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Engagement During Demanding Workdays: A Diary Study on Energy Gained From Off-Job Activities

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Research on the effects of specific off-job activities, such as social and physical activities, on employees' work life seems to be inconclusive. Therefore, we investigated how energy gained from off-job activities the previous day after work hours, rather than the involvement in or the time spent on specific activities, helps employees to be engaged in their work during demanding workdays (i.e., high workload). We hypothesized that workload becomes a challenge demand and, consequently, increases employees' engagement in their work on the days employees had high (vs. low) energetic resources from their previous day's off-job activities. Our participants were 37 employees working at an elementary school, who completed an online daily diary at the end of the workday for a period of two weeks ($N = 37$ employees $\times$ 7.16 days on average $= 265$ measurement points). The results of the moderation analysis supported our hypothesis, showing that employees were more engaged in their work on the days they experienced a high workload *and* when they gained high levels of energy from the activities they undertook the previous day during nonwork-hours. Our findings contribute to our knowledge on how off-job activities influence employees' work life, showing that it is not just the activity but the energy gained from these activities that is important to deal with daily workload.

Keywords: energy, diary study, off-job activities, workload, work engagement

When employees invest a lot of effort in their work (e.g., when workload is high), they may perform well, but this effort expenditure naturally also consumes energy and results in strain (Alarcon, 2011; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Lepine, Podsakoff, & Lepine, 2005). It is therefore crucial for employee health and performance that employees have sufficient energy reserves to deal with demanding workdays (Demerouti et al., 2001; Meijman & Mulder, 1998). Most employees recover from work-related effort during their off-job time while engaging in a range of activities. Yet, findings on which off-job activities help most to recover from work-related effort are not clear-cut (for reviews, see Demerouti, Bakker, Geurts, & Taris, 2009; Sonnentag, 2012; Sonnentag, Venz, & Casper, 2017). A possible explanation for these inconsistent findings is that the specific activity per se is not necessarily a proxy of how energizing these activities are. For example, social activities may even further drain employees' energy reserves when these activities are used to talk about work-related problems and so may physical activities when employees are extrinsically motivated to exercise (ten Brummelhuis & Trougakos, 2014). Therefore, taking a different stand on how off-job activities relate to employee well-being, we propose that the energy that employees gain from their off-job activities helps employees to deal with their workload, which enhances their engagement in their work the next day. Furthermore, most researchers have thus far focused on the direct link between types of off-job activities and/or time spent on these activities and employee well-being (Oerlemans & Bakker, 2014; Rook & Zijlstra, 2006; Sonnentag & Natter, 2004; Tucker, Dahlgren, Akerstedt, & Waterhouse, 2008). The main aim of the current study is to investigate whether employees are able to use the *energetic resources* they gain from their off-job activities in the evening to become engaged in their work the next day when dealing with high workload. Although job demands consume employees' energy, they do not necessarily have to thwart employee well-being and performance (i.e., challenge demand; Cavanaugh, Boswell, Roehling, & Boudreau, 2000). That is, when employees are able to successfully deal with their workload on a day-to-day basis, this contributes to employee growth and achievement. Accordingly, in the present study, we argue that the energetic resources that employees gain from their off-job activities allow them to take advantage of the challenging potential of their workload the next day.

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Our study contributes to the nomological net surrounding off-job activities with its different perspective on the role of off-job activities, by both (a) looking at energy gained from these activities in general rather than the involvement in or time spent on specific activities and (b) examining the moderating effect of off-job activities between workload and work engagement rather than its direct effect on employee well-being. From a practical point of view, it is difficult to make clear recommendations as to which off-job activities employees should undertake based on the current literature. We argue that employees should engage in the activities that are energizing to them (which may differ from person to person) because it provides them the energetic resources to effectively handle their workload, which enhances employees' engagement in their work.

Off-Job Activities

In the recovery literature, the way employees use their off-job hours to recover from work is usually studied by looking at differences in employee well-being between the involvement in various types of activities (i.e., work-related, household, low-effort, physical, and social activities) and the time spent on these activities (Rook & Zijlstra, 2006; ten Brummelhuis & Bakker, 2012). Yet, the results are inconclusive, which makes it impossible to make recommendations about the best way to spend time after work to successfully recover from work. For example, Sonnentag (2001) showed that time spent on social activities during evening hours fostered employees' well-being before going to sleep, whereas Sonnentag and Natter (2004) showed that time spent on social activities contributed to flight attendants' depression symptoms at bedtime. Furthermore, Oerlemans and Bakker (2014) showed that employees felt vigorous after spending time on low-effort activities in the evening, whereas Sonnentag and Natter (2004) did not find a relation between the amount of time spent on low-effort activities and vigor.

There may be several explanations for the inconsistent findings regarding the time spent on specific off-job activities and employee well-being. It is conceivable that spending time with family and friends further consumes energy when people use this time to talk about work-related problems, whereas it can be energizing when people use this time to talk about positive work events (Ilies, Keeney, & Scott, 2011). Another explanation for the inconsistent findings could be that the number of hours spent on off-job activities may not be the best reflection of energetic resources gained from these activities. That is, spending one hour in the gym may be energizing, whereas spending five hours in the gym may actually increase fatigue. Finally, there may be between-person differences in the extent to which people recover from specific off-job activities. For example, people who are highly extraverted may benefit more from spending time on social activities compared to introverts (Oerlemans & Bakker, 2014). In line with these explanations, some researchers concluded that it is not the specific activity per se that is important for recovery but rather what employees gain from these activities (Oerlemans & Bakker, 2014; ten Brummelhuis & Trougakos, 2014; Tucker et al., 2008). To test this idea, in the current study, we focus on the amount of energy employees gain from their daily off-job activities rather than the specific type of activity or the amount of time spent on these activities. Particularly, we examine whether energy gained from off-job activities helps employees to effectively deal with their work and, as a consequence, enhances employees' engaged in their work.

Energy Gained From Off-Job Activities

Resources are defined as objects, personal characteristics, conditions, and energies that people value and that help employees to achieve their work goals and/or to cope with their job demands (Halbesleben, Neveu, Paustian-Underdahl, & Westman, 2014; Hobfoll, 1989; ten Brummelhuis & Bakker, 2012). Resources can be classified along two dimensions: (a) its source and (b) its transience (ten Brummelhuis & Bakker, 2012). First, resources originate either outside the person, in the social context (e.g., supervisor support and contextual resources), or within the person, such as personal traits and energies (i.e., personal resources). Second, resources can be either volatile or structural. Volatile resources can only be used once (e.g., energies), or they are temporal (e.g., mood), whereas structural resources are lasting resources that can be used continuously over a longer period of time (e.g., social network). In the current study, we focus on the amount of energy that employees gain from their off-job activities, which is a personal (i.e., within the person) and volatile (i.e., limited) resource. Energy as a resource is similar to the definition of energy as energetic activation (Quinn, Spreitzer, & Lam, 2012), also known as the extent to which people feel energized. It is a subjective experience synonymous to vitality (Ryan & Deci, 2008; e.g., "I have energy"). For a more in-depth discussion of different conceptualizations of human energy, we refer to the article by Quinn and colleagues (2012).

Workload and Energy Gained by Off-Job Activities as Predictors of Work Engagement

State work engagement is a work-related experience of vigor, dedication, and absorption that fluctuates within persons over short periods of time (Sonnentag, Dormann, & Demerouti, 2010). That is, employees may feel very energetic, enthusiastic, and immersed in their work on some days, but not on others. The work environment plays a vital role in explaining why employees are highly engaged in their work on certain days (Xanthopoulou & Bakker, 2012). Job resources such as being able to decide yourself how and when to perform your work and receiving feedback about how well you do your job are the main on the job drivers of daily work engagement (Bakker & Demerouti, 2014). Gaining energetic resources from off-job activities may similarly enable employees to fully engage in their work. The relation between job demands and work engagement is less clear, which is likely due to the fact that scholars often consider job demands as hindering personal growth and goal achievement. However, Cavanaugh and colleagues (2000) argued that not all demands hinder personal growth and achievement. Although acknowledging that all job demands consume energy, their challenge stressor-hindrance stressor framework states that demands like workload and time pressure may lead to a sense of personal accomplishment and goal achievement when employees overcome these demands (i.e., challenge demands). The meta-analysis by Crawford, Lepine, and Rich (2010) supports the idea that job demands such as workload and time pressure result in higher work engagement. Yet, workload has also

been associated with increased levels of employee burnout (Leiter & Maslach, 2004, 2009). Therefore, we propose that employees become more engaged in their work when they have the energetic resources (gained from their off-job activities) to experience their workload as challenging. Thus, we argue that workload in itself can have the motivating potential to engage employees in their work, but it will be more fostered under the right circumstance: when employees gained sufficient energetic resources from their off-job activities to see and utilize the energizing potential of their workload.

In the work domain, employees working at elementary schools (the focal occupational group in the present study) use their energetic resources during a day's work to deal with job demands such as interacting with pupils, teaching, preparing classes, and working under time pressure. Following the challenge stressor-hindrance stressor framework, we argue that demands like workload will lead to a higher sense of personal accomplishment and goal achievement when employees have the energetic resources to cope with these demands (i.e., challenge demands; Cavanaugh et al., 2000; Crawford et al., 2010). Research on the job demands-resources model (Bakker & Demerouti, 2017) supports our argument. One of the propositions of this model is that resources, especially when employees are confronted with job demands, set into motion a motivational process, resulting in higher levels of engagement. That is, when demands are high, resources are particularly needed and can therefore exert their motivating potential (Hobfoll, 2001). Under high demands and resources, jobs are what Karasek (1979) named "active jobs," which challenge employees to learn new things. Indeed, research supports this idea for combinations of different demands and resources such as pupil misbehavior and appreciation among teachers (Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007), workload and positive patient contact among dentists (Hakanen, Bakker, & Demerouti, 2005), cognitive demands and transformational leadership (Breevaart & Bakker, 2018), and social support and time urgency (Tadić, Bakker, & Oerlemans, 2015). The current study adds to this body of work, with its focus on resources that originate outside rather than inside the work domain. Following from these arguments, we argue that energy gained from off-job activities the previous day enables employees to face the energizing potential of their workload and become engaged in their work on a daily basis. Accordingly, we hypothesize:

> *Hypothesis 1:* Energy gained from off-job activities the previous day moderates the relation between daily workload and work engagement. Specifically, daily workload will result in higher work engagement when employees gained high (vs. low) energy from off-job activities the previous day.

Method

Participants and Procedure

Our participants were 37 employees working at three different primary schools in the Netherlands. After approval by the school management, participation council, and principals, we invited all 68 employees and asked them to fill out a daily diary questionnaire at the end of the workday for a period of two weeks. At the start of the study, the participants received a letter from the authors explaining the goals of the study. Furthermore, this letter contained the links to the online questionnaires and a unique login code with which participants gained access to the questionnaires. We used these codes to match the questionnaires that were filled out by the same participant on the different days. This study is in accordance with the general ethical guidelines from our university, and, therefore, our ethics committee declared this study as exempt.

In all, 46 of the 68 employees (67.65%) that were invited participated in our study. Of these 46 employees, nine filled out only one or two (out of 10) diary questionnaire(s). Because we use a within-person difference design, we excluded these participants from further analyses. Our final sample consisted of 37 employees, who filled out at least three questionnaires (54.41% of the original sample, ranging 3–10 days), on 7.16 days on average ($SD = 1.88$; $N = 37 \times 7.16$ days $= 265$ measurement points). Our sample consisted of 26 women (70.3%), 10 men (27.0%), and one person that did not disclose his or her gender (2.7%). The mean age of the participants was 46.67 ($SD = 12.55$ years), ranging from 23 to 64. On average, participants had 22.47 ($SD = 12.08$) years of work experience, of which they had worked for 17.36 ($SD = 12.67$) years for the current organization. Most of our participants were either cohabiting or married (88.9%), living with (41.7%) or without (47.2%) children. Finally, most employees were highly educated (88.9%) and employed as teachers (72.9%).

Measures

Daily workload was measured with three items developed by Bakker, Demerouti, Taris, Schaufeli, and Schreurs (2003). An example item is "Today, I had to work very fast." Participants could answer the statements on a 7-point scale, ranging from 1 (*totally disagree*) to 7 (*totally agree*).

Daily work engagement was measured using the nine-item state version of the Utrecht Work Engagement Scale (Breevaart, Bakker, Demerouti, & Hetland, 2012; Schaufeli, Bakker, & Salanova, 2006). Example items are as follows: "Today at work, I felt strong and vigorous" (vigor), "Today, my job inspired me" (dedication), and "Today, I got carried away when I was working" (absorption). Participants were asked to answer these statements on a 7-point scale (1 = *totally disagree*; 7 = *totally agree*).

Daily Energy from Off-Job Activities was measured by asking participants to indicate how much energy they gained from five types (work-related, household, physical, social, and low-effort) of off-job activities the previous day. For each activity, we asked them to answer the following question: "How much energy did you gain from engaging in: (a) work-related activities, (b) household activities and taking care of your children, (c) low-effort activities (such as watching television and reading a book), (d) social activities (such as visiting family and making calls), and (e) physical activities (such as exercising and going for a walk)?". The items could be answered on a 6-point scale ranging from 0 (*no energy*) to 5 (*a lot of energy*). We used the sum of the energy that employees gained from all these different activities as an indicator of the extent to which employees were energized by their off-job activities.

Strategy of Analysis

Because we were interested in intraindividual (i.e., daily, within-person) differences, participants filled out the same ques-

tionnaire multiple times. Therefore, the design of this study has a multilevel structure, with days ($N = 37 \times 7.16$ days $= 265$) nested within individuals ($N = 37$). The intraclass correlations showed that around half of the variance in our study variables was present at the day level, ranging from 44.4% in work engagement to 60.4% in workload (Table 1). We used the M*plus* "TYPE = COMPLEX" option (Muthén & Muthén, 1998–2015) to test our hypothesis. This option provides corrected standard errors and χ^2 test of model fit, taking into account that the observations are not independent (i.e., the same person fills out the questionnaire multiple times). We person-mean centered our independent and moderator variables so that they reflect intraindividual differences in employees' daily workload and energy gained from off-job activities. Finally, we used Dawson and Richter's (2006) excel sheet for plotting two-way interaction effects with simple slopes to plot our interaction effect.

Results

Descriptive Statistics

Table 1 shows the correlations, means, standard deviations, internal consistencies (Geldhof, Preacher, & Zyphur, 2014) and intraclass correlations of our study variables. To provide as much information a possible, we included both the within-person level, as well as the between-person level correlations.

Confirmatory Factor Analysis

We first performed a confirmatory factor analysis (CFA) to test for common method variance. The CFA included three factors: workload (three items), work engagement (three dimensions: vigor, dedication, and absorption), and energy gained from off-job activities (five activities: work-related, household, social, physical, and low-effort activities). The CFA showed good model fit, $\chi^2(41) = 74.65$, confirmatory fit index = .95; Tucker-Lewis Index = .93, root mean square error of approximation = .05; standardized root mean square residual = .07, and all items/dimensions loaded significantly ($p < .01$) on their intended factors.

Hypothesis Testing

We hypothesized that the amount of energy gained from off-job activities the previous day would moderate the relation between daily workload and daily work engagement. Accordingly, we tested and compared two models. First, we tested a model in which we included daily workload and energy gained from (all) off-job activities the previous day as predictors of employees' daily work engagement (Model 1). In Model 2, we entered the interaction term between daily workload and energy gained from off-job activities the previous day. We used the −2log-likelihood difference test to compare the fit of these two models. To compute the χ^2 difference test we used the log-likelihood values and scaling correction factors that are provided by M*plus* (see Satorra & Bentler, 2001 for the formulas).

The results for Model 1 showed that there were no main effects of daily workload and daily energy gained from off-job activities on employees' daily work engagement (Table 2). That is, the extent to which employees were engaged in their work on a daily basis was not contingent on employees' day-specific workload ($b = 0.083$, $SE = 0.061$, $p = .088$) or the amount of energy employees gained from the activities they undertook the previous day after work ($b = -0.161$, $SE = 0.134$, $p = .115$). However, importantly and in line with our hypothesis, we did find a significant and positive interaction effect of daily workload and energy gained from off-job activities the previous day on employees' daily work engagement ($b = 0.376$, $SE = 0.128$, $p < .01$; Figure 1). Thus, employees were more engaged in their work on the days they experienced a high workload and when they gained high levels of energy from the activities they undertook the previous day during nonwork-hours. To assess the fit of our interaction model, we compared this model (Model 2) to the model including only main effects (Model 1), which showed that the model including the interaction effect fits significantly better to the data than the model excluding the interaction effect (Δ−2log likelihood (1) = 24.588; $p < .001$). Formal tests of the significance of the simple slopes (± 1 *SD*) further supported our hypothesis, showing that the slope for low energy gained from off-job activities was not significant (slope = −0.059, $t = -0.966$, $p = .339$), whereas the slope was significant for high energy gained from off-job activities (slope = 0.235, $t = 3.803$, $p < .001$).

Discussion

With our current study, we wanted to shed light on the inconsistent findings regarding the role of off-job activities in employee well-being. We therefore focused on the underlying process represented by the energy that employees gain from engaging in off-job activities, rather than the activities per se or the time spent on these activities. In addition, rather than looking at the direct relation between the activities that employees engage in after work

Table 1
Means, Standard Deviations, Internal Consistencies (Between Brackets on the Diagonal), Within-Person Level (Below the Diagonal), and Between-Person Level (Above the Diagonal) Intercorrelations Between the Study Variables, N = 37 Persons, N = 265 Days

Study variables	$M_{observed}$	*SD*	1-ICC (%)	1	2	3
1. Daily energy gained by off-job activities	2.023	0.534	55.4	(.639)	−.037	−.202**
2. Daily workload	4.809	1.378	60.4	−.028	(.862)	.024
3. Daily work engagement	4.807	1.036	44.4	−.114*	.035	(.902)

Note. 1-ICC refers to the percentage of within-person variance observed for the variable.
* $p < .05$. ** $p < .001$.

Table 2
Unstandardized Results of Models Predicting Daily Work Engagement

	Model 1			Model 2		
	Estimate	*SE*	*t*	Estimate	*SE*	*t*
Intercept	4.807	.133	36.265***	4.815	.131	36.673***
Day-level main effects						
Workload	0.083	.061	1.357	0.088	.053	1.665*
Energy gained by off-job activities	−0.161	.134	−1.202	−0.101	.079	−1.283
Day-level interaction effect						
Workload × Energy gained by off-job activities				0.376	.128	2.938**
Model fit						
–2log likelihood		−384.068			−380.724	
Scaling correction factor for multiple linear regression		2.112			1.744	
Δ −2log likelihood					24.588***	
df		4			5	
Δ*df*					1	
Explained variance						
R^2		1%			3.3%	
ΔR^2					2.3%	

Note. R^2 is calculated by M*plus* following the procedure as described in the study by Snijder and Bosker (2012).
* $p < .05$. ** $p < .01$. *** $p < .001$.

and employees' well-being at work, we examined whether employees were challenged by their workload and, consequently, became more engaged in their work when they gained energetic resources from their off-job activities the previous day after work hours.

Implications for Theory and Practice

Employees are naturally fatigued after a day's work because of the time and energy they put into their work (Meijman & Mulder, 1998). Optimally, employees refill their energy reservoir during their off-job hours and, consequently, recover from their work before the start of the next workday. Research indeed shows that employees who psychologically detach from their work and recover during off-job hours are more engaged in their work the next day (Kühnel, Sonnentag, & Westman, 2009). In line with these findings, we found that employees were especially engaged in their work on the days that their workload was high, and they gained high levels of energy from their off-job activities the previous day after work. Put differently, when employees gained energetic resources after work, they were challenged by their workload the next day, which enhanced their work engagement on that day.

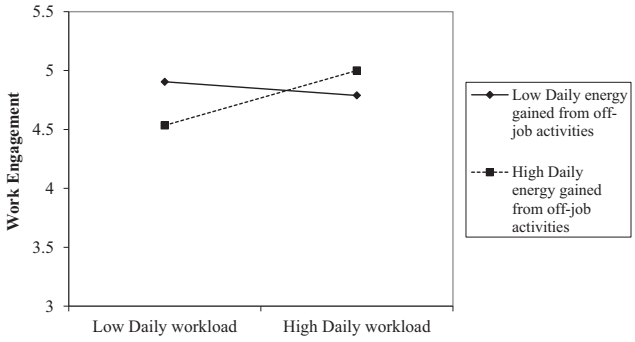

Figure 1. Moderation effect of daily workload and energy gained by off-job activities the previous day on employees' daily work engagement.

Our findings contribute to our knowledge on off-job activities, showing that the energy gained from off-job activities are important to deal with work-related effort. Previous research on off-job activities has mainly focused on the type of activities employees undertake after work or the number of hours spent on these activities. In hindsight, it is not that surprising that these earlier studies have produced mixed results. For example, social activities such as having drinks with friends may be energy draining when these friends complain about work-related issues, whereas they may provide energy when friends express their enthusiasm about their achievements. Also, physical activities may provide energy to a certain extent but may also cost energy depending on the number of hours spent in the gym. Our results build on the recent findings of Oerlemans, Bakker, and Demerouti (2014), showing that social and physical activities especially contributed to feeling recovered at bedtime when people felt happy during the activities. In that same year, ten Brummelhuis and Trougakos (2014) showed that specific off-job activities only reduced employees' fatigue the next morning when employees undertook these activities for intrinsic rather than extrinsic reasons. Together, these studies show that it is time to move beyond the idea that the time people spent on certain activities is in an indicator of how well people recover from their work. Our study and those of Oerlemans and colleagues (2014) and ten Brummelhuis and Trougakos (2014) suggest that it is much more important to focus on how people experience these activities and their reasons for engaging in these activities.

The results from our study also contribute to the discussion on challenge and hindrance demands. The question is whether job demands can be categorized as either challenging or hindering or whether this categorization depends on the situation or even the person. With regard to workload, research generally supports the idea that workload is a challenge demand because meta-analytic research shows that workload is positively related to employees' feelings of engagement (Crawford et al., 2010). Yet, workload has

also been associated with increased levels of burnout (Leiter & Maslach, 2004, 2009), suggesting that workload by itself can also be detrimental to employee well-being. In the current study, we did not find a significant relation between workload and engagement, although this relation was positive and almost reached significance (which may be related to our sample size). We did show that employees who gained high energetic resources from their off-job activities were especially engaged in their work on the days that they had high workload. It thus seems that workload becomes a challenge for employees who have sufficient resources to cope with this demand. In addition, the distinction between *daily* and chronic workload may also be important in this regard. That is, the chronic experience of workload may undermine work engagement and contribute to burnout, whereas employees may be perfectly able to handle their workload on a daily basis, especially when they gain sufficient resources during nonwork-hours to face another day with job demands. As an approximation of chronic workload, the aggregation of daily workload responses indeed showed a negative relation with averaged work engagement over the days (see between-person correlations in Table 1). However, this relation was not statistically significant, most likely due to limited statistical power at the between-person level.

In terms of practical implications, the present findings show that it is particularly through energizing activities during off-job time that employees can gain new energy so as to be successful at work, being challenged by their work pressure, and be engaged in their work. It is crucial to increase employees' awareness of the importance of undertaking off-job activities that are energizing to them. So, for example, rather than reluctantly going to the gym, employees may better decide to have a drink with a friend if that is an activity that provides them with energy rather than consuming their energy. For organizations, our findings show the importance of creating a climate that fosters work–life balance for their employees. For example, organizations may limit e-mail correspondence and smartphone use during evenings after work, so employees actually have a choice in what off-job activities to engage in. In addition, employers may especially want to monitor employees' working hours during demanding times (e.g., the end of the school year for teachers or Christmas times for postmen), so employees have sufficient time and energy for their off-job activities and stay engaged in their work.

Strengths, Limitations, and Future Research

To our knowledge, this study is the first to examine whether energy gained from off-job activities boosts the effect of employees' daily workload on their daily work engagement. We do have to acknowledge that we asked our participants to rate the amount of energy they gained from engaging in different off-job activities the previous evening, introducing the possibility of recall bias. Another option would be to ask participants to fill out a questionnaire before they go to bed, which may, however, interfere with their recovery process (Czeisler, 2013; Heo et al., 2017). In future research, the best option may be to ask participants to fill out a questionnaire in the morning about their experiences the previous evening (i.e., energy gained from off-job activities), as well as at the end of the working day about their work-related experiences (i.e., workload and work engagement; cf. Sonnentag, Mojza, Demerouti, & Bakker, 2012). Also, previous research has shown that sleep quality (but not quantity) is related to feeling more vital and less fatigued the next morning (Schmitt, Belschak, & Den Hartog, 2017; Winwood, Bakker, & Winefield, 2007). This implies that energy gained from off-job activities may be depleted or supplemented by sleep quality. Optimally, future research should ask for energy gained and depleted by different activities after work (such as social and physical activities, but also sleep) to have a good reflection of total amount of energy that employees have available in the morning before they go to work, for example, by using day reconstruction (Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004) and/or experience sampling methodologies (Csikszentmihalyi & Larson, 1987).

Furthermore, we focused specifically on the boosting effect of energy gained from off-job activities. Yet, there may also be a buffering effect; energy gained from off-job activities may buffer the negative effect of hindrance demands (e.g., role conflict and role ambiguity) on employees' engagement in their work. Energy gained from off-job activities may not only turn employees' workload into a challenge but also buffer the negative impact of hindering job demands on employees' feelings of engagement. Similarly, off-job activities may not only be energizing but also energy depleting, and future research is needed to single out these effects. For example, as referred to earlier, for introverts, engaging in social activities may be as energy depleting as spending two hours in the gym. Diving deeper into the concept of energy gained from off-job activities, future research may also consider to distinguish different types of energy (e.g., physical, mental) and examine whether the beneficial effects of these types of energy depend on the type of energy that is required from employees at work (e.g., a construction worker mainly needing physical energy). Interestingly, research has shown that although people have low physical energy, they are still able to push themselves, and those with high physical energy do not always exert much effort (Marks, 1977), which indicates the importance of studying both objective physical energy (e.g., blood glucose) and subjective energy (i.e., feeling energized; e.g., vitality, positive affect; for a review on different types and measures of human energy, please see Quinn et al., 2012).

By choosing to use self-report questionnaires, we introduced the possibility of common-method bias affecting our results. Yet, we specifically chose this design because we were interested in how energized people felt after their off-job activities, how they experienced their workload, and how engaged they felt in their work, which are all private experiences that are very difficult to assess by another person (e.g., spouse or colleague). However, Spector (2006) has shown that interaction effects are even more difficult to find when common-method bias is a serious problem. Because we found the predicted interaction effect and our CFA showed good model fit, we conclude that common-method bias has likely not been a major issue in the present study. As recommended by Podsakoff, MacKenzie, Lee, and Podsakoff (2003), we also assured participants' anonymity to reduce the risk of common-method bias influencing our results. Yet, more research is needed to replicate our results in larger samples that provide better statistical power. Result from our power analysis (Bolger, Stadler, & Laurenceau, 2012) showed that the slope for the within-subject predictors reached statistical significance in around 50% of the 1,000 simulated samples. The obvious consequence of having low power is that existing effects are not found, which is not the case

in our current study. Yet, future research is needed to examine whether our approach is indeed a meaningful approach to study the role of off-job activities in employee well-being. Although research on required sample sizes for sufficient power in diary studies is still in its infancy, existing research seems to suggest that at least 100 participants are needed to achieve a power of .80 and that to increase power, adding more subjects is more efficient than adding more time points (Bolger et al., 2012).

Our study and that of Oerlemans and colleagues (2014) suggest that it is worthwhile for recovery researchers to focus on the core assumptions of recovery from work. That is, more research is needed on replenishing resources that were lost during the day by engaging in activities that draw upon systems other than those used at work. This could, for example, be accomplished by using the day reconstruction method (Kahneman et al., 2004) in which people reconstruct their day by indicating which activities they engaged in and how resourceful (e.g., energized) they felt afterward. In this way, it is possible to assess how many resources were lost and built during the day, which activities contributed or were detrimental to the replenishment of resources, and whether different activities during the workday (e.g., social activities such as meetings or physical activities such as moving to a different office) require different activities after work in order to recover from work. In addition, interaction effects between time spent on certain activities and subjective feelings (e.g., energy and happiness) during these activities may be tested. For example, it may be that physical activities are energizing in the short run but drain energy resources in the long run. Furthermore, it would be interesting to focus more specifically on what people actually do during their off-job activities. For example, when people go to the gym with a colleague they may be more likely to talk about work and, consequently, gain less energy from this type of activity.

Conclusion

This quantitative diary study shows that employees become more engaged in their work on the days that they face a high workload and gained high energy gained from their off-job activities the previous day. Thus, when employees recover from their work-related effort and gain energy during off-job time, they are challenged by high workload and, consequently, are more highly engaged during these days. This daily recovery process may be crucial for daily job performance and enduring employee well-being.

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