any.

For evaluating the magnitude of effect sizes, we followed the approach of Paterson et al. (2016) of matching effect sizes with percentiles that indicate the amount of all reported effect sizes. For example, an effect size of  $d = 0.2$  is read as a 50th percentile, meaning that it is larger than half of the reported effect sizes within the organizational behavior and human resources literature. To test for moderator effects, we conducted heterogeneity calculations (Cochran's  $Q$ -test,  $I^2$ ) as well as moderator analyses (subgroup analyses, meta-regressions). Cochran's  $Q$ -test checks for significant differences in effects between two groups. If there is a significant difference between the groups as well as high values of  $I^2$ , it can be assumed that there is a moderator effect.  $I^2$  as a measure of heterogeneity is considered low for values around 25%, moderate for values around 50% and high for values above 75% (Borenstein et al., 2009). For metric variables, a moderating function is supported if the beta coefficient as well as  $Q_{\text{Model}}$  is significant. For categorical variables, the effect size and the  $Q_{\text{between}}$  value must be significant. It is advisable not to interpret moderator effects based on categorical variables until each subgroup has at least five cases (López-López et al., 2014).

We also checked the stability of the effects and tested for four indicators of publication bias. First, a funnel plot serves as a graphical tool for assessing whether the studies included in the meta-analysis represent only a partial selection (i.e., skewed distributions of effect sizes). Second, Rosenthal's fail-safe- $N$  as plausibility criterion indicates the number of nonsignificant study effects needed to bring the overall effect to nonsignificance with  $p > .05$  (Rosenthal, 1979). Third, according to Egger et al. (1997), analyses with a significant beta weight indicate asymmetry of effect sizes in the funnel plot. Finally, we used the technique of Duval and

Tweedie (2000) that computes average effect sizes from an artificially symmetrical effect size distribution in order to check whether effect sizes are robust after imputation.

## Results

### Study Selection

Our literature search, once duplicates were removed, initially yielded 4,265 articles. A further 2,246 articles were excluded after reviewing titles and abstracts. A total of 156 full-text papers were screened for eligibility. After extending our inclusion criteria, we screened the titles and abstracts of an additional 665 references, of which 50 were subjected to a full text search. Our search strategies for unpublished literature led to nine further studies, which we included in our analyses. The PRISMA diagram (Figure 2) presents the flow of articles from our initial search to the final sample of 30 studies.

### Study Characteristics

A summary of study characteristics of the 30 included studies that reported 34 interventions is presented in Table 1. The mean age of employees was 41.7 years ( $SD = 10.0$ ). The total preintervention sample consisted of 4,771 employees, ranging from 33 to 486 across the different studies. Dropouts across the various measurement points meant that the number of participants at the time of the last measurement reduced to 3,725. This sample size was used for further calculations within this meta-analysis.

