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Publisher: Routledge

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European Journal of Work and Organizational Psychology

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/pewo20>

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Version of record first published: 14 Jun 2012.

To cite this article: Felieke E. Volman, Arnold B. Bakker & Despoina Xanthopoulou (2013): Recovery at home and performance at work: A diary study on self-family facilitation, *European Journal of Work and Organizational Psychology*, 22:2, 218-234

To link to this article: <http://dx.doi.org/10.1080/1359432X.2011.648375>

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Recovery at home and performance at work: A diary study on self–family facilitation

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This 5-day diary study among 65 Dutch employees focuses on the interplay between time on and off the job. We examined how daily off-job (work-related, physical, household) activities, in combination with the degree to which people want to engage in these activities relate to self–family facilitation (i.e., the positive influence of the fulfilment of one’s own interests on one’s family life). Further, we tested whether self–family facilitation relates to psychological detachment from work, recovery, and finally whether recovery relates to job performance. Multilevel analyses revealed that household activities enhance self–family facilitation only on days that people want to engage in such activities. Furthermore, spending time on household activities hinders psychological detachment on days people do not want to spend time on these activities. In addition, self–family facilitation and psychological detachment relate to better recovery the next morning. Finally, feeling recovered in the morning is beneficial for task performance during work. These findings emphasize the role of one’s “wants” in the degree to which off-job activities lead to recovery. Furthermore, the results highlight the importance of keeping a good interaction between the self and the family for daily recovery and performance.

Keywords: Diary design; Job performance; Life–work interaction; Psychological detachment; Recovery; Want–activities fit.

Daily diary studies have repeatedly shown that recovery during off-job time is important for employee well-being and job performance (Binnewies, Sonnentag, & Mojza, 2009a; Sonnentag, 2003). Although there are plenty of studies on the significance of specific types of off-job activities for recovery from work, the findings of these studies are not very systematic. For instance, Sonnentag (2001) supported the positive effect of low-effort, social and physical activities on well-being before going to bed, but Sonnentag and Natter (2004) only supported the beneficial effects of physical activities. These inconsistent findings underline the importance of studying third factors that may better explain the relationship between off-job activities and employee well-being. For a better understanding of the conditions under

which off-job activities particularly facilitate the recovery process, the present diary study examines the role of a person’s daily “wants” in the interplay between time off and on the job. We propose that engagement in off-job activities in which one wants to engage will align personal and family interests. This, in turn, is expected to have favourable effects on psychological detachment from work, recovery the next morning, and next day’s job performance.

We build on previous studies that integrate the work–family and recovery literatures (Moreno-Jiménez et al., 2009; Sanz-Vergel, Demerouti, Moreno-Jiménez, & Mayo, 2009), and extend these in order to capture a more complete picture of the life–work interaction. The added theoretical value of the present study lies to the fact that the role of

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individuals' "wants" to engage in specific off-job activities in relation to recovery is examined for the first time. We propose that the interaction between the time people want to engage in specific off-job time and the actual time spent on these activities determine the family situation and recovery. Additionally, this is one of the first studies that incorporate the role of the self in better understanding the life-work interaction. We assume that both the family and the work domains benefit when individuals manage to fulfil their self-interests.

THEORETICAL BACKGROUND

Recent studies have shown that productive behaviour fluctuates from one day to another (Sonnetag, 2003; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009; Xanthopoulou, Bakker, Heuven, Demerouti, & Schaufeli, 2008). These fluctuations may be explained by the fact that individuals perform successfully only when they allocate sufficient resources to the task at hand (Beal, Weiss, Barros, & MacDermid, 2005), which depends on the amount of available resources on each specific moment in time (Hobfoll, 1998). Therefore, people need to replenish their resources (i.e., recover) on a daily basis, in order to be able to meet performance requirements.

The conservation of resources (COR) theory (Hobfoll, 1998) explains the recovery process from work-related effort during evening hours. Accordingly, people strive to gain, maintain, and protect their resources, and stress occurs when resources are threatened, lost, or not gained after investment. Restoring the resources that have been used up during work is called recovery (Sonnetag, 2003). Specifically, recovery is a process during which an individual's functioning resources return to baseline (Sonnetag & Natter, 2004).

We focus on three off-job activity categories: work-related, household, and physical activities. The results of previous diary studies underline the importance of testing potential moderators in the relationship between off-job activities and daily recovery. For instance, Sonnetag (2001) found a negative effect of work-related activities on daily recovery. The findings of Sonnetag and Natter (2004) did not support this relationship. Previous diary studies did not support any significant effect of household activities on recovery (e.g., Rook & Zijlstra, 2006; Sonnetag, 2001; Sonnetag & Natter, 2004; Sonnetag & Zijlstra, 2006). And although all these diary studies found a positive effect of physical activities on recovery, one could suggest that engaging in these activities hinders recovery since it requires energy investment (just like engaging in work-related and household activities).

Resource investment in off-job activities does not have to hinder the recovery process when people engage in activities they want to do. Engaging in intrinsically motivating activities (i.e., that match people's wants) may contribute to recovery by generating feelings of achievement (Demerouti, Bakker, Geurts, & Taris, 2009) that in turn contributes to positive activation (Gable, Reis, & Elliot, 2000). For instance, people who go jogging feel a sense of achievement afterwards. This may help people to feel happy, vital, and recovered at bedtime. Thus, a potential moderator in the relationship between off-job activities and daily recovery might be the degree to which people want to engage in these activities.

