

Is Work Engagement Exhausting? The Longitudinal Relationship Between Work Engagement and Exhaustion Using Latent Growth Modeling

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The relationship between exhaustion and work engagement has received considerable attention during the past decades. Although the theoretical proposition exists that work engagement may increase exhaustion over time, previous research has been mixed. Drawing on the transactional stress model and applying latent growth modeling, we aim to provide a more comprehensive picture of the work engagement–exhaustion relationship over time. In two longitudinal

We thank our Associate Editor, Karina Nielsen, and three anonymous reviewers for their very helpful feedback on earlier versions of this manuscript.

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studies, with four measurement points each, we found consistent evidence that a higher initial work engagement related to increased exhaustion over time. Consistent with our hypotheses, a higher initial work engagement also related to less initial exhaustion, and increases in work engagement related to decreases in exhaustion over time. However, contrary to our expectations, a higher initial exhaustion related to elevated work engagement over time. In conclusion, our findings suggest that engaged employees are less exhausted but face a higher risk of exhaustion over time. At the same time, exhausted employees are less engaged, but they have the potential to become more so over time. The theoretical and practical implications of these findings will be discussed in this paper.

INTRODUCTION

Cherniss (1980) introduced burnout as a process in which engaged employees withdraw from their jobs as a reaction to ongoing job strain. He explicitly pronounced the temporal dynamics of developing burnout and emphasized the significance of being engaged for the development of burnout over time. Similarly, Freudenberger (1974) related work engagement to the development of burnout. He assumed that burnout was more prevalent among those employees who were initially very motivated and engaged in their work but who gradually depleted and felt less energetic over time. Both authors suggested that work engagement—characterized by feeling energized, vigorous, and absorbed by one's activities (Schaufeli, Salanova, Gonzalez-Romá, & Bakker, 2002)—may entail the danger of increasing burnout over time. This assumption is also mirrored in Maslach and Leiter's (1997) definition of burnout as the process by which formerly important, meaningful, and challenging work (i.e., work that is highly engaging) becomes unimportant, meaningless, and unfulfilling (i.e., exhausting). Although the relationship between work engagement and burnout has been widely studied (for meta-analyses, see Cole, Walter, Bedeian, & O'Boyle, 2012; Halbesleben, 2010; Maricuțoiu, Sulea, & Iancu, 2017), these early theoretical claims have not yet been elaborately tested.

In the present research, we aimed to investigate the temporal dynamics of the work engagement–exhaustion relationship more thoroughly, with a particular emphasis on testing these early propositions that high work engagement may increase exhaustion, which is a core component of burnout (Maslach, Schaufeli, & Leiter, 2001) over time. To develop our hypotheses, we conceptually mapped work engagement and exhaustion onto the different processes proposed in the transactional stress model (Lazarus & Folkman, 1984). In brief, we worked under the assumption that engaged individuals are more likely to recognize potential stressors at work and to interpret these as relevant to their work progress. In contrast, less engaged individuals may appraise similar stressors as neutral or irrelevant. We further argue that

engaged individuals are more willing to invest resources to overcome these stressors as compared to less engaged individuals. Over time, this process suggests that engaged individuals may be more prone to exhaustion.

Our research challenges the assumption from researchers (e.g., Christian, Garza, & Slaughter, 2011) and practitioners (e.g., Nutcace, 2019) that work engagement is always good and contributes to the assessment of potential downsides of work engagement (Bakker, Albrecht, & Leiter, 2011; George, 2011; Maslach, 2011). Such downsides of work engagement include, among others, positive associations of work engagement with workaholism (i.e., working excessively and compulsively; Schaufeli, Taris, & van Rhenen, 2008) as asserted by Bakker et al. (2011). Moreover, highly engaged individuals are more likely to work while sick (Kinman & Wray, 2018), they invest more cognitive, emotional, and physical energy into work (Rich, LePine, & Crawford, 2010), and they spend longer hours at work (Schaufeli et al., 2008). This effort restricts time and energy for non-work activities, such as leisure-time physical activity (Häusser & Mojzisch, 2017) and contributing to one's family role (i.e., more work-family conflict; Halbesleben, Harvey, & Bolino, 2009), and increases the need for recovery after work (Sonnentag, Mojza, Binnewies, & Scholl, 2008).

Specifically, this paper complements recent research that contradicts the widespread notion that work engagement and exhaustion are typically negatively associated (e.g., Cole et al., 2012). As such, individuals can simultaneously be highly engaged and exhausted (e.g., Moeller, Ivcevic, White, Menges, & Brackett, 2018). Moreover, research by Mäkikangas, Hyvönen, and Feldt (2017) showed that the association between changes in work engagement and changes in exhaustion is not identical among all individuals; rather, subgroups exist in which increases in work engagement are unrelated to decreases in exhaustion. Furthermore, Shimazu, Schaufeli, Kubota, Watanabe, and Kawakami (2018) recently reported a cross-sectional U-shaped curvilinear relationship between work engagement and psychological distress. In their study, work engagement negatively related to psychological distress at low levels of work engagement. This negative relation faded at intermediate levels of work engagement and was positive at high levels. Finally, Demerouti, Bakker, Sonnentag, and Fullagar (2012) found a positive association between flow at work—a concept related to the absorption component of work engagement (see Schaufeli et al., 2008)—and exhaustion after work if recovery during this time was low.

More generally, accounting for temporal dynamics in the present research should provide a more fine-grained understanding of the importance of work engagement in the process of developing exhaustion and the importance of exhaustion in the process of becoming (or staying) engaged over time. Although relationships between psychological constructs are often conceptualized as processes that emerge over time, this temporal dynamic is

typically not mirrored in adequate study designs. Instead, researchers often (falsely) infer such temporal dynamics from momentaneous cross-sectional associations (see also Shipp & Cole, 2015). Such false conclusions, however, are costly for understanding the true nature of their relationships and for appropriately developing and targeting interventions.

The Association Between Work Engagement and Exhaustion Over Time

We build on the transactional stress model by Lazarus and Folkman (1984) to develop our arguments on the work engagement–exhaustion relationship over time. In brief, the transactional stress model proposes two appraisal processes in potentially threatening situations. The primary appraisal process concerns the interpretation of potential stressors or demands (such as interruptions, unexpected difficulties, or time pressure) as stressful (versus irrelevant or positive) for the individual. Lazarus and Folkman (1984) postulated that personal factors contribute to this assessment. If individuals interpret a demand as stressful, Lazarus and Folkman proposed a secondary appraisal process. In this process, the individuals' available resources, such as time or social support, determine whether they interpret the demand as a challenge that they can overcome or as a threat that they should avoid. According to the model, interpretations of demands as challenges foster problem-solving coping. In contrast, appraisals as threats are more likely to result in emotion-focused coping (see Crawford, LePine, & Rich, 2010).

The conceptualization of work engagement by Schaufeli and colleagues (2008) suggests that work engagement can affect the primary appraisal process, that is to say, whether stressors are assessed as stressful, positive, or irrelevant. Engaged individuals highly identify with—and immerse themselves in—their tasks, and thus care more about their jobs than less engaged individuals (Christian et al., 2011; Kahn, 1990). Consistent with this notion, Schaufeli et al. (2008) argued that engaged individuals have an “energetic and effective connection with their work activities” (p. 176). Therefore, individuals who care about their jobs should be more likely to appraise work-related demands as relevant for accomplishing their goals and be more strongly affected by those demands that may impede successful task fulfillment.

In line with this reasoning, Britt, Castro, and Adler (2005) reported that the well-being of highly engaged employees was more negatively affected by work overload and adverse events, as two types of demands, compared to the well-being of less engaged employees. Similarly, psychology students perceived more strain in a task that was described to be predictive for their future success as psychologists compared to non-psychology majors. No such differences in strain were found if the very same task was not presented as

related to participants' future success as psychologists (Britt, 2005). Thus, under conditions of high task engagement, the same stressor was interpreted as more relevant and elicited more strain and a stronger motivation to deal with it compared with conditions of low task engagement.

The conceptualization of work engagement further suggests that individuals differ in how they manage these stressors as part of the secondary appraisal process. Lazarus and Folkman (1984) argued that available resources play a critical role in the interpretation of a stressor either as threatening ("I cannot handle it"), with subsequent emotion-focused coping, or as challenging ("I can personally grow"), with subsequent problem-focused coping (see also Gardner & Fletcher, 2009). Christian et al. (2011) proposed that engaged employees would be more willing to mobilize and invest personal resources to solve workplace issues (see also Kahn, 1990). Likewise, the vigor component of work engagement comprises "the willingness to invest effort in one's work" (Schaufeli et al., 2008, p. 176), whereas the dedication component explicitly involves the notion of perceiving work as a challenge (Schaufeli, Bakker, & Salanova, 2006). Supporting these definitions, work engagement positively relates to resource investments. Such investments include working harder and for longer hours (Schaufeli et al., 2008) and showing more problem-solving behavior, such as additional personal initiative (Hakanen, Perhoniemi, & Toppinen-Tanner, 2008) and an added extra-role behavior (Rich et al., 2010). An extra-role behavior is defined as a positive behavior that goes beyond one's formal job role, such as supporting colleagues.

Despite these positive consequences—and although challenge appraisals meta-analytically show weaker associations with exhaustion compared to threat appraisals (Crawford et al., 2010; LePine, Podsakoff, & Lepine, 2005)—work engagement may also come with several costs for individuals' health and well-being based on this secondary appraisal process. Most importantly, resources are limited, so they should be allocated in a meaningful way and require replenishment (Hobfoll & Shirom, 2000). However, engaged individuals are persistent "in the face of difficulties" (Schaufeli et al., 2008, p. 176). This means that they invest more time and energy into solving even unsolvable tasks, which, among other effects, transfers to stronger physiological arousal (Nes, Segerstrom, & Sephton, 2005). Moreover, engaged individuals are less likely to take short breaks to recharge while at work. Instead, they often continue working so as to accomplish their tasks (Bakker & Oerlemans, 2016). Such difficulties in mentally detaching from a task to take a break are core to the absorption component of work engagement (Schaufeli et al., 2008) and may be partially fostered by engaged individuals' inner need to live up to organizational standards (van Beek, Hu, Schaufeli, Taris, & Schreurs, 2012). Investing more time into work (i.e., working longer hours) further relates to less evening detachment and poorer sleep quality (Clinton, Conway,

& Sturges, 2017). These factors, in turn, relate to more burnout (Söderstrom, Jeding, Ekstedt, Perski, & Akerstedt, 2012; Sonnentag, Binnewies, & Mojza, 2010). Thus, although none of these processes may impair individuals' health in the short run, such prolonged energy investments over an extended period, without subsequent recovery, will eventually increase exhaustion (Meijman & Mulder, 1998). We therefore propose:

Hypothesis 1: A higher initial level of work engagement (Time 1) relates to increases in exhaustion over time.

Likewise, an individual's exhaustion may affect the interpretation and appraisal of demands. Exhaustion is not only a consequence of demands; it has also been found to create more future demands, for instance, due to more mistakes being made or needing longer to solve workplace issues (for an overview, see Bakker & Demerouti, 2017; see also Bakker & Costa, 2014). At the same time, being exhausted means having little energy (Maslach & Leiter, 1997), and thus fewer personal resources are available to deal with stressfully perceived demands. Therefore, exhausted individuals should be more likely to interpret those demands as threatening (Lazarus & Folkman, 1984), and this appraisal should subsequently decrease their work engagement over time (Crawford et al., 2010). Consequently, we propose:

Hypothesis 2: A higher initial level of exhaustion (Time 1) relates to decreases in work engagement over time.

In general, researchers agree on the conceptualization of work engagement as the positive antipode of burnout, albeit the disagreement as to whether they are mere opposites (Maslach & Leiter, 1997) or distinct constructs (Schaufeli et al., 2006). The rich body of research on the association between work engagement and exhaustion supports this assumption. Cole et al. (2012) reported estimated true correlations between -0.21 and -0.43 between exhaustion on the one hand and vigor, dedication, and absorption, on the other. Likewise, Maricuțoiu et al. (2017) recently found averaged correlations from -0.25 to -0.53 . Focusing on the dimensions of work engagement, Mäkikangas, Feldt, Kinnunen, and Tolvanen (2012) showed that the majority of participants in their study belonged to a profile that characterized low, stable exhaustion and high, stable vigor. Therefore, we assume that:

Hypothesis 3: A higher initial level of work engagement (Time 1) relates to a lower initial level of exhaustion (Time 1).

Only a few studies have investigated how changes in work engagement relate to changes in exhaustion. As an exception, Mäkikangas et al. (2017) reported

that fluctuations in vigor and fluctuations in exhaustion were unsystematic in some individuals. Furthermore, decreases in vigor were not associated with increases in exhaustion in others. However, because their study focused on the three work engagement facets rather than the overall construct, and because other latent growth modeling (LGM) research (e.g., Leroy, Anseel, Dimitrova, & Sels, 2013; Mäkikangas, Bakker, Aunola, & Demerouti, 2010) suggests that the association in the change between two constructs follows the same trend as the association obtained from correlational research, we propose that:

Hypothesis 4: Increases in work engagement relate to decreases in exhaustion.

The Relevance of an Appropriate Time Frame

Different trajectories of work engagement over time have been reported in previous studies, including stable low or high engagement, increasing or decreasing engagement, and unsystematic variation in engagement (e.g., Roe & Inceoglu, 2016). To uncover the potential “dark side” of work engagement in its relation to exhaustion, individuals with *high engagement over a longer period* (i.e., high trait-like engagement) should be especially prone to developing more signs of exhaustion. This assumption is further supported by theories and research on the “too much of a good thing” phenomenon—which suggests a tipping point whereby the effects of positive constructs, such as work engagement, become negative (Pierce & Aguinis, 2013; Shimazu et al., 2018; Sonnentag, 2011). Therefore, we aimed to test our assumptions in a study of participants with high work engagement over a longer time frame.

To date, however, it is unclear what the appropriate time frame is for studying the proposed associations. This limitation is not specific to the relationship between work engagement and exhaustion. Indeed, researchers have also pointed to the limited knowledge about appropriate time frames in related fields (e.g., Methot, Lepak, Shipp, & Boswell, 2017; Shipp & Cole, 2015; see also Dorman & Griffin, 2015). Roe and Inceoglu (2016) proposed to consider three parameters, namely the starting point (Time 1 measurement), the length of the time frame, and the number of observations. Regarding the starting point, a so-called “honeymoon effect” for the entry period into a new role has been reported (e.g., Boswell, Shipp, Culbertson, & Fayne, 2009; Methot et al., 2017). In the context of the present studies, this phenomenon would mean that engagement increases in the first weeks after starting a new role (up to a turning point) and then gradually decreases to a stable level. This turning point marks the point of settling into the new role. Given that individuals perceive their work (or study) situation overly optimistically and are less aware

of its downsides during the honeymoon phase (see Boswell et al., 2009), we aimed for the settling phase as the starting point of our studies.

The literature is inconclusive concerning the appropriate time frame. Most studies on the work engagement–exhaustion association used a time frame of 12 months, and only a few studies employed shorter or longer time intervals (Maricuțoiu et al., 2017). To advance our knowledge on the association during shorter time frames (i.e., for epistemological reasons, see Dorman & Griffin, 2015), we decided to test our hypotheses using a total duration of less than 1 year. More important than the exact study length, however, may be that individuals experience *continuous* stressors to find a (positive) longitudinal relationship between work engagement and exhaustion over time, as proposed by Cherniss (1980) and Freudenberger (1974). This assumption is supported by a recent study that investigated profiles in work engagement and exhaustion (Moeller et al., 2018). Their research indicated that a positive association between engagement and exhaustion may be most likely among those individuals who simultaneously experience their work as relatively high in demands, such as high-performance standards, and high in resources, such as autonomy. Therefore, we aimed to test our hypotheses among individuals with relatively high demands and high resources at all measurement points.

Chan (1998) recommended using at least three measurement points to test longitudinal research hypotheses and to overcome the limitations that longitudinal studies with only two measurement points face (for a discussion, see Singer & Willett, 2003). Most importantly, two-wave data do not allow one to appropriately model changes that diverge from a linear relation, such as curvilinear growth. Therefore, these data may underestimate the true relationship between work engagement and exhaustion. It further poses the risk of attributing measurement error to true change. At the same time, time lags should be chosen such that they map onto the research question (Collins, 2006) and so that they are feasible (e.g., not resulting in too high drop-out rates). These methodological and theoretical aspects guided our decision to use four observations and a time-lag of 6 weeks to 3 months between measurement points with a total study length of 6 and 9 months. We tested our hypotheses in two studies, which are presented in the following sections.

STUDY 1

Methods

Participants and Procedures. We surveyed psychology undergraduates in Study 1. Consistent with the above reasoning, higher education—particularly a psychology course—is a context with high demands. This context includes high levels of competition to be admitted to a master’s program (which is

necessary to become licensed as a psychotherapist in Germany) and high resources, such as autonomy. As a result, students usually report more strain than the general population (Stallman, 2011). Participants were recruited during lectures and asked to participate in a project on study motivation. They were given course credit as a reward for participation. Participants gave their informed consent after reading the study procedure and their participant rights. A total of 297 students answered the questionnaire at Time 1, 228 also answered the Time 2 questionnaire after 3 months, 200 responded to the Time 3 questionnaire after four-and-a-half months, and 173 completed the Time 4 questionnaire after 6 months. The respondents were primarily women (90.6%, whereby 4 participants did not indicate their gender) and enrolled in their first year at the university (68.6%, $M = 1.86$, $SD = 1.50$). They were, on average, 21.82 years old ($SD = 4.60$); 11 students had at least one child, and 40.2% worked part-time besides their studies.

Measures. *Study engagement at Times 1, 2, 3, and 4* was assessed using the nine items of the Utrecht Work Engagement Scale (Schaufeli et al., 2006), adapted to the study context (see also Schaufeli, Martinez, Marques-Pinto, Salanova, & Bakker, 2002). The participants answered the items (sample item: “I am immersed in my studies.”) on a scale from 1 = *never* to 7 = *always*. Cronbach’s alphas were .94 at Time 1, .95 at Time 2, .93 at Time 3, and .93 at Time 4.

To assess *exhaustion at Times 1, 2, 3, and 4*, we used the respective subscale of the Oldenburg Burnout Inventory (OLBI; Demerouti, Mostert, & Bakker, 2010), which was adapted to refer to the study context (Reis, Xanthopoulou, & Tsaousis, 2015). The participants indicated to which degree they agreed with each of eight items (sample item: “There are days when I feel tired before I arrive at university.”) on a scale from 1 = *does not apply at all* to 4 = *fully applies*. Cronbach’s alphas were .83 at Time 1, .83 at Time 2, .86 at Time 3, and .80 at Time 4.

Statistical Analyses. Descriptive and attrition analyses were conducted in SPSS v.24 (IBM Corp, 2016). To assess whether attrition between measurement points was systematic, we conducted independent *t*-tests and compared participants who completed all questionnaires to those who dropped out at any measurement point.

The hypotheses were tested using latent growth analyses in MPlus v.8 (Muthén & Muthén, 1998–2017). Latent growth models (LGMs) are a variant of structural equation models; they allow one to test the growth (or change) in variables based on latent variables. LGM allows for the interpretation of variance in mean change as well as to simultaneously model change as an independent and dependent variable (e.g., Duncan & Duncan,

TABLE 1
 Overview of Means (*M*), Standard Deviations (*SD*), and Correlations (*N* = 131, Listwise Deletion) in Study 1

	<i>M</i> (<i>SD</i>)	1	2	3	4	5	6	7
1. Study engagement at Time 1	5.01 (1.13)							
2. Study engagement at Time 2	5.17 (1.10)	.83***						
3. Study engagement at Time 3	4.98 (1.08)	.80***	.83***					
4. Study engagement at Time 4	5.02 (1.05)	.75***	.86***	.82***				
5. Exhaustion at Time 1	2.41 (.58)	-.57***	-.48***	-.51***	-.43***			
6. Exhaustion at Time 2	2.25 (.55)	-.48***	-.51***	-.54***	-.52***	.70***		
7. Exhaustion at Time 3	2.39 (.60)	-.41***	-.43***	-.58***	-.47***	.63***	.65***	
8. Exhaustion at Time 4	2.27 (.53)	-.42***	-.46***	-.50***	-.56***	.61***	.69***	.70***

****p* < .001.

2009). As such, LGM separates individuals' initial status (here, levels of study engagement and exhaustion) and their changes. We used the missing data method, which is the standard method in MPlus (Muthén & Muthén, 1998–2017), to use all observations in the data set and not only those of participants who provided data at all four measurement points (see also Duncan & Duncan, 1994). The maximum likelihood estimation with robust standard errors was used to test our model, which is the recommended estimator when dealing with non-normally distributed data (Muthén & Muthén, 1998–2017).

The analysis began with two separate growth models: one for study engagement and one for exhaustion. The latent intercept, as well as latent linear and curvilinear growth factors (i.e., the slope), were modeled. The intercept represents “individual differences in the average level over time” (Duncan & Duncan, 1996, p. 332). The growth factor describes “individual differences in the constant rate of mean-level change across measurement points” (Mäkikangas et al., 2010, p. 802). We set the factor loadings to 0, 1, 1.5, and 2, respectively, to reflect the temporal distance between measurement points (i.e., 3 months between the first and the second measurement point, and 6 weeks between the second and third, and third and fourth, measurement point; Duncan & Duncan, 1996). Thus, the intercept represents the initial status in study engagement and exhaustion (Chan, 1998). The intercept and slope were allowed to covary.

These separate models were combined to test our hypotheses in the next step. In this parallel growth model, the latent factors of study engagement were allowed to correlate with the latent factors of exhaustion (Duncan, Duncan, Strycker, Li, & Alpert, 1999).

Results

Correlations, Means, and Attrition. As can be seen in Table 1, study engagement and exhaustion highly autocorrelated between measurement points, whereby study engagement was more stable than exhaustion. Moreover, study engagement and exhaustion had a strongly negative cross-sectional and longitudinal correlation. The means of study engagement and exhaustion were above their respective scale midpoints in all study waves. The results of paired *t*-tests to investigate the significance of differences across the four measurement points can be found in the Supplementary Materials.

Attrition was completely random. The participants who dropped out of the study at any measurement point did not differ in demographics, study engagement, or exhaustion from those who remained in the study (all *ps* > .05). Therefore, we can assume that systematic attrition did not bias the results.

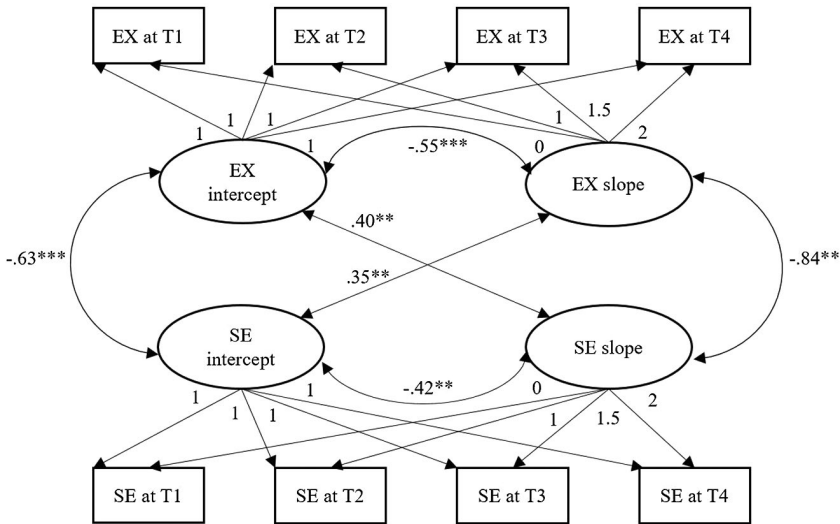


FIGURE 1. The results of the latent growth model in Study 1. EX = EXHAUSTION, SE = STUDY ENGAGEMENT. ** $P < .01$; *** $P < .001$.

Results of the Separate LGMs. First, we tested the separate LGMs for study engagement and exhaustion. The LGM for study engagement that included only the linear term fitted the data well ($\chi^2(5) = 18.11, p = .003$; RMSEA = 0.09, CFI = 0.97, and TLI = 0.97). The model that also included the curvilinear term could only be run when fixing the residual variance of the linear slope to zero. Therefore, we opted for the model that included only the linear term.

The model fit for the LGM for exhaustion that also included the curvilinear term ($\chi^2(1) = 25.46, p < .001$; RMSEA = 0.27, CFI = 0.90, and TLI = 0.43) did not improve compared to the model that included only the linear term ($\chi^2(5) = 22.83, p < .001$; RMSEA = 0.10, CFI = 0.93, and TLI = 0.92; $\Delta \chi^2 = 25.53, \Delta df = 4, p = .237$). Therefore, we continued with the linear growth model.

Results of the Combined LGMs. The overall model fit of the parallel latent growth model was mixed, with a significant $\chi^2(22) = 70.65 (p < .001)$ and satisfactory RMSEA (0.08), CFI (0.95) and TLI values (0.93). The modification indices suggested that the model fit could be improved by estimating the covariance between the time-specific residuals at Time 3. This estimation resulted in a substantially better fit ($\chi^2(21) = 48.20, p < .001$; RMSEA = 0.06, CFI = 0.97, TLI = 0.96; $\Delta \chi^2 = 25.90, \Delta df = 1, p < .001$).

Figure 1 summarizes the standardized estimates of the parallel latent growth analysis.

Supporting Hypothesis 1, the intercept of study engagement positively related to the slope of exhaustion ($p = .002$). This association indicates that the more engaged students were at Time 1, the higher the increase in exhaustion they reported over time. Contrary to Hypothesis 2, the intercept of exhaustion positively (instead of negatively) related to the slope of study engagement ($p = .005$). Supporting Hypothesis 3, the intercepts of study engagement and exhaustion negatively related to each other ($p < .001$). This relation shows that the higher the initial level of study engagement (Time 1), the lower the initial level of exhaustion (Time 1). Similarly, the slopes of study engagement and exhaustion had a strong, negative relation to each other ($p < .001$). This finding means that the greater the increase in study engagement, the greater the decline in exhaustion over time, thereby supporting Hypothesis 4.

Discussion of Study 1

Using a sample of psychology students and a design with four measurement points, Study 1 provides new insights into the longitudinal relationship between study engagement and exhaustion. The initial level of study engagement (Time 1) positively related to increases in exhaustion, whereas the initial level of study engagement negatively related to the initial level of exhaustion. Furthermore, increases in study engagement were associated with decreases in exhaustion. However, we did not find support for our assumption that a higher initial level of exhaustion (Time 1) would relate to decreased study engagement. Before drawing any conclusions from these results, we found it important to test whether this pattern of results would replicate in an employee sample, namely psychotherapists in training. Similar to students, psychotherapists in training face high job demands, such as a high amount of emotional work due to intense client contact combined with little prior work experience (e.g., Smith & Burton Moss, 2009). At the same time, they tend to report high job resources, such as competence experiences and meaningfulness of their work (Schladitz & Drüge, 2017).

STUDY 2

Methods

Participants and Procedures. The participants were recruited through institutions that provide psychotherapy training in Germany, where such training requires the successful completion of both a bachelor's and a master's degree in psychology. Upon request, institutes forwarded invitations

TABLE 2
 Overview of Means (*M*), Standard Deviations (*SD*), and Correlations (*N* = 105, Listwise Deletion) in Study 2

	<i>M</i> (<i>SD</i>)	1	2	3	4	5	6	7
1. Work engagement at Time 1	5.26 (1.11)							
2. Work engagement at Time 2	5.07 (1.10)	.76***						
3. Work engagement at Time 3	5.26 (0.93)	.62***	.72***					
4. Work engagement at Time 4	5.17 (1.03)	.56***	.54***	.66***				
5. Exhaustion at Time 1	2.34 (0.58)	-.25*	-.29**	-.18	-.19			
6. Exhaustion at Time 2	2.47 (0.61)	-.21*	-.43**	-.23*	-.19*	.71***		
7. Exhaustion at Time 3	2.34 (0.56)	-.06	-.22*	-.32**	-.20*	.64***	.65***	
8. Exhaustion at Time 4	2.36 (0.61)	-.18	-.24*	-.27**	-.39***	.55***	.58***	.64***

p* < .05; *p* < .01; ****p* < .001.

to their psychotherapists in training. The respondents who answered all study waves had the chance to be drawn from a lottery to win either an Amazon voucher or a book gift. Consistent with Study 1, the participants gave their informed consent after reading the study procedure and their participant rights. Overall, 282 trainees answered the questionnaire at Time 1, 190 answered the Time 2 questionnaire 3 months later, 162 responded to the Time 3 questionnaire 6 months later, and 143 completed the Time 4 questionnaire 9 months later. As in Study 1, the majority of participants were women (88.1%, with 4 participants not indicating their gender) and in their first to third training year (74.8%, $M = 2.75$, $SD = 1.94$). The average age was 31.25 years ($SD = 6.58$), and 42 participants were parents of at least one child. Two-thirds of the participants worked part-time besides their training.

Measures. To assess *work engagement at Times 1, 2, 3, and 4*, we used the Utrecht Work Engagement Scale (Schaufeli et al., 2006). Cronbach's alphas were .92 at Time 1, .93 at Time 2, .93 at Time 3, and .92 at Time 4. Again, the OLBI (Demerouti et al., 2010) was used to assess *exhaustion at Times 1, 2, 3, and 4*. Cronbach's alphas were .84 at Time 1, .82 at Times 2 and 3, and .84 at Time 4. Here, both scales referred to participants' work (rather than study) context.

Statistical Analyses. Consistent with Study 1, we first ran two separate growth models for work engagement and exhaustion. Specifically, we modeled the latent level and latent linear and curvilinear growth factors. Here, the factor loadings were set to 0, 1, 2, and 3, respectively, to reflect the temporal distance of 3 months between measurement points. Finally, the parallel growth model was tested, in which the latent factors of work engagement were allowed to correlate with the latent factors of exhaustion. As in Study 1, all emerging relationships between intercept and slope of work engagement and intercept and slope of exhaustion were investigated.

Results

Correlations, Means, and Attrition. Table 2 shows that the autocorrelations were to some extent higher for work engagement compared to exhaustion—as was the case in Study 1. Although work engagement and exhaustion were, overall, negatively correlated cross-sectionally as well as longitudinally, these correlations were substantially lower compared to Study 1. Furthermore, they decreased in size with increasing time lags. Consistent with Study 1, the means of work engagement and exhaustion were above the scale midpoint of their respective scale in all study waves. Similar to Study 1,

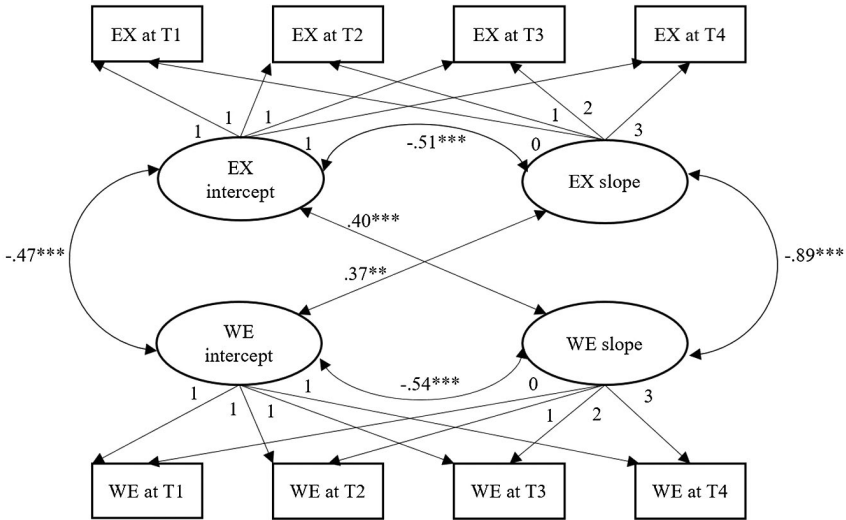


FIGURE 2. The results of the latent growth model in Study 2. EX = EXHAUSTION, WE = WORK ENGAGEMENT. ** $P < .01$; *** $P < .001$.

we also investigated the significance of mean differences using paired t -tests (see Supplementary Materials).

As in Study 1, attrition was random. There were no statistical differences between participants dropping out of the study and participants remaining in the study in demographics, work engagement, or exhaustion (all $ps > .05$).

Results of the Separate LGMs. Consistent with Study 1, we first tested the separate LGMs for work engagement and exhaustion. Again, the LGM for work engagement fitted the data well if only the linear term was included ($\chi^2(5) = 7.68, p = .17$; RMSEA = 0.04, CFI = 0.98, and TLI = 0.97). Another similarity was that the model that included the curvilinear term could only be run when fixing the residual variance of the linear slope to zero. Therefore, we opted for the model that included only the linear term.

The LGM for exhaustion showed a good fit for the model that included only the linear term ($\chi^2(5) = 21.75, p < .001$; RMSEA = 0.10, CFI = 0.92, and TLI = 0.90). Again, the model that also included the curvilinear term could only be run when fixing the residual variance of the linear slope to zero. Therefore, we continued with the linear growth model.

Results of the Combined LGMs. The original model showed a non-positive definite latent variable covariance matrix. Allowing the time-specific residuals at Time 2 and Time 3 to covary—as suggested by the modification

indices—resolved this issue and resulted in a good model fit ($\chi^2(20) = 30.49$, $p < .001$; RMSEA = 0.04, CFI = 0.98, and TLI = 0.97). Figure 2 presents the standardized estimates of this model.

All the results were consistent with those obtained in Study 1. Specifically, and consistent with Hypothesis 1, a higher initial level of work engagement (Time 1) related to increased exhaustion over time ($p = .001$). Moreover, a higher initial level of exhaustion (Time 1) related to increased work engagement over time ($p < .001$). Thus, Hypothesis 2 was, again, not supported. In support of Hypotheses 3 and 4, the initial level of work engagement (Time 1) negatively related to the initial level of exhaustion (Time 1; $p < .001$) and increases in work engagement were associated with decreases in exhaustion ($p < .001$).

Discussion of Study 2

In Study 2, the findings from Study 1 were fully replicated in a different population and using different time ranges between measurement intervals. This outcome provided initial evidence for their generalizability to a population of highly trained professionals with high job demands. Notably, the relationship between the intercept of work engagement and the intercept of exhaustion was substantially lower in Study 2 compared to Study 1, while all other relations were comparable in size. As in Study 1, we found support for all hypotheses except Hypothesis 2, which—again—was opposite to our initial assumptions. The potential explanations for this finding will be discussed in the General Discussion.

GENERAL DISCUSSION

In the present studies, we adopted a temporal lens to investigate how exhaustion develops over time as a function of work engagement. The transactional stress model (Lazarus & Folkman, 1984) guided our assumptions. In two samples, we found that work engagement may be positive in the short run (i.e., related to less exhaustion), but more harmful in the long run (i.e., by increasing exhaustion). Increases in work engagement related to decreases in exhaustion. Surprisingly, the initial level of exhaustion (Time 1) positively related to changes in work engagement.

The positive association between initial work engagement and increases in exhaustion found in the present studies supports the theorized developmental process of burnout over time (Cherniss, 1980; Freudenberg, 1974; Maslach & Leiter, 1997). This specific association lends support to the so-called “you have to have been on fire in order to burn out” metaphor, which states that particularly those individuals who are very dedicated and inspired by their jobs may be at risk of succumbing to exhaustion over time (cf. Maslach

et al., 2001). Although this metaphor is occasionally used to describe burn-out (e.g., Schaufeli, Leiter, & Maslach, 2009), the present research is—to the best of our knowledge—the first that empirically tested this assumption. Furthermore, this undertaking is one of the few studies that has investigated changes in exhaustion over time (for exceptions see, e.g., Dunford, Shipp, Boss, Angermeier, & Boss, 2012; Mäkikangas et al., 2017; Schaufeli, Bakker, & van Rhenen, 2009).

Contrary to expectations, the initial level of exhaustion positively related to increases in work engagement over time. This finding is not consistent with the results by Halbesleben and Bowler (2007). These authors found that exhaustion increased prosocial behavior (as one type of resource investment) but decreased behavior targeting status and achievement striving. They argued that exhausted employees need to be more selective in their resource investment and that prosocial behavior ensures positive coworker relationships and support, which then helps to compensate for feelings of exhaustion. The specific context of our studies may account for the unexpected positive association between the initial level of exhaustion and changes in work engagement (see Johns, 2006). Both students and psychotherapists in training have a concrete long-term goal, namely completing their education. Therefore, even if they are exhausted, they may still be more likely to engage in problem-solving coping rather than emotion-focused coping to overcome stressors, such as an upcoming exam. In other words, instead of withdrawing from their tasks (i.e., reducing their study and work engagement), our results suggest that they more actively engage with them. From our point of view, it is essential to investigate whether this finding could be replicated in other occupations and, if so, what the moderators of this association would be. For instance, van Beek et al. (2012) showed that burnout and work engagement both positively relate to the internalization of external standards of self-worth and social approval without fully identifying with them. Therefore, the investigation of such external standards and their moderating function on the obtained relationship may be a fruitful endeavor.

That initial work engagement and exhaustion, as well as their changes, were negatively interrelated partially replicates previous meta-analytical findings (Cole et al., 2012; Halbesleben, 2010). Importantly, we found longitudinal associations between work engagement and exhaustion when using intervals shorter than 1 year, whereas a recent meta-analysis (Maricuțoiu et al., 2017) did not find cross-lagged effects between work engagement and exhaustion when using similar short intervals (or when using longer intervals between measurement points). One-year intervals in longitudinal studies ensure stable seasonal influences (e.g., university lecturers experience high- and low-strain phases typically at around the same time each year; Zapf, Dormann, & Frese, 1996). Based on Cherniss (1980) and Freudenberger (1974), a high level of

chronic job stressors—low variation in seasonal influences across measurement points—may represent a precondition for finding these relationships. Therefore, it may be that those studies included in Maricuțoiu et al.'s (2017) meta-analysis that deviated from a 1-year interval showed more variation in job demands compared with studies using a 1-year interval (including the two studies in the present research). An examination of those primary studies used in Maricuțoiu et al.'s (2017) analysis that reported mean-level changes in job demands at several measurement points partially supports this assumption. For example, Chambel, Lopes, and Batista (2016) found increasing job demands from Time 1 to Time 2 (9 months later). Likewise, Chambel and Oliveira-Cruz (2010) found changes in contract breach (as another indicator of job demands) across measurement points. However, there were no mean-level changes in job demands (described here as obstacles) across an eight-month interval in a study by Llorens-Gumbau and Salanova-Soria (2014). Consistent with the above reasoning, Kinnunen, Mäkikangas, Mauno, De Cuyper, and De Witte (2014) did not find significant changes in job demands (here: job insecurity) across measurement points, each 12 months apart from the previous one. Likewise, job demands (here: time pressure, task demands, and emotional demands) did not change in a study by Frins, van Ruysseveldt, van Dam, and van den Bossche (2016). However, not all studies included in Maricuțoiu et al.'s (2017) analysis assessed job demands at several measurement points. Likewise, we inferred to high study and job demands based on our samples rather than explicitly assessing these. Future research should investigate whether high job demands across all measurement points are indeed a precondition for finding the proposed associations.

Taken together, the findings of the present studies help to gain a more differentiated view of the relationship between work engagement and exhaustion. They particularly fuel the debate of whether these two constructs are opposite ends of a single dimension or distinct constructs. Our findings suggest that work engagement is simultaneously an indicator of current well-being, as well as a predictor of future ill-being. In other words, work engagement and exhaustion reciprocally relate to each other so that exhaustion represents both an “erosion of [work] engagement” (Schaufeli et al., 2008, p. 215) and one of its antecedents. Therefore, even when employees become exhausted over time, they can turn their exhaustion to engagement, particularly in a learning context, as used in our studies.

Future Research

More generally, the positive association between initial work engagement and increased exhaustion contributes to the assessment of a potentially negative side of work engagement, as highlighted by—amongst others—Bakker

et al. (2011). Our research advances knowledge on the descriptive trajectory of these relations, and this addition should be seen as the first step to investigate more complex questions that arise from these findings (Shipp & Cole, 2015). From our point of view, such questions should pertain to understanding the underlying mechanisms and their moderating factors. In the present study, we built on the transactional stress model (Lazarus & Folkman, 1984) to argue why engaged employees may get exhausted over time. Yet, we inferred information from these mechanisms rather than explicitly testing them. Therefore, we do not yet know whether engaged employees are indeed more likely to interpret task-related stressors as relevant (rather than irrelevant or positive) and whether they are more likely to mobilize resources to overcome these stressors irrespective of the potential to overcome the respective stressor. Even though some research, for example, by Britt (2003) and Britt et al. (2005), supports our theorizing, future studies are needed to empirically test the proposed process through which work engagement increases exhaustion over time.

Moreover, although there was some mean-level variation in work engagement and exhaustion across measurement points overall, both samples were characterized by high work engagement and relatively low exhaustion. However, there is growing evidence that shows interindividual differences in the development of well-being over time (e.g., Diener, Lucas, & Scollon, 2006) and in the relationship between changes in one type of well-being (here: work engagement) with a different kind of well-being (here: exhaustion). Mäkikangas et al. (2017) identified three distinct trajectories in the relationship between exhaustion and vigor over five measurement points spanning a total of 8 years. Thus, it is likely that the associations obtained in the present studies differ among individuals. More specifically, the associations between initial work engagement and changes in exhaustion, as well as between initial exhaustion and changes in work engagement, may vary among subgroups.

Practical Implications

This research has relevant practical implications. Researchers and practitioners alike have long been interested in increasing employees' work engagement and reducing their exhaustion as a means to improve performance (e.g., Bakker, Demerouti, & Sanz-Vergel, 2014; Markos & Sridevi, 2010; Masson, Royal, Agnew, & Fine, 2008). As we showed, engaged employees are less exhausted but have a higher risk of exhausting themselves over time. Exhausted employees are less engaged but have a higher likelihood to become engaged over time. These findings suggest that work engagement comes with a potential loss and that exhaustion comes with a potential gain. Therefore, work engagement and exhaustion should be jointly assessed and longitudinally

studied when testing the effects of interventions targeted to either increase work engagement or decrease exhaustion.

Notably, our findings imply that attempts to increase work engagement might boomerang in the long run and produce adverse effects for individuals and organizations. Job demands, such as work pressure, are the primary driver of exhaustion (Lee & Ashforth, 1996), whereas job resources, such as task significance or variety, are considered the main predictor of work engagement (Christian et al., 2011). To avoid undesired side effects, we propose to simultaneously assess job resources and job demands as a first step. In the next step, increases in job resources should be accompanied by decreases in (hindering) job demands instead of focusing on only one factor. The focus should rest on providing resources that match the nature of the respective job demand (Feuerhahn, Bellingrath, & Kudielka, 2013). In particular, line managers should be trained to become more aware of the potential risk of highly engaged employees becoming exhausted over time. Likewise, stress management training might be extended by drawing attention to highly engaged employees' risk of exhaustion.

Limitations

Although we found similar relationships between initial work engagement and exhaustion and their changes in two studies, the present research is not without limitations. First, women primarily participated in both studies. The question arises as to whether the results can be generalized to men. Gender was unrelated to study engagement and exhaustion in Study 1 and to work engagement and exhaustion in Study 2, findings that lend initial support for their generalizability. Nevertheless, we recommend further replication attempts of the present findings. Second, the design of the present studies could not completely rule out the possibility of systematic dropout. We did not find differences in demographics, study and work engagement, and exhaustion in Studies 1 and 2, yet it may be that other unmeasured factors accounted for systematic differences. Third, all data were self-reported, a factor that poses the risk of common-method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). However, great care was taken to reduce this risk by, for instance, ensuring the participants' anonymity and repeatedly measuring their engagement and exhaustion. Moreover, Harman's single factor test showed that the extraction of one factor accounted for only 38–40 percent of the variance at each measurement point in both studies, which is below the 50 percent criterion.

Conclusion

In conclusion, the present studies shed new light on the relationship between exhaustion and work engagement. By applying LGM, the results of our two longitudinal studies showed that even though the initial levels in work engagement and exhaustion and their changes were negatively related, the initial level of both variables related to an increase in the other variable. These results suggest a more complex dynamic of the interrelations than previously assumed. The discovery of these effects points to important implications for practice and the need for further research to test the relevant mechanisms that underlie these interrelations.

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