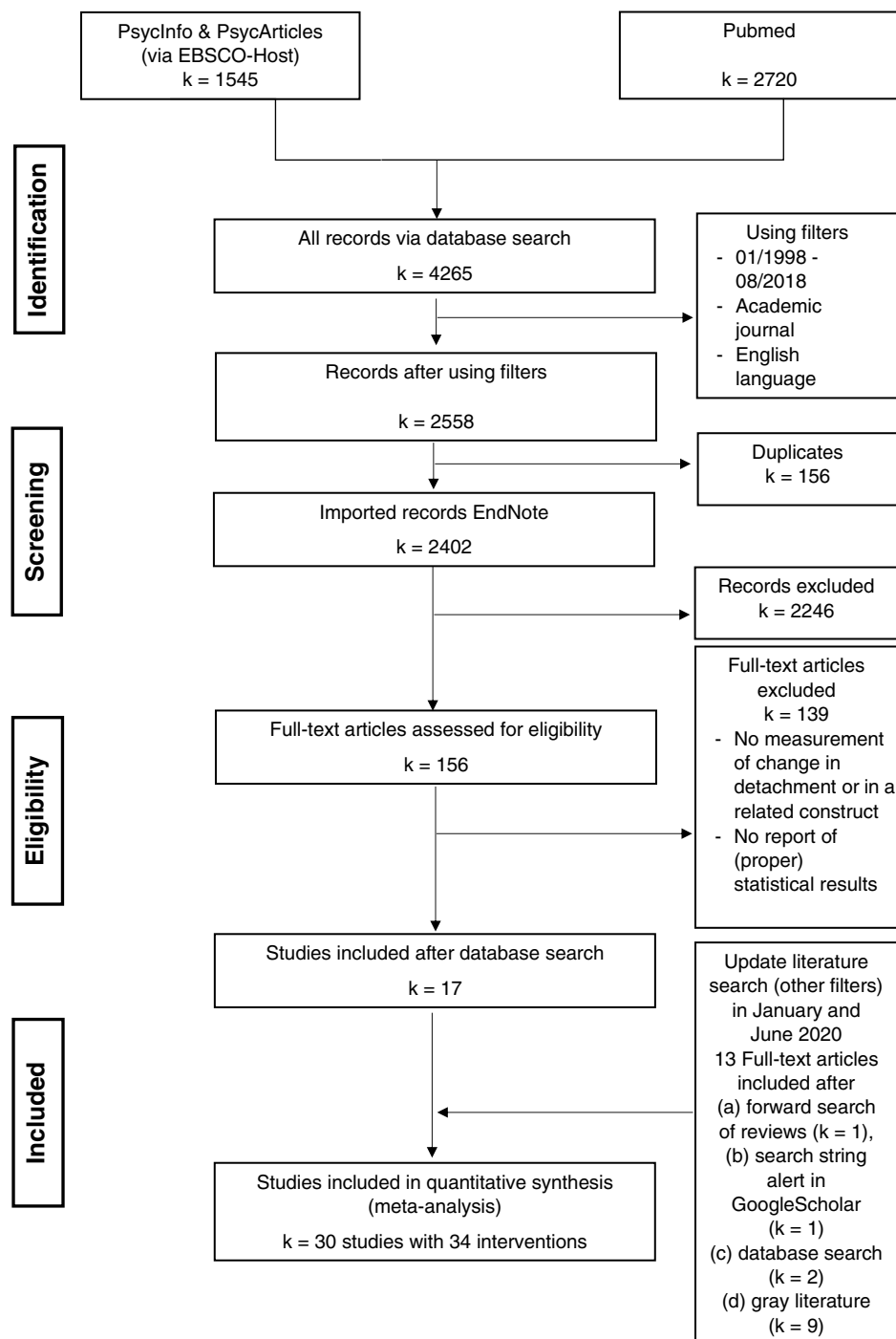
### Overall Intervention Effect

To answer our first research question concerning whether and to what extent detachment can be promoted via interventions, we quantitatively synthesized the included intervention studies to determine the overall intervention effect. The meta-analysis revealed a positive intervention effect on detachment from work ( $d = 0.36$ ,  $p < .001$ ). The heterogeneity of effect sizes was moderate to high, indicating substantial variability across the individual studies ( $I^2 = 70.04\%$ ).

To check for a potential publication bias, we applied four techniques: funnel plot analysis, Rosenthal's fail-safe- $N$ , Egger's regression intercept, and Duval and Tweedie's imputation method. The visual inspection of the funnel plot (see supplemental materials) revealed a rather symmetrical effect size distribution across the studies. However, there were two studies reporting extremely high effect sizes ( $d = 1.42$ , Ebert et al., 2015;  $d = 1.37$ , Binnewies et al., 2020). Therefore, we used a sensitivity analysis to check if excluding these studies might alter the effects. The average effect size remained relatively robust and decreased only slightly ( $d = 0.31$ , 95% CI [0.23, 0.40],  $I^2 = 53.91\%$ ). Our next step was to augment the graphical analysis with statistical analyses. Rosenthal's fail-safe- $N$  of 1,376 indicated that it was unlikely that we had missed many insignificant and potentially "(un)published" study results during our literature search ( $1,376 > 180$ ; see Rosenberg, 2005). In addition, the results of Egger's regression test revealed that the effect size distribution was not asymmetric ( $B = 0.38$ ,  $SE = 1.26$ ,  $p = .766$ ), indicating that publication bias is unlikely. Finally, we conducted a reanalysis of our data using the procedure of Duval and Tweedie (2000). This showed it would need seven additional studies on the right side of the mean effect size in the funnel plot (i.e., unpublished studies with stronger than average positive effects) to achieve full effect size



**Figure 2**  
The PRISMA Flowchart



symmetry with  $d = 0.43$  (95% CI [0.38, 0.48]). In sum, based on the results of these four independent procedures, we conclude that the chances of publication bias affecting our results are fairly low.

### Conceptualizations and Contexts of Detachment

In the second research question, we asked whether interventions are equally effective irrespective of the conceptualization and

context of detachment. Results showed no significant group differences between the different *conceptualizations of detachment* ( $p = .851$ ), meaning that they did not moderate intervention effectiveness (Table 2). Intervention effects for detachment as neutral experience ( $d = 0.35$ ,  $p < .001$ ) and for (the absence of) negative work-related thinking ( $d = 0.36$ ,  $p = .001$ ) were both positive and significant. There was no significant intervention effect when

**Table 1**  
*Summary of Characteristics of Included Studies in the Meta-Analysis*

Reference	Sample Size <sup>a</sup>	Conceptualization <sup>b</sup>	Context <sup>c</sup>	Intervention contents	Type <sup>d</sup>	Delivery format <sup>e</sup>	Duration & dosage <sup>f</sup>	Participants <sup>g</sup>	Design <sup>h</sup>
Baumgartner et al. (2020)	160	NT	Ext.	Reducing stressors (problem-focused coping)	P	F2F	>2 weeks; ≤4 hr	NI	No CG; NR
Behrendt et al. (2020)	126	NT	Ext.	Primary appraisal (boundary management, emotion regulation, engagement in recovery activities, mindfulness), Secondary appraisal (improvement of sleep)	P	OF	>2 weeks; >4 hr	NI	CG; R
Binnewies et al. (2020)	74	D	Ext.	Primary appraisal (boundary management)	P	OF	≤2 weeks; ≤4 hr	NI	CG; R
Bono et al. (2013)	61	D	Ext.	Secondary appraisal (work retrospection)	P	OF	≤2 weeks; ≤4 hr	NI	No CG; NR
Coffeng et al. (2014)	172 190	D	Ext., Int.	Secondary appraisal (increasing resources through work design) Primary appraisal (engagement in recovery activities)	W P	OF F2F	— >2 weeks; >4 hr	NI	CG; NR
Crain et al. (2017)	159			Primary appraisal (engagement in recovery activities), Secondary appraisal (increasing resources through work design)	C	F2F	—		
De Bloom et al. (2017)	113 153	NT D	Ext. Int.	Primary appraisal (emotion regulation, mindfulness) Primary appraisal (engagement in recovery activities, mindfulness)	P P	F2F F2F	>2 weeks; >4 hr ≤2 weeks; ≤4 hr	NI NI	CG; R CG; R
Ebert et al. (2015)	100	D	Ext.	Primary appraisal (boundary management, emotion regulation, engagement in recovery activities, mindfulness)	P	OF	>2 weeks; >4 hr	I	CG; R
Ebert, Heber, et al. (2016)	238	D	Ext.	Secondary appraisal (improvement of sleep) Reducing stressors (problem-focused coping), Primary appraisal (emotion regulation)	P	OF	>2 weeks; >4 hr	I	CG; R
Ebert, Lehr, et al. (2016)	219	D	Ext.	Reducing stressors (problem-focused coping), Primary appraisal (emotion regulation)	P	OF	>2 weeks; >4 hr	I	CG; R
Hahn et al. (2011)	95	D	Ext.	Primary appraisal (boundary management, engagement in recovery activities), Secondary appraisal (improvement of sleep)	P	F2F	≤2 weeks; >4 hr	NI	CG; NR
Heber et al. (2016)	236	D	Ext.	Reducing stressors (problem-focused coping), Primary appraisal (emotion regulation)	P	OF	>2 weeks; >4 hr	I	CG; R
Heißler (2019)	30	D	Ext.	Reducing stressors (reducing job demands through work design)	W	F2F	≤2 weeks; ≤4 hr	NI	No CG; NR
van den Heuvel et al., (2016)	51	NT	Ext.	Primary appraisal (emotion regulation, mindfulness)	P	OF	>2 weeks; >4 hr	NI	CG; NR
Hoppe et al. (2018)	126	D	Ext.	Primary appraisal (boundary management, mindfulness)	P	OF	>2 weeks; >4 hr	NI	CG; NR
Hülshager et al. (2015)	140	D	Ext.	Primary appraisal (emotion regulation, mindfulness)	P	OF	≤2 weeks; ≤4 hr	NI	CG; R
Janicke et al. (2018)	148	D	Int.	Primary appraisal (engagement in recovery activities)	P	OF	≤2 weeks; ≤4 hr	NI	CG; R
Meier et al. (2016)	74	D, NT, PT	Ext.	Secondary appraisal (work retrospection)	P	OF	≤2 weeks; ≤4 hr	NI	CG; R
Michailidis and Cropley (2019)	44	D, NT	Ext.	Secondary appraisal (work retrospection)	P	OF	≤2 weeks; ≤4 hr	I	CG; R
Michel et al. (2014)	191	D	Ext.	Secondary appraisal (boundary management, emotion regulation, mindfulness)	P	OF	>2 weeks; ≤4 hr	NI	CG; R
Niks et al. (2018)	93	D	Ext., Int.	Reducing stressors (reducing job demands through work design), Primary appraisal (engagement in recovery activities), Secondary appraisal (increasing resources through work design)	C	F2F	>2 weeks; >4 hr	NI	CG; NR
Querstret et al. (2016)	227	NT, PT	Ext.	Primary appraisal (emotion regulation, mindfulness)	P	F2F	≤2 weeks; >4 hr	NI	CG; NR
Querstret et al. (2017)	83	NT	Ext.	Primary appraisal (emotion regulation, mindfulness)	P	OF	>2 weeks; ≤4 hr	I	CG; R
Rexroth et al. (2016)	64	D	Ext.	Primary appraisal (boundary management)	P	F2F	≤2 weeks; >4 hr	NI	CG; R

(table continues)

Table 1 (continued)

Reference	Sample Size <sup>a</sup>	Conceptualization <sup>b</sup>	Context <sup>c</sup>	Intervention contents	Type <sup>d</sup>	Delivery format <sup>e</sup>	Duration & dosage <sup>f</sup>	Participants <sup>g</sup>	Design <sup>h</sup>
Schlachter (2018)	55	D	Ext.	Primary appraisal (boundary management, engagement in recovery activities)	P	OF	>2 weeks; ≤4 hr	NI	CG; R
Siu et al. (2014)	98	D	Ext.	Reducing stressors (problem-focused coping), Primary appraisal (emotion regulation, engagement in recovery activities, mindfulness)	P	F2F	≤2 weeks; >4 hr	NI	CG; NR
Smit and Barber (2016)	103	D	Ext.	Reducing stressors (problem-focused coping)	P	OF	≤2 weeks; ≤4 hr	NI	CG; R
Stevens (2010)	102	D	Ext.	Reducing stressors (problem-focused coping), Primary appraisal (engagement in recovery activities)	P	F2F	>2 weeks; >4 hr	NI	CG; NR
Thiart et al. (2015)	113	D	Ext.	Primary appraisal (boundary management, emotion regulation, engagement in recovery activities, mindfulness), Secondary appraisal (improvement of sleep)	P	OF	>2 weeks; >4 hr	I	CG; R
Virtanen et al. (2019)	79	D	Ext.	Primary appraisal (emotion regulation, engagement in recovery activities, mindfulness)	P	OF	>2 weeks; ≤4 hr	NI	CG; NR

Note. <sup>a</sup> Sample Size; at the last measurement point. <sup>b</sup> Conceptualization: D = detachment; NT = negative work-related thinking; PT = positive work-related thinking. <sup>c</sup> Context: ext. = external detachment; int. = internal detachment. <sup>d</sup> Intervention type: C = combined; P = person-directed; W = work-directed. <sup>e</sup> Intervention delivery: OF = other format; F2F = face-to-face format. <sup>f</sup> Intervention duration & dosage: ≤2 weeks = interventions up to 2 weeks duration; >2 weeks = interventions with more than 2 weeks duration; ≤4 hr = interventions up to four training hours; >4 hr = interventions with more than four training hours. <sup>g</sup> Impairment level of participants: I = impaired; NI = not impaired. <sup>h</sup> Design: CG = with control group; No CG = pre-post-design without control group; R = randomized allocation at the individual level; NR = nonrandomized allocation.

measuring (absent) positive work-related thinking as the outcome ( $d = 0.22, p = .345$ ). However, as there were only two studies assessing that outcome, this result should be interpreted with caution. Regarding the *context of detachment*, we found significant group differences between detachment outside work and at work, indicating a moderator effect ( $p = .037$ ). Effect sizes were significant for detachment outside work ( $d = 0.39, p < .001$ ) but not for detachment at work ( $d = 0.13, p = .227$ ).

## Intervention Contents

To answer the third question, we analyzed whether certain intervention contents affect intervention effectiveness. We analyzed broader categories based on the elements of the SDM (i.e., addressing stressors, primary appraisal, secondary appraisal) and also based on more specific contents. All results are displayed in Table 2. With regard to the *SDM categories*, results revealed that for both reducing job stressors ( $d = 0.36, p < .001$ ) and addressing secondary appraisal processes ( $d = 0.40, p < .001$ ), effect sizes were positive and significant. However, interventions that included these contents were not more effective than interventions without them ( $p = .995$  and  $.382$ , respectively). Interventions that included contents targeting primary appraisal processes had a significant effect size ( $d = 0.45, p < .001$ ) and were significantly more effective than interventions without such contents ( $p = .031$ ).<sup>4</sup>

In addition, we also examined nine *specific intervention contents* (see Figure 1). Analyses suggested that interventions that included boundary management ( $d = 0.65, p < .001$ ), emotion regulation ( $d = 0.48, p < .001$ ), and sleep improvement strategies ( $d = 0.88, p < .001$ ) were more effective than interventions that did not include these contents. Interventions including mindfulness ( $d = 0.46, p < .001$ ), problem-focused coping ( $d = 0.38, p = .001$ ), and engagement in recovery activities ( $d = 0.39, p < .001$ ) also yielded significant intervention effects. However, moderator analyses revealed that interventions including these contents were not significantly more effective than interventions without them. Interventions that included reducing job stressors through job design ( $d = 0.24, p = .192$ ), increasing job resources through job design ( $d = 0.17, p = .261$ ), and work retrospection ( $d = 0.10, p = .595$ ) did not show significant effect sizes and were not more effective than interventions without these contents.

## Intervention Design and Participant Characteristics

The fourth research question addressed whether intervention design and participant-related characteristics moderate intervention effectiveness. Results revealed that *intervention type* did not moderate intervention effectiveness, although person-directed interventions had a significant effect of  $d = 0.39 (p < .001)$ ; however the effects of work-directed interventions ( $d = 0.14, p = .484$ ) and combined interventions ( $d = 0.20, p = .263$ ) were not significant. These results should be interpreted with caution because the number of studies for work-directed and combined interventions were extremely low ( $k = 2$  and  $3$ , respectively).

<sup>4</sup> In a set of supplementary analyses (see Tables S1 and S2 in the supplemental materials), we also performed these analyses for the different conceptualizations and contexts of detachment, separately. Overall, the small subgroup sample sizes in many comparisons require these results to be interpreted with caution.

**Table 2**  
*Results of Moderator Analyses for Intervention Effectiveness*

Variables examined for moderator effects		Effect size estimates				Heterogeneity analyses			Moderator testing	
		<i>k</i>	<i>d</i>	<i>p</i>	95% CI	<i>Q</i>	<i>p</i>	<i>I</i> <sup>2</sup>	<i>Q</i> <sub>between</sub>	<i>p</i>
Overall intervention effect		34	0.36	<.001	[0.26, 0.47]	112.65	<.001	70.71		
Conceptualization									0.32	.851
Detachment as neutral experience		28	0.35	<.001	[0.23, 0.47]	21.75	.003	71.31		
Negative work-related thinking		8	0.36	.001	[0.16, 0.57]	7.03	.008	67.81		
Positive work-related thinking		2	0.22	.345	[−0.24, 0.68]	122.89	<.001	85.77		
Context									4.37	.037
External		31	0.39	<.001	[0.29, 0.49]	104.59	<.001	71.32		
Internal		7	0.13	.227	[−0.08, 0.35]	1.82	.935	0.00		
Intervention contents										
Reducing demands (combined)	Included	9	0.36	<.001	[0.17, 0.56]	13.78	.088	41.96	0.00	.995
	Not included	25	0.36	<.001	[0.24, 0.49]	97.73	<.001	75.44		
Reducing job demands through work design	Included	3	0.24	0.192	[−0.12, 0.61]	1.40	0.498	0.00	0.43	.512
	Not included	31	0.37	<.001	[0.26, 0.48]	110.38	<.001	72.82		
Problem-focused coping	Included	7	0.38	.001	[0.16, 0.60]	12.24	.057	51.00	0.02	.889
	Not included	27	0.36	<.001	[0.24, 0.48]	98.59	<.001	73.63		
Primary appraisal (combined)	Included	23	0.45	<.001	[0.34, 0.57]	84.18	<.001	73.87	4.63	.031
	Not included	11	0.17	.048	[0.00, 0.33]	5.28	.872	0.00		
Boundary management	Included	10	0.65	<.001	[0.47, 0.82]	40.74	<.001	77.91	14.46	<.001
	Not included	24	0.25	<.001	[0.15, 0.36]	42.86	.007	46.33		
Emotion regulation	Included	14	0.48	<.001	[0.33, 0.62]	58.38	<.001	77.73	4.13	.042
	Not included	20	0.27	<.001	[0.14, 0.40]	37.33	.007	49.10		
Engagement in recovery activities	Included	15	0.39	<.001	[0.23, 0.55]	65.68	<.001	78.68	0.21	.647
	Not included	19	0.34	<.001	[0.29, 0.48]	46.86	<.001	61.59		
Mindfulness	Included	12	0.46	<.001	[0.29, 0.63]	49.76	<.001	77.89	1.97	.160
	Not included	22	0.31	<.001	[0.18, 0.44]	55.95	<.001	62.47		
Secondary appraisal (combined)	Included	12	0.40	<.001	[0.22, 0.57]	65.98	<.001	83.33	0.76	.382
	Not included	22	0.35	<.001	[0.22, 0.48]	46.54	.001	54.88		
Improvement of sleep	Included	4	0.88	<.001	[0.64, 1.12]	9.78	.021	69.32	20.54	<.001
	Not included	30	0.29	<.001	[0.20, 0.38]	61.06	<.001	52.51		
Increasing resources through work design	Included	4	0.17	.261	[−0.13, 0.47]	2.49	.477	0.00	1.80	.180
	Not included	30	0.39	<.001	[0.28, 0.50]	103.31	<.001	71.93		
Work retrospection	Included	3	0.10	.595	[−0.27, 0.47]	0.28	.868	0.00	2.05	.152
	Not included	31	0.38	<.001	[0.28, 0.49]	106.96	<.001	71.95		
Intervention type									2.19	.334
Combined		3	0.20	.263	[−0.15, 0.56]	102.05	<.001	5.13		
Person-directed		29	0.39	<.001	[0.28, 0.51]	0.29	.593	72.56		
Work-directed		2	0.14	.484	[−0.26, 0.55]	104.44	<.001	0.00		
Intervention delivery <sup>a</sup>									1.46	.227
Other format		19	0.45	<.001	[0.31, 0.59]	80.33	<.001	77.59		
Face-to-face		10	0.30	.003	[0.10, 0.49]	13.94	.125	35.43		
Intervention duration <sup>a</sup>									4.11	.043
≤2 weeks		13	0.26	.003	[0.09, 0.43]	35.58	<.001	66.27		
>2 weeks		16	0.49	<.001	[0.35, 0.63]	52.34	<.001	71.34		
Intervention dosage <sup>a</sup>									4.03	.045
≤4 hr		15	0.28	<.001	[0.12, 0.44]	30.82	.006	54.57		
>4 hr		14	0.51	<.001	[0.35, 0.66]	57.98	<.001	77.57		
Participants <sup>a</sup>									6.43	.011
With Impairment		7	0.62	<.001	[0.42, 0.83]	26.54	<.001	77.39		
Without Impairment		22	0.31	<.001	[0.19, 0.44]	54.91	<.001	61.76		
Participants' mean age <sup>a</sup>		29	<i>B</i> = 0.03	.021						
Intervention design									0.76	.384
With control group		31	0.38	<.001	[0.27, 0.49]	110.20	<.001	72.78		
Without control group (pre–post–design)		3	0.21	.234	[−0.14, 0.57]	0.60	.739	0.00		
Randomization method <sup>b</sup>									3.05	.081
Randomized		19	0.45	<.001	[0.32, 0.59]	79.53	<.001	77.37		
Not randomized		12	0.26	.004	[0.08, 0.43]	16.33	.129	32.64		
Sustainability									6.74	.081
≤1 month		15	0.27	<.001	[0.12, 0.43]	37.26	.001	62.42		
1–3 months		15	0.49	<.001	[0.34, 0.64]	39.56	<.001	64.61		
3–6 months		9	0.40	<.001	[0.22, 0.57]	38.00	<.001	78.98		
>6 months		5	0.16	.213	[−0.09, 0.42]	2.65	.617	0.00		

*Note.* *k* = number of interventions included in the analysis; *d* = pooled effect size according to Cohen; 95% CI = 95% confidence interval with lower and upper limit; *Q* = statistical test for heterogeneity; *I*<sup>2</sup> = proportion of the observed effect size variance not due to random error (%); *Q*<sub>between</sub> = *Q*-test for moderator effect; *B* = unstandardized beta-coefficient.

<sup>a</sup>only for person-directed interventions. <sup>b</sup>only for interventions with control group.



Regarding the *delivery format*, we distinguished between face-to-face interventions and other formats (e.g., self-guided interventions with audio materials). Results revealed no significant group differences ( $p = .227$ ), indicating that face-to-face formats ( $d = 0.30$ ,  $p = .003$ ) and other formats ( $d = 0.45$ ,  $p < .001$ ) were equally effective.

Moreover, we found *intervention duration* and *intervention dosage* to be moderators of intervention effectiveness. Shorter interventions (up to 2 weeks) had a significant, although smaller, effect on detachment ( $d = 0.26$ ,  $p = .003$ ) than interventions lasting more than 2 weeks ( $d = 0.49$ ,  $p < .001$ ). In a similar pattern, lower dosage interventions (with up to four training hours;  $d = 0.28$ ,  $p < .001$ ) had a significant ( $p = .045$ ) but smaller effect on detachment than higher dosage interventions (with more than four training hours;  $d = 0.51$ ,  $p = .001$ ).

Finally, we wanted to take a closer look at *employee characteristics* to clarify which participants benefit most from detachment interventions. Results revealed stronger effects for interventions in samples with *impairments* ( $d = 0.62$ ,  $p < .001$ ) compared to unimpaired samples ( $d = 0.31$ ,  $p < .001$ ). This difference was significant ( $p = .011$ ). Furthermore, we found that the samples' *mean age* was significantly positively related to intervention effects on detachment ( $B = 0.03$ ,  $p = .021$ ),<sup>5</sup> indicating stronger improvements in detachment as the mean age of the target group increased.

### Evaluation Design Characteristics

The fifth research question concerned the moderating effects on intervention effectiveness of the design characteristics of the evaluation. Results revealed that interventions with a control group had a significant effect ( $n = 31$ ,  $d = 0.38$ ,  $p < .001$ ) in comparison to interventions with a pre-post-design without control group ( $n = 3$ ,  $d = 0.21$ ,  $p = .234$ ). However, this group difference was not significant ( $p = .384$ ). Interventions with *randomized allocation* of participants ( $n = 19$ ,  $d = 0.45$ ,  $p < .001$ ) did not yield significantly stronger effects than interventions without randomization ( $n = 12$ ,  $d = 0.26$ ,  $p = .004$ ).

Finally, we examined how *sustainable* the effects of detachment interventions were. We followed the procedure used by Maricuțoiu et al. (2016) to analyze the data set according to the different measurement points after the beginning of the interventions. We found significant intervention effects for three of four longitudinal measurement categories: up to 1 month ( $d = 0.27$ ,  $p < .001$ ), between 1 and 3 months ( $d = 0.49$ ,  $p < .001$ ), and 3–6 months ( $d = 0.40$ ,  $p < .001$ ). Effects measured later than 6 months after the intervention missed the level of significance ( $d = 0.16$ ,  $p = .213$ ). Among the significant intervention effects at different times, we found at least medium-sized heterogeneity of effect sizes across the studies. However, overall, the subgroup moderator test was not significant ( $p = .081$ ). Therefore, the time at which intervention effects are assessed does not seem to be a moderator here.

### Discussion

This article presents an initial systematic review and meta-analysis of interventions with the goal of increasing detachment from work. Our literature research resulted in a selection of 30 studies that covered 34 interventions. Our meta-analysis revealed that, on average, interventions were effective in increasing

detachment from work. According to Cohen's (1992) a-priori power criteria, the effect size of  $d = 0.36$  can be considered a small to medium effect that is comparable to effect sizes found in occupational health interventions where meta-analytic effects typically range from .13 to .69 (Bartlett et al., 2019; Carolan et al., 2017; Dreison et al., 2018; Maricuțoiu et al., 2016; Richardson & Rothstein, 2008). However, to put this effect size in context, the determined effect size is, according to Paterson et al. (2016), larger than 80% of the reported effect sizes within the organizational behavior and human resources literature. Given that detachment is strongly associated with health and well-being outcomes (Steed et al., 2019), detachment interventions may be considered as important alternative or complementary strategies for promoting employee well-being.

In the following section, we provide a detailed account of the theoretical implications of our findings, focusing in particular on our guiding framework, the SDM (Sonnentag & Fritz, 2015), while also noting a number of general implications of our findings.

### Theoretical Implications for the SDM

First, our results suggest that extending the SDM (Sonnentag & Fritz, 2015) to include additional types of detachment may be a fruitful endeavor. While a lack of primary research using positive work-related thinking as the outcome precluded definite conclusions, our results showed that detachment as neutral experience and negative work-related thinking are equally malleable; furthermore, they seem to have similar predictors as they are fostered by similar intervention contents. Our findings suggest that extending the conceptualization of detachment in the SDM to include negative work-related thinking seems justified. With this finding, we contribute to the ongoing debate about the theoretical and empirical distinctiveness of different conceptualizations of detachment (Weigelt et al., 2019). From a practical (intervention) perspective and based on the current data, the distinction between detachment and the absence of negative work-related thinking does not seem meaningful. However, more research assessing negative work-related thinking as the intervention outcome is needed to broaden the database and allow for more definite substantial and grounded conclusions. Further, our literature research revealed a lack of primary studies assessing intervention effects on positive work-related thinking. More research on positive thinking outcomes is necessary, particularly since detachment interventions might have opposing effects depending on the intervention content. Interventions aiming to change individuals' primary appraisal processes by diverting attention away from the work situation and associated job demands (e.g., mindfulness or boundary management interventions) may also draw attention away from resources and positive experiences. In contrast, interventions aiming to alter secondary appraisals by increasing resources or fostering positive retrospection (e.g., the three-good-things intervention) might increase rather than reduce positive work-related thinking. Given that positive and negative work-related thoughts often tend to co-occur (Casper

<sup>5</sup> A reviewer noted that there might be curvilinear effects of the samples' mean age on intervention effects. The results of a multiple meta-regression analysis did not support such an effect. However, as samples' mean age ranged from 28 to 48.5 years, the range restriction may limit the potential to detect such effects here.

et al., 2019; Querstret & Cropley, 2012), we recommend that intervention research looking at detachment or negative work-related thinking should include positive work-related thinking as an outcome so that the potential opposing effects can be assessed.

Second, based on our findings, an important theoretical advancement of the SDM (Sonnentag & Fritz, 2015) may be seen in the differentiation between detachment at work and outside work. Our findings showed that detachment outside work could be improved by interventions, but not detachment at work during breaks. Our findings tentatively suggest that detachment outside work and detachment during the workday are malleable to different degrees. Full detachment during the workday might be harder to achieve as employees are still within (or close to) their work setting and the time required to sufficiently distance oneself from work is more limited during the workday than it is during evenings or weekends (Sonnentag et al., 2017). Indeed, employees may even be reluctant to detach during the workday because mentally returning to work after a fully detached work break might be particularly effortful (Sonnentag et al., 2017). Moreover, our results point to the possibility that detachment at and outside work have different antecedents. Previous reviews and meta-analyses of nonintervention research have focused only on detachment outside work (Sonnentag & Fritz, 2015; Steed et al., 2019; Wendsche & Lohmann-Haislah, 2017) and thus there is a lack of integrated knowledge about the differential predictors of detachment in different contexts. We therefore encourage scholars to develop or adapt theoretical models of predictors of detachment at work and to test these models empirically. For example, the SDM (Sonnentag & Fritz, 2015), which does not include detachment at work in its current form, could be extended and refined to include the temporal context of detachment as a moderator.

Third, our findings may serve as the basis for reevaluating the relative importance of the different antecedents of detachment in the SDM (Sonnentag & Fritz, 2015). For intervention contents, our results showed that all three intervention approaches (addressing job stressors, primary and secondary appraisal processes) yielded significant positive effect sizes. However, only interventions with contents altering primary appraisal processes were significantly more effective than interventions without these contents. This suggests that it is possible to address stressors and secondary appraisal factors with other compensatory intervention contents but that addressing primary appraisal factors is truly necessary for boosting intervention effectiveness. This pattern highlights the unique role of individuals' primary appraisal processes as a starting point for interventions (Sonnentag & Fritz, 2015).

Zooming in on specific contents within this category, boundary management, and emotion regulation were particularly necessary ingredients for program effectiveness (i.e., interventions with those contents were more effective than those without them). However, mindfulness and recovery activities were also associated with positive intervention effects even if no differences were observed between interventions that included those contents and those that did not. This finding suggests that primary appraisal factors may compensate for each other. As the SDM (Sonnentag & Fritz, 2015) does not make any predictions about potential interactions between primary appraisal factors, future research should test this assumption to fine-tune the predictions of the model and compare interventions by including different combinations of contents to identify the one that is most effective.

Our results regarding the contents addressing secondary appraisal may also enable further refinement of the SDM (Sonnentag & Fritz, 2015), indicating that adding sleep as an influencing factor could be a worthwhile extension. Interventions that aimed to foster sleep showed the largest effect of all intervention contents and were significantly more effective than interventions that did not include this content. This finding is surprising, given that good sleep is usually considered to be a *consequence* rather than an *antecedent* of detachment (e.g., Hülshager et al., 2014). However, perceptions of good sleep may change employees' secondary appraisal of their job stressors; thus, employees who sleep well and feel well-recovered as a result may feel they have good coping options to deal with job demands. It may therefore be easier for them to switch off from work despite high job stress. Longitudinal research by Sonnentag et al. (2014) that showed that exhausted employees who lack energy resources find it particularly difficult to detach from work provides indirect support for this idea. Given that our database is small and that in all interventions sleep contents were delivered together with other contents, future research needs to test the isolated effects of sleep improvement strategies to generate more robust conclusions.

As for approaches that aimed to reduce job demands, interventions with problem-focused coping contents had a positive intervention effect although they were not more effective than interventions without this content. In contrast, job design interventions that aimed at reducing demands were not effective at increasing detachment. This pattern suggests that for improving detachment it might be more effective to teach employees how to reduce demands themselves (i.e., bottom-up job design) than to implement top-down job design changes. This pattern is in line with recent findings that top-down approaches to job designs are often not effective at enhancing worker well-being (Richardson & Rothstein, 2008; van der Klink et al., 2001) whereas bottom-up approaches, such as job-crafting interventions, are able to reduce demands and increase workers' well-being (Daniels et al., 2017; Oprea et al., 2019). Including detachment as a secondary outcome in job-crafting interventions would be useful to test the notion that an employee-initiated job design might help to increase detachment, thereby demonstrating that job-crafting interventions have beneficial consequences that go beyond the workplace.

## Further General Implications

Our results also make important contributions with regard to the role played by additional intervention, participant, and evaluation characteristics. Surprisingly, only person-directed interventions showed a significant effect size, although research has evidenced that job stressors are among the strongest predictors of employees' ability to detach from work (Steed et al., 2019; Wendsche & Lohmann-Haislah, 2017). However, our findings resemble the results from a meta-analysis on stress management interventions that showed that organizational interventions were scarce and did not produce significant effects (Richardson & Rothstein, 2008).

In line with a meta-analysis on workplace mindfulness interventions (Bartlett et al., 2019), the delivery format did not turn out to be a moderator, suggesting equal effectiveness of face-to-face interventions and flexible self-guided formats. The increased flexibility of self-guided formats may balance the beneficial group dynamics and professional guidance and support offered by face-to-face interventions. Given that self-guided interventions can be easily

distributed over several weeks, one advantage could be the extra time and opportunities for developing and practicing successful recovery strategies, compared to face-to-face interventions that are often delivered on one or two consecutive days.

Since organizational resources are usually limited, the question of whether low-dosage and short-duration interventions are as effective as interventions that require more time is highly relevant. Although interventions with lower doses and shorter durations were effective, longer and higher dosage interventions were significantly more so. Participants may need some time to identify successful recovery strategies and establish new routines that aid detachment, and may need a certain amount of practice. In contrast to findings from other workplace health interventions that found no differences between shorter and longer programs (Bartlett et al., 2019) or even that shorter programs were more effective (Richardson & Rothstein, 2008), our findings suggest that participants gain more benefit from longer and more intensive programs. Nevertheless, it remains unclear whether there is a minimum required dose or duration for a positive effect. Future research should systematically change and compare intervention doses and durations to answer this question.

In line with Sonnentag and Fritz's (2015) proposition, interventions were more effective for participants with initial impairments in well-being (e.g., increased levels of perceived stress or work-related rumination, sleep problems). This finding supports the idea that individuals who have no significant well-being problems but participate in stress- or resource-oriented interventions will benefit less from the intervention (Briner & Walshe, 2015; Bunce & Stephenson, 2000). Indeed, our results are in line with previous intervention research that shows that employees with higher levels of burnout or a stronger need for recovery show greater improvement than their less impaired counterparts (Clauss et al., 2018; Dreison et al., 2018). Participants without any initial well-being- or recovery-related impairment may already have good detachment strategies and, thus, may not learn or benefit as much from these interventions.

In addition, we found older employees to benefit more from detachment interventions. This finding is surprising as previous research did not reveal any age-related differences in employees' detachment levels and did not show that age moderated the relations between antecedents and detachment (Wendsche & Lohmann-Haislah, 2017). However, additional analyses revealed a positive association between age and the presence of impairments across our studies ( $r = .17, p = .358$ ). Thus, the moderator effect of age could, in part, be due to the fact that older employees show more recovery- or well-being-related impairments. As previous intervention research indicates that workplace health promotion programs are more effective among younger (<40 years) than older workers (Rongen et al., 2013), we caution HR professionals against excluding younger employees and those who have only minor problems from detachment interventions. As most intervention studies do not assess longer term effects, it is unclear whether interventions unfold their effects over time as participants age or grow more stressed. Promoting detachment from work could be an effective strategy that protects younger and unimpaired employees against becoming stressed in the long run.

Finally, we also examined whether intervention effectiveness varied between interventions with different evaluation design characteristics. Moderator analyses did not show any differences

between evaluation designs with or without control groups, or between designs with or without randomization. This rules out the possibility that the observed average effect was merely due to weak study design and undetected preexisting group differences. Furthermore, regarding the sustainability of intervention effects, our findings suggest that positive intervention effects are immediate, developing during and after the intervention, and remain significantly positive for up to 6 months. Our results are comparable to studies in related areas that have investigated the sustainability of intervention effects. For example, Maricuțoiu et al. (2016) and Knight et al. (2017) found that the average effect sizes of burnout and work engagement interventions were similar across different follow-up measurements, indicating sustainable effects.

## Limitations and Implications for Future Research

Despite the important contributions this meta-analysis makes to research and practice, it also has its limitations. First, our focus on detachment may be criticized for being too narrow. However, detachment from work has been identified as a particularly powerful type of recovery experience (Bennett et al., 2018; Sonnentag & Fritz, 2007) and so we did not include intervention effects on other recovery experiences (e.g., mastery, relaxation, control). Future research may aim to test several recovery experiences to clarify which experience is most malleable, given that all experiences have been shown to be associated with well-being outcomes (Steed et al., 2019). As recovery experiences often co-occur (Bennett et al., 2016; Steed et al., 2019), knowledge about the differential malleability of experiences could help with the design of broader interventions and enable intervention contents to be prioritized. Further, other recent reviews and meta-analyses on person- and work-directed health promotion interventions have included, for example, employees' feelings of recovery or mental and physical well-being and, thus, more distal outcomes of employees' health (Richardson & Rothstein, 2008; Verbeek et al., 2019). Hence, although our focus on interventions that promote detachment after work extends the current (meta-analytic) evidence on alternative approaches to occupational health promotion, future meta-analyses may want to include additional, more distal, outcomes in order to provide a more comprehensive picture of the benefits of detachment interventions at work.

Second, our meta-analysis may be limited in terms of a number of methodological issues. Although we aimed to include a wide range of studies that also included unpublished studies, the sample size of studies, particularly for further moderator analyses, was relatively small. This small sample size may have reduced the power of our tests and may have limited the extent to which valid conclusions can be drawn. However, a low number of studies in meta-analytic moderator analyses is quite common in organizational psychological research (Bartlett et al., 2019; Knight et al., 2017; Maricuțoiu et al., 2016; Richardson & Rothstein, 2008) and our sensitivity analyses did not reveal any bias. Furthermore, we did not comprehensively assess the quality of the included studies, for example, in terms of the "risk of bias" (Higgins et al., 2019), but only tested the role of including control groups and randomization as a quality criterion in our moderator analyses. Future meta-analyses on this topic should aim to investigate the role of different quality criteria for the validity of findings.



Third, we categorized interventions contents based on the core elements and mechanisms described in the SDM (Sonnentag & Fritz, 2015). Some intervention contents, however, might alter two mechanisms at the same time. For example, we categorized the three-good-thing intervention at the end of the workday (e.g., Meier et al., 2016) as work retrospection content addressing secondary appraisal because the aim of this exercise is to make individuals aware of the resources they have (Seligman et al., 2005). However, reflecting upon one's work at the end of the workday may also be a transition ritual that establishes boundaries between work and home for some employees (cf. Ashforth et al., 2000). Accordingly, this intervention could also be categorized as boundary management intervention addressing primary appraisal. We decided to categorize intervention contents based on the primary mechanism in the SDM (e.g., secondary appraisal) that they targeted. This approach, however, may have created conceptually biased results. Future intervention studies should explicitly assess the relative importance of the different mechanisms addressed by certain intervention contents to validate our categorization decisions and findings.

Aside from the potential improvements already discussed, our meta-analysis of detachment interventions identified several key areas where primary research is needed. First, the majority of included studies covered person-directed interventions, with only five focusing on work-directed or combined interventions. Given that previous research has revealed that job stressors are strong predictors of employees' ability to detach after work (Steed et al., 2019; Wendsche & Lohmann-Haislah, 2017), we encourage researchers to include detachment as a secondary outcome when examining work design or job-crafting interventions. Second, few studies assessed intervention effects on positive work-related thinking. Given that positive work-related thinking attenuates the effects of negative rumination (Syrek et al., 2017), knowledge about how to promote positive work reflection would be helpful. Third, few studies focused on detachment at work during work breaks. More intervention research is needed to explore if and how detachment during work can be successfully promoted. This research should include both interventions focusing on microbreaks as well as longer breaks (e.g., the lunch breaks) during the workday. Fourth, and as mentioned before, identifying individual training elements that are particularly useful is a first step to making interventions more effective and streamlined. However, little is known about the effectiveness of different combinations of intervention contents and their interactive effects. Future intervention research should systematically and rigorously investigate such combinations in order to gain a more comprehensive picture about substitution or complementation effects in order to be able to fine-tune training programs.

## Practical Implications

Knowledge about what to train, how (long) to train, and whom to train (first) in "switching off" during work and after work helps organizational professionals maximize the benefits of interventions that are often costly and time-consuming. Results of our meta-analysis indicate that although a variety of approaches and delivery methods were effective and quite long lasting, it seems essential to include either boundary management strategies, emotional regulation techniques, or strategies to improve sleep quality as key ingredients in detachment training. Even low-dosage and short interventions are effective in increasing detachment and thus can

be a time- and cost-saving starting point. However, as longer and more intensive interventions yield greater benefits, investing more resources will also pay off. Furthermore, human resource professionals can expect that interventions offered to older or more impaired employees will yield stronger benefits in terms of detachment from work.

Despite the importance of intervention programs offered by organizations, employees can benefit from proactively striving to better detach from work. For example, they may instigate personal boundary management routines such as transition rituals (e.g., writing a to-do list for the next day, washing one's coffee cup; Ashforth et al., 2000) in order to separate work from private life, or they can try to improve their sleep quality (e.g., by engaging in physical exercise in the evening or eschewing social media use in bed; Levenson et al., 2017; Yang et al., 2012). In addition, organizations and HR professionals should create awareness in older and impaired workers that they would find such strategies particularly beneficial. These employees should be particularly encouraged to establish such routines in order to maintain their employability in the long run.

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