OFF-JOB ACTIVITIES AND THE ROLE OF WANTS

In the present study, we take a closer look at how employees spend their off-job time in order to refill their resource reservoirs in relation to their wants. We believe that the joint effect of the time spent on specific activities and the time people want to engage in these specific activities is important for recovery. By "wants" we mean what people wish and desire to do. Put differently, it is the willingness to invest time in a specific activity. This "want" is an indication of the degree to which the activity was a preferred and not a forced choice. However, we suggest that people who spend time on an activity they want to engage in, are more likely to recharge their batteries and gain resources. For instance, physical activities may enhance positive activation and feelings of achievement, thereby recharging individuals' resources. Although it may look trivial, engaging in work and household activities can also provide resources, especially for individuals with a high salience of the family or work role. These people actually choose to engage in work and household activities (Greenhaus & Powell, 2003), because this reinforces their respective identities and thus provides meaning and purpose in life (Thoits, 1991).

There are two reasons why the joint effects of the time spend on certain activities and the respective "want" is critical for recovery. First, the limited resource model of behaviour regulation (Baumeister, Bratslavsky, Muraven, & Tice, 1998) suggests that people deplete regulatory resources when they force themselves to engage in an activity. Subsequently, employees who have to regulate their behaviour at work inhibit recovery from work when they engage in off-job activities they do not want to do, because these activities deplete their regulation resources. However, when people do not have to force themselves to do an activity, they can recover and gain resources. In this case people spend time in the

activity because they want to, thereby increasing positive activation and energy.

Second, according to person–environment fit theory, a discrepancy between a person’s preferences (“wants”) or values and the characteristics of the environment make people dissatisfied (Edwards & Van Harrison, 1993). The mismatch leads to strain, which hinders the recovery process (Sonnetag, Kuttler, & Fritz, 2010). In contrast, value congruence leads to positive outcomes (Edwards & Cable, 2009). A match promotes performance, development, positive attitudes, and well-being (Daniels & De Jonge, 2010), which indicates that people refill their resource reservoir after resource investment (Hobfoll, 1998). This suggests that people feel satisfied when they actually spend time on activities that they want to do, which leads to flourishing and optimal functioning.

SELF–FAMILY FACILITATION

Besides a person’s wants it is also important to consider interaction of the “self” and the family in the recovery process. The work–family literature primarily focuses on the work and family roles (for reviews, see Eby, Casper, Lockwood, Bordeaux, & Brinley, 2005; Geurts & Demerouti, 2003), which does not provide a complete picture of the work–life interaction. When people experience strain because of their conflicting subidentities or roles, the experienced pressure comes not only from the family or one’s work, but also from the self (Hall, 1972). Thus, the personal interests in relation to the work and family roles have to be considered as well (Barnett, Gareis, & Brennen, 1999; Geurts & Demerouti, 2003).

Based on the expansion hypothesis (Marks, 1977), Demerouti (2009; in press) examined the role of the self as complementary to the work and family roles. The “self” concerns “all those qualities of an individual that make him/her unique including interests, preferences, hobby’s, wishes and fears”, which do not refer to either the work- or the family-role (Demerouti, 2009, p. 3). These personal interests relate strictly to off-job time, personal hobbies, social contacts, etc., which the person does for him/herself and not in order to satisfy another role. Examples are participating in a theatre workshop, dining with friends, or playing a musical instrument. In contrast, the family interests concern activities related to the direct family (i.e., partners and children, if any). When considering the interface between the self and family, Demerouti proposes that personal interests can provide developmental (e.g., provision of skills or knowledge), affective (e.g., enhanced moods or confidence), capital (e.g., social or health improvements), or efficiency (e.g., increased focus or attention) gains (Carlson, Kacmar, Wayne, & Grzywacz,

2006). These gains, in turn, help people carry out family demands (Demerouti, 2009, in press). This situation is termed self–family facilitation, which is defined as the extent to which engagement in one’s personal interests yields gains that enhance functioning in the family domain. For instance, when a man comes back home from the gym, he is in a better mood that may spill over to the family domain (see Edwards & Rothbard, 2000). Self–family facilitation is thus the positive influence of the fulfilment of one’s own interests on one’s family life. From the three off-job activity categories we focus on, the physical activities are the only activities people typically do for their own interest and therefore we assume a positive effect on self–family facilitation. Engaging in household activities by definition helps to fulfil the family role. The work-related activities hinder the fulfilment of personal interests and family demands, and therefore inhibit the potential positive effects of the fulfilment of one’s own interest on functioning in the family domain.

Hypothesis 1: Daily off-job (work-related, household, and physical) activities relate to daily self–family facilitation. Specifically, work-related activities relate negatively to self–family facilitation, whereas household and physical activities relate positively to self–family facilitation.

However, the link between off-job activities and self–family facilitation is not exclusively a direct relationship. We propose that the extent to which these activities are a preferred choice (i.e., a “want”) moderates this relationship: Engaging in activities during off-job hours that one wants to do is more likely to result in self–family facilitation, irrespective of the type of activity. For example, a mother wants to put effort into preparing a cake for her daughters’ birthday. Doing so may enhance her positive mood, which, in turn, may have a positive impact on the atmosphere at home. Even the engagement in work activities may facilitate self–family facilitation, as long as people want to spend time on such activities. If one, for example, wants to prepare for an interesting workshop, working in the evening could create feelings of fulfilment and enthusiasm. When these positive feelings spill over to the self and the family domain, these feelings improve the interaction between these two domains. In short, we predict that the extent to which daily off-job activities are a preferred choice qualifies the relationship between these activities and self–family facilitation. Individual wants are even thought to transform the negative effect of work-related activities on self–family facilitation to positive. Thus, we hypothesize:

Hypothesis 2: The relationship between daily off-job (work-related, household, and physical) activities and daily self-family facilitation is moderated by the time individuals want to engage in these activities on that day. Specifically, a match between “wants” and time spent on activities increases self-family facilitation, whereas a mismatch between “wants” and time spent on activities decreases self-family facilitation.

PSYCHOLOGICAL DETACHMENT

The interaction between off-job activities and the respective “wants” does not only determine the degree to which individuals reach self-family facilitation, but also the degree to which they detach from work during off-job hours. Psychological detachment is a core experience of the recovery process (Sonnetag & Fritz, 2007), and refers to the sense of being away from work not only physically, but also mentally (Etzion, Eden, & Lapidot, 1998). The recovery process is inhibited when people are unable to switch off, because the functional system that is activated during the day is still activated during leisure time (Cropley, Dijk, & Stanley, 2006). This activation costs additional resources and hinders restoration and replenishment of the reservoir (Hobfoll, 1998). The extent to which individuals stop thinking about work is determined by the activities they engage in during the evening (Sonnetag & Bayer, 2005). For example, people who finish a job task at home or prepare for the next workday are less likely to switch off from work. In contrast, individuals who go jogging or clean their house are more likely to get distracted from job-related duties (Yeung, 1996) and thus, to detach (except for individuals with physical demanding jobs).

Hypothesis 3: Daily off-job (work-related, household, and physical) activities relate to daily psychological detachment. Specifically, work-related activities relate negatively to psychological detachment, whereas household and physical activities relate positively to psychological detachment.

In addition to the main effects between off-job activities and psychological detachment, we propose that individuals are more likely to detach when they engage in activities they want. These activities create positive attitudes and enhance well-being (Daniels & De Jonge, 2010). It is likely that people become fully absorbed in these enjoyable activities, and forget about other worries. Consequently, engaging in activities one wants can reduce the regulatory burden (Moller, Deci, & Ryan, 2006). In this case, there are no further demands set on the limited regulation resources, so recovery can occur (Sonnetag, 2003). Therefore, we propose that individuals detach parti-

cularly when they spend time on activities they want to do. For instance, people who want to garden are likely to detach from work when they mow the lawn, because they can get fully involved in this activity. Considering that engaging in work-related activities (whether individuals want to, or not) by definition refrains from detaching from work, this activity is excluded from the fourth hypothesis. Accordingly, we hypothesize:

Hypothesis 4: The relationship between daily off-job (household and physical) activities and daily psychological detachment is moderated by the degree to which people want to engage in these activities on that day. Specifically, a match between “wants” and time spent on activities increases psychological detachment, whereas a mismatch between “wants” and time spent on activities decreases psychological detachment.

Psychological detachment is not only determined by the off-job activities one engages in. The home situation that results from engaging in these activities is also important. Self-family facilitation indicates the degree to which the fulfilment of one’s own interests positively influences one’s family life. A high self-family facilitation level signifies the home situation is positive and fulfilling. Thus, there is no threat on the resource reservoir, which promotes recovery experiences (Hobfoll, 1998) like psychological detachment (Sonnetag & Fritz, 2007).

Besides the absent of a threat on the resource reservoir, self-family facilitation helps to restore the resource reservoir. That is, self-family facilitation goes hand in hand with developmental, affective, or efficiency gains that have been used up during work (Demerouti et al., 2009). When people invest time and energy in their own and family interests, it is likely that they get fully immersed in these activities, by which they forget their work more easily. The positive affect and the resources gained through self-family facilitation thus reduce negative activation and help people get fully engaged in their off-job experiences, both effects let people refrain from work. Therefore, we hypothesize:

Hypothesis 5: Daily self-family facilitation relates positively to daily psychological detachment.

EFFECTS ON NEXT DAYS’ RECOVERY AND JOB PERFORMANCE

In a series of diary studies, Sonnetag and colleagues (Sonnetag, 2001, 2003; Sonnetag, Binnewies, & Mojza, 2008) have shown that recovery experiences in the evening influence next day’s actual feeling of

being recovered. We propose that self-family facilitation may be considered an antecedent of recovery (i.e., the feeling that one has a full resource reservoir). People refill their resource reservoir with the developmental, affective, or efficiency gains that they get when they fulfil their own and their family interests. The gain in resources can generate a “resource caravan” and flourishing (Hobfoll, 1998). This positive situation, allows the reduction of the psychophysiological activation, thus individuals’ functioning can return to the baseline level (Sonnentag & Fritz, 2007).

The feeling of being recovered in the morning also depends upon the previous day’s psychological detachment (see Figure 1; Demerouti et al., 2009). Sonnentag et al. (2008) supported the relationship between recovery experiences during leisure time (e.g., psychological detachment), sleep, and affect the next morning. Specifically, they showed that when people detach from work in the evening they have a lower negative activation and they are less fatigued. The beneficial effects of psychological detachment have also been revealed in a study under pastors and their spouses (Sonnentag et al., 2010). When pastors detached from work during leisure time, they were less emotionally exhausted and their need for recovery was lower. Time off the job, a time when replenishment of resources can occur, is especially beneficial when people stop thinking about work, which enhances recovery (Demerouti et al., 2009).

Psychological detachment can be the mechanism that partly explains the link between self-family facilitation and actual recovery the next morning (see Figure 1). The positive situation at home allows restoring and increasing resources. At the same time, this situation leads to disengagement from work

which in turn also promotes recovery (Demerouti et al., 2009). Therefore, we hypothesize:

Hypothesis 6: Previous day’s self-family facilitation has a positive effect on recovery the next morning.

Hypothesis 7: Previous day’s psychological detachment relates positively to recovery the next morning.

Hypothesis 8: Previous day’s psychological detachment mediates the relationship between previous day’s self-family facilitation and recovery the next day.

Finally, the status of the resource reservoir affects work behaviours. When individuals have enough resources, they can invest them. As a result, they put energy in their job tasks, they perform at a higher level, or they may exert additional effort (Witt & Carlson, 2006). A diary study by Binnewies and colleagues (2009a) showed that when individuals felt recovered in the morning, their daily task performance, personal initiative, and organizational citizenship behaviour was higher, whereas their daily compensatory effort at work was lower. Moreover, a longitudinal study by Binnewies, Sonnentag, and Mojza (2009b) revealed that when people felt recovered during their leisure time, their task performance increased after 6 months. Additionally, a diary study by Sonnentag (2003) showed that day-level recovery was positively related to day-level work engagement and day-level proactive behaviour (personal initiative and pursuit of learning). All these studies confirm that performance benefits from recovery (see Figure 1). Based on this overview, we formulated our final hypothesis:

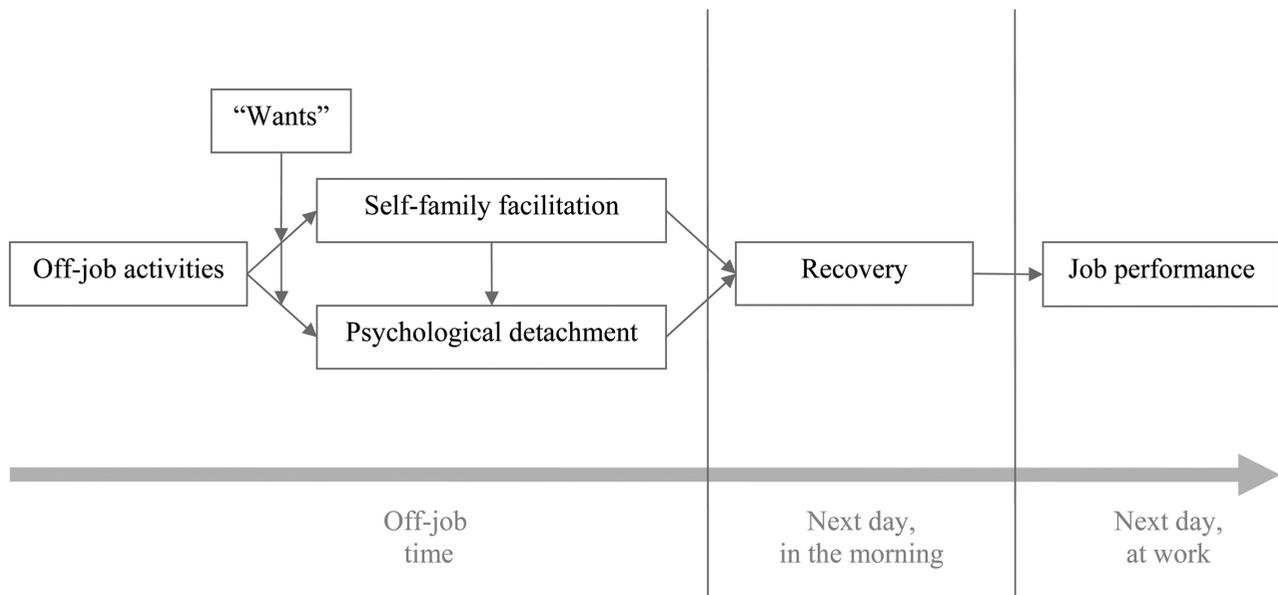


Figure 1. The hypothesized sequence of effects and study design.

Hypothesis 9: Daily recovery in the morning relates positively to job performance during that day.

Figure 1 represents the hypothesized sequence of effects and study design. In order to rule out potential differences on the study findings due to participants' general psychological well-being or family status, we have controlled for these variables while testing the study hypotheses.

METHOD

Procedure and participants

Seventy-five Dutch employees from various occupational contexts were initially approached to participate in this diary study. The first author gave each participant a survey package, including a general questionnaire, a diary booklet, and return envelopes. Participants were asked to fill in the general questionnaire right after they received the survey package. The diary booklet had to be filled in over five consecutive workdays, three times a day (in the morning, before leaving the workplace, and before going to bed). This captures day-to-day variations in the recovery process of one workweek (weekend experiences might have a different effect on recovery).

Sixty-five completed survey packages were returned (response rate=87%). The total sample included 36 (55%) men and 29 (45%) women. Of them, 35 lived with a partner but without children, 13 lived with a partner and children, 11 lived alone and without children, three lived with their parents, and two had a family status not specified in our categories (one response was missing in the data). On average, they were 36 years of age ($SD = 11.5$) and their mean work experience was 14 years ($SD = 11.2$). Most participants had a higher vocational degree (42%), followed by a university degree (23%). The majority worked in the health care sector (22%), followed by the government sector (20%). Other sectors that were represented in the sample were management (9%), education (9%), business service (8%), construction (6%), communication (5%), industry (3%), and culture (2%).

Measures

General questionnaire: Control variables

Generalized psychological well-being was measured with the 12-item version of the General Health Questionnaire (Goldberg, 1972). Six items were positively phrased (e.g., "Lately, I am able to concentrate") and six items were negatively phrased (e.g., "Lately, I was unhappy and depressed"). All

negatively phrased items were reverse-coded before the analyses. Items were scored on a 4-point scale, ranging from 1="a lot less than normal" to 4="better or more than normal" (Cronbach's $\alpha = .83$).

Sociodemographic variables like gender, age, education, organizational tenure, and sector were measured with one item each. Further, we asked participants to report their family status by responding to one of the following six categories: "with a partner but without children"; "with a partner and children"; "single, without children"; "single, with children"; "living with parents"; and "not specified".

Diary data

In the morning. Daily recovery was measured with the scale of Sonnentag (2003) that consists of the following three items: "Because of the off-job activities pursued yesterday, I feel recovered/I feel relaxed/I am in a good mood". The response categories ranged from 0="no, totally disagree" to 6="yes, totally agree". Cronbach's alphas across the five occasions ranged from .86 to .94 ($M = 0.90$).

After work. Daily job performance was measured with six adapted items from the scale of Williams and Anderson (1991). The selection and adaptation of the specific items was based on their face validity for the specific study. An example item is "Today, I performed the tasks that were expected of me". Two items were negatively phrased (e.g., "Today, I neglected aspects of the job I am obliged to perform/ Today, I failed to perform essential duties") and were reverse-coded for the analyses. Items were scored on a 5-point scale, ranging from 1="totally disagree" to 5="totally agree". Cronbach's alphas ranged from .72 to .79 ($M = 0.75$).

Before going to bed. For daily off-job activities, the participants had to read a short description of three activity categories. The three categories were: (a) work-related activities (e.g., finishing or preparing work tasks), (b) household activities and taking care of the children (e.g., cooking, and looking after the children), and (c) physical activities (e.g., exercise, and cycling). The participants could fill in how much time they spent on each activity category that day after coming home from work.

Daily wants were measured with one item for each activity category separately (i.e., "Today, how much time did you want to spend on work-related/household/physical activities?"). Items were scored on a 5-point scale, ranging from 1="no time" to 5="a lot of time".

Daily self-family facilitation was measured with three items from the scale developed by Demerouti

(2009) that were adapted so as to refer to the day level. Demerouti modified items of the Dutch validated questionnaire “Survey Work-home Interference Nijmegen” (SWING; Geurts et al., 2005) to capture the interaction between the self and the family domain. The items used in the present study were (1) “Today, after spending time on my personal interests, my wish to do something with my partner/family increased”; (2) “Today, after spending time on my personal interests, I came home in a good mood, which positively influenced the home atmosphere”; and (3) “Today, because of my personal interests, I became relaxed and gained energy, by which I could enjoy my family more”. Items were scored on a 5-point scale, ranging from 1 = “totally disagree” to 5 = “totally agree”. Cronbach’s alphas ranged from .79 to .89 ($M = 0.85$).

Daily psychological detachment was measured with the four-item scale of Sonnentag and Fritz (2007) that was adjusted so as to refer to day level (e.g., “Today, during my time off the job I could forget about my work”; 1 = “totally disagree”, 5 = “totally agree”). Cronbach’s alphas across the five occasions ranged from .90 to .95 ($M = 0.93$).

Analytical strategy

The diary design of this study is a typical multilevel design with days nested within persons. Thus, data is represented in two interdependent levels: day-level data (Level 1 = within-person; $N = [5 \times 65] = 325$ study occasions) nested within persons (Level 2 = between-person; $N = 65$ participants). Preliminary analyses on all day-level variables showed that the intraclass correlations (ρ) were of .50 or higher, which strongly supports the use of multilevel analysis. We performed multilevel analyses with the MLwiN 2.10 program (Rashbash, Browne, Healy, Cameron, & Charlton, 2009). Power analyses for two-level models with the optimal design program (Spybrook, Raudenbush, Liu, Congdon, & Martínez, 2008) for 65 persons and 5 days per person resulted in a value of .87, suggesting adequate power for the present study. The predictor variables on the day-level (e.g., off-job activities, wants) were centred to each person’s mean over the 5 days, whereas the predictor variable on the person level (i.e., general psychological well-being) was centred to the grand mean.

RESULTS

Descriptive statistics

Table 1 presents the means, standard deviations, and correlations among the study variables. To compute correlations, we averaged day-level variables across the 5 days. Demographic variables were not sig-

nificantly related to the dependent variables, and were therefore excluded from further analyses. Nevertheless, we controlled for “family status” in all analyses due to the significance of this factor for the specific study. Family status was a categorical variable with six categories. However, there was one category that was not represented in our sample (“single, with children”); thus, we used four dummies in our analyses.

Table 1 shows that psychological detachment, self-family facilitation, and recovery correlate positively. To test the potential overlap among these variables, we performed confirmatory factor analysis. Due to the nested nature of our data (i.e., days nested to persons), we have followed the recommendation of Bolger, Davis, and Rafaeli (2003) for testing measurement models in diary studies, and have used pooled within-subject data after centring around each subject’s mean. This approach allows a demonstration that measurement models are sound at the level of the average person for data collected over time. We compared the proposed three-factor model (where detachment, self-family facilitation, and recovery represented three distinct factors, and the items of each scale loaded on the respective factor) with three alternative two-factor models, and a one-factor model. Results showed that the proposed three-factor model had a good fit to the data, and fit better than any other alternative model, suggesting that psychological detachment, self-family facilitation, and recovery are empirically distinct factors across the 5 days of analysis. Detailed results of these analyses are available from the third author upon request.

Off-job activities and moderation of “wants”

According to Hypothesis 1, off-job (work-related, household, and physical) activities relate to self-family facilitation. To test this hypothesis, we analysed a series of nested models: a null (intercept-only) model; Model 1, where we controlled for general well-being and family status; and Model 2, where day-level off-job activities were added. Results partly confirmed Hypothesis 1 (see Model 2 in Table 2). Work-related activities related negatively to self-family facilitation, $t = -2.09$, $p < .05$. Physical activities related positively to self-family facilitation, $t = 2.43$, $p < .05$. There was no main effect of household activities on self-family facilitation, $t = 0.75$, *ns*.

In Hypothesis 2, we proposed that “wants” moderate the relationship between off-job activities and self-family facilitation. To test this hypothesis, we added day-level “wants” and the interaction terms (Off-job activity \times Want). The results are presented in Model 3 of Table 2. There was a marginally

TABLE 1
Means, standard deviations, and correlations among the study variables

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<i>Person-level variables</i>																		
1. Gender	0.45	0.50	—															
2. Age	35.78	11.55	-.09	—														
3. Family status	1.00	1.55	.14	.02	—													
4. Education	3.45	1.35	.03	-.08	-.01	—												
5. Tenure	14.32	11.17	.00	.90**	-.00	-.26*	—											
6. General well-being	2.80	0.45	-.03	-.15	.00	.07	-.26*	—										
<i>Day-level variables</i>																		
7. Time spent on work-related activities	0.64	0.87	-.15	-.04	-.12	-.17	.08	-.02	—									
8. Time spent on household activities	0.99	0.62	.02	.19	.02	.18	.18	.02	-.01	—								
9. Time spent on physical activities	0.95	0.66	-.20	.19	.10	-.20	.35**	.14	-.06	.16	—							
10. Wants to spend time on work-related activities	1.57	0.61	.00	.03	-.18	-.07	.19	.00	.77**	.00	.04	—						
11. Want to spend time on household activities	2.17	0.47	.05	.09	-.05	-.08	.11	-.09	.16	.51**	.00	.13	—					
12. Want to spend time on physical activities	2.45	0.80	.12	.07	-.09	-.13	.20	-.02	-.13	.21	.45**	.04	.32**	—				
13. Psychological detachment	3.70	0.80	.17	-.23	.06	-.05	-.12	.17	-.23	.08	.12	-.21	.01	.14	—			
14. Self-family facilitation	3.18	0.62	.15	-.12	.13	-.12	-.01	.32**	-.19	.18	.31*	-.03	-.02	.30*	.41**	—		
15. Recovery	4.06	0.81	.10	-.06	.09	-.03	.06	.33**	-.15	.14	.40**	-.05	.01	.27*	.61**	.71**	—	
16. Job performance	4.00	0.38	.14	-.12	-.08	-.23	-.02	.01	-.09	.10	.02	-.12	.12	.09	.13	.13	.02	—

N = 65. Daily level data was averaged across the 5 days. **p* < .05, ***p* < .01.

TABLE 2
Multilevel estimates for models predicting daily self-family facilitation

Variables	Null model			Model 1			Model 2			Model 3		
	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t
Intercept	3.18	0.08	41.79***	3.10	0.10	31.59***	3.10	0.10	31.59***	3.06	0.10	41.22***
General well-being				0.44	0.16	2.75**	0.44	0.16	2.75**	0.43	0.16	2.72**
Family status 1; partner, children				0.15	0.19	0.82	0.15	0.19	0.82	0.15	0.18	0.79
Family status 2; single, no children				0.11	0.20	0.56	0.11	0.20	0.56	0.10	0.20	0.52
Family status 4; at parents				0.29	0.35	0.84	0.29	0.35	0.84	0.27	0.34	0.80
Family status 5; not specified				0.52	0.42	1.23	0.52	0.42	1.23	0.54	0.41	1.30
Time spent on work-related activities							-0.10	0.05	-2.09*	-0.04	0.06	-0.68
Time spent on household activities							0.04	0.06	0.75	0.07	0.07	1.12
Time spent on physical activities							0.10	0.04	2.43*	0.15	0.06	2.68**
Want to spent time on work-related activities										-0.09	0.08	-1.14
Want to spent time on household activities										-0.13	0.08	-1.76
Want to spent time on physical activities										-0.07	0.06	-1.17
Work-related activities × Want										0.06	0.07	0.78
Household activities × Want										0.20	0.11	1.87 [§]
Physical activities × Want										0.01	0.05	0.12
-2 × log			736.69			714.86			703.48			676.25
Δ-2 × log						21.84***			33.22***			60.45***
Δdf						5			8			14
						R ²			R ²			R ²
Level 1 (within-person) variance	.42	.04		.41	.04	1%	.40	.04	4%	.38	.04	8%
Level 2 (between-person) variance	.30	.07		.25	.06	15%	.26	.06	14%	.24	.06	20%

N = 65 employees, and N = 325 observations. All variables except general well-being and family status were measured at the daily level. Daily level variables were averaged across the 5 days. [§]p < .06, *p < .05, **p < .01, ***p < .001.

significant moderation effect of the “want” to perform household activities on the relationship between time spent on household activities and self-family facilitation, $t = 1.87, p = .06$. To examine the direction of this effect we probed the interaction by using Preacher, Curran, and Bauer’s (2006) approach. We used values at 1 SD above and below the mean of the moderator. Probing results revealed that the simple slope was significant at +1 SD of “want” for household activities, estimate = 0.27, $z = 2.07, p < .05$, but not at -1 SD, estimate = -0.13, $z = -0.99, ns$. Figure 2 shows that spending time on household activities was positively related to self-family facilitation only on days participants wanted to engage in these activities. In conclusion, the results partly support Hypothesis 2 since the hypothesized effects were significant for household activities, but not for work-related and physical activities.

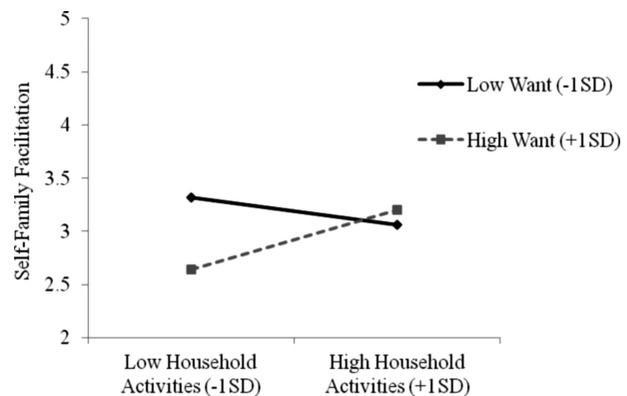


Figure 2. Time spent on household activities interacting with the “want” to engage in household activities in predicting self-family facilitation. The simple slope for high want is significant at $p < .05$.

According to Hypothesis 3, off-job (work-related, household, and physical) activities relate to psychological detachment. The results of multilevel analyses

TABLE 3
Multilevel estimates for models predicting daily psychological detachment

Variables	Null model			Model 1			Model 2			Model 3		
	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t
Intercept	3.70	0.10	37.35***	3.69	0.13	28.18***	3.69	0.13	28.18***	3.64	0.13	27.75***
General well-being				0.30	0.22	1.38	0.30	0.22	1.38	0.26	0.21	1.23
Family status 1; partner, children				-0.20	0.25	-0.79	-0.20	0.25	-0.79	-0.20	0.25	-0.81
Family status 2; single, no children				0.12	0.27	0.46	0.12	0.27	0.46	0.11	0.26	0.41
Family status 4; at parents				0.52	0.47	1.11	0.52	0.47	1.11	0.47	0.46	1.02
Family status 5; not specified				0.30	0.56	0.53	0.30	0.56	0.53	0.26	0.56	0.47
Time spent on work-related activities				-0.23	0.05	-4.62***	-0.23	0.05	-4.62***	-0.22	0.07	-3.45***
Time spent on household activities				-0.01	0.06	-0.08	-0.01	0.06	-0.08	-0.04	0.07	0.61
Time spent on physical activities				-0.02	0.05	-0.47	-0.02	0.05	-0.47	-0.07	0.06	-1.06
Want to spend time on work-related activities										-0.05	0.09	-0.56
Want to spend time on household activities										-0.03	0.08	-0.33
Want to spend time on physical activities										0.05	0.07	0.82
Household activities × Want										0.25	0.12	2.13*
Physical activities × Want										0.06	0.05	1.07
$-2 \times \log$			829.34			800.12			779.66			751.62
$\Delta -2 \times \log$						29.22***			49.68***			77.72***
Δdf						5			8			13
Level 1 (within-person) variance	.52	.05		.50	.04	5%	.46	.04	5%	.45	.04	9%
Level 2 (between-person/ variance)	.53	.11		.50	.11	6%	.51	.11	12%	.49	.10	15%

N = 65 employees, and *N* = 325 observations. All variables except general well-being and family status were measured at the daily level. Daily level variables were averaged across the 5 days. **p* < .05, ***p* < .01, ****p* < .001.

(see Model 2 in Table 3) confirmed the negative relation between work-related activities and psychological detachment, $t = -4.62$, $p < .001$. Household, $t = -0.08$, *ns*, and physical activities, $t = -0.47$, *ns*, were not significantly related to psychological detachment. The results confirm Hypothesis 3 regarding work-related activities.

In Hypothesis 4, we expected that personal “wants” moderate the relationship between off-job activities and psychological detachment. The interaction between work-related activities and the “want” to engage in such activities was not tested, since people who spend their off-job time on work will not detach from work. Table 3 presents the results for this hypothesis. The “want” to engage in household activities moderated the relationship between time spent on household activities and psychological detachment, $t = 2.13$, $p < .05$. Plotting procedures for $+/-1$ *SD* of “wants” to engage in household activities revealed that the simple slope was not significant at $+1$ *SD* of “want” for household activities, estimate = 0.21, $z = 1.51$, *ns*, but it was significant at -1 *SD*, estimate = -0.29 , $z = -2.09$, $p < .05$. Figure 3 shows that people are less likely to detach on days that they engage in household activities while they do not want to do so. The moderation effect of “wants” was not significant for the relationship between physical activities on the one hand, and psychological detachment on the other hand, $t = 1.07$, *ns*. In sum, Hypothesis 4 is partly supported by the results since predictions were confirmed for household activities but not for physical activities.

Next, we predicted that self-family facilitation relates positively to psychological detachment (Hypothesis 5). The results of multilevel analyses confirmed this hypothesis, $\gamma = 0.22$, $SE = 0.07$,

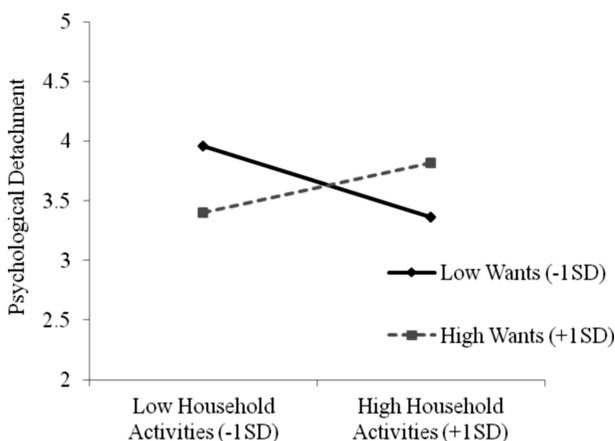


Figure 3. Time spent on household activities interacting with the “want” to engage in household activities in predicting psychological detachment. The simple slope for low want is significant at $p < .05$.

$t = 3.28$, $p = .001$, after controlling for general well-being and family status. Because (1) work-related activities relate negatively to self-family facilitation, (2) work-related activities relate negatively to psychological detachment, and (3) self-family facilitation relates positively to psychological detachment, one could assume that self-family facilitation mediates the effect of the off-job activities on psychological detachment. Post hoc exploratory analyses revealed that the significant direct effect for work-related activities on psychological detachment, $\gamma = -0.23$, $SE = 0.05$, $t = -4.62$, $p < .001$, became weaker when self-family facilitation was included in the equation, $\gamma = -0.21$, $SE = 0.05$, $t = -4.24$, $p < .001$. However, this decrease was not significant, as indicated by the Sobel test, $z = 1.59$, *ns*. One could also assume that self-family facilitation mediates the effect of the Activities \times Wants interaction term on psychological detachment (namely a mediated moderation effect; Mathieu & Taylor, 2006), since (1) “wants” moderate the relationship between household activities and self-family facilitation, (2) “wants” moderate the relationship between household activities and psychological detachment, and (3) self-family facilitation relates positively to psychological detachment. Post hoc exploratory analyses revealed that the previously significant interaction effect between Household activities \times Want for household activities (see Table 3) became nonsignificant when self-family facilitation was included in the equation, $\gamma = 0.23$, $SE = 0.12$, $t = 1.92$, *ns*. However, this full mediation was not supported by the results of the Sobel z -test, $z = 1.73$, *ns*; therefore, we must conclude that self-family facilitation does not mediate the effect of the off-job activities and the Activities \times Wants interaction term on psychological detachment.

Lagged effects

According to Hypothesis 6, previous day’s self-family facilitation relates positively to recovery the next morning. We created a lagged variable for self-family facilitation using the respective command of MLwiN. Results regarding Hypothesis 6 are depicted in Table 4, Model 2. Results show that self-family facilitation of the previous day related positively to next morning’s recovery, $t = 5.04$, $p < .001$, thus supporting Hypothesis 6. Next, we predicted that psychological detachment relates positively to recovery the next morning (Hypothesis 7). To test this hypothesis, we performed multilevel analyses by using a lagged variable for psychological detachment. The results confirmed Hypothesis 7, $\gamma = 0.36$, $SE = 0.09$, $t = 4.20$, $p < .001$.

Hypothesis 8 states that self-family facilitation of the previous day relates positively to recovery the

TABLE 4
Multilevel estimates for models predicting daily recovery

Variables	Null model			Model 1			Model 2			Model 3		
	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t
Intercept	4.06	0.10	40.55***	4.02	0.13	31.44***	3.90	0.14	28.90***	3.90	0.14	28.90***
General well-being				0.58	0.21	2.72**	0.68	0.22	3.03**	0.68	0.22	3.03**
Family status 1; partner, children				-0.05	0.25	-0.22	0.02	0.26	0.08	0.02	0.26	0.08
Family status 2; single, no children				0.07	0.26	0.25	0.28	0.28	1.01	0.28	0.28	1.01
Family status 4; at parents				0.39	0.46	0.86	0.39	0.48	0.82	0.39	0.48	0.82
Family status 5; not specified				0.53	0.55	0.96	0.59	0.58	1.01	0.59	0.58	1.01
Self-family facilitation							0.49	0.10	5.04***	0.43	0.10	4.52***
Psychological detachment										0.29	0.08	3.57***
$-2 \times \log$			986.71			957.77			732.17			719.90
$\Delta -2 \times \log$						28.91***			254.54***			266.81***
Δdf						5			6			7
Level 1 (within-person) variance	.95	.08		.93	.08	2%	.75	.08	21%	.71	.07	26%
Level 2 (between-person) variance	.46	.12		.39	.10	16%	.45	.11	2%	.46	.11	0%

$N = 65$ employees, and $N = 260$ observations. All variables except general well-being and family status were measured at the daily level. Daily level variables were averaged across the 5 days. * $p < .05$, ** $p < .01$, *** $p < .001$.

next morning through the mediation of psychological detachment. Table 4 presents the results regarding Hypothesis 8 (Models 2 and 3). It is shown that after including the mediator, the magnitude of the relationship between self-family facilitation and recovery dropped significantly, Sobel $z = 2.03$, $p < .05$, suggesting a significant partial mediation effect. To conclude, these results support Hypothesis 8. Previous day's psychological detachment partially mediates the relationship between previous day's self-family facilitation and recovery as reported during the next morning.

Predicting job performance

According to Hypothesis 9, feeling recovered in the morning relates to better job performance during the day at work. Results of multilevel analyses supported this hypothesis. Recovery in the morning was significantly and positively related to job performance at work, $\gamma = 0.06$, $SE = 0.02$, $t = 2.55$, $p < .01$, after controlling for generalized well-being and family status.

DISCUSSION

The present diary study examined a model concerning the daily influence of off-job activities that people want or did not want to do on recovery and job performance. This study is innovative in that it combines the work-family and the recovery literatures, and adds significantly to these literatures in the following ways. First, previous studies only concerned the relationship between specific off-job activities and psychological detachment. The present study goes one step further by testing under which circumstances this relationship is most likely to occur. We found that people have difficulty to detach when they spend time on activities they do not want to do (particularly with regard to household activities). Second, this is one of the first studies to empirically test the concept of self-family facilitation (Demerouti, 2009). Our results emphasize that employees' personal interests have to be integrated in the work-family literature for a better understanding of the life-work interaction. Third, the beneficial effects of a good life-work interaction are empirically supported. Spending time on activities people want to engage in generates self-family facilitation that is beneficial both for recovery and job performance.

Off-job activities

This study clearly suggests that what people do during their off-job time determines the fulfilment of the self interest and consequently the life-work interaction. For example, we found that engaging in

work-related activities hinders self-family facilitation. When people invest their resources in their work, they cannot satisfy their own interests or fulfil their family demands. We found that the self facilitates the family when people are able to engage in physical activities during the evening hours, which gives them energy or a better mood, which is good for the home atmosphere. These findings build on previous findings of Sonnentag (2001), who found that people who are still occupied with work tasks during their time off cannot recover, whereas people who do sports can. We show that these off-job activities hinder or enhance the recovery process because of its relationship with self-family facilitation (i.e., the positive influence of the fulfilment of one's own interests on his/her family life).

Engaging in work-related activities during the evening hours hinders recovery, because people do not psychologically detach from work (Sonnentag et al., 2010). This was evident in the present study in which we found a negative main effect of work-related activities in the evening on psychological detachment. On days that employees spend their off-job time to prepare for a meeting the next day, they continue depleting those resources that have been used up at work (Cropley et al., 2006). As a result, psychological detachment is poor. Nevertheless, we also found a situation in which detachment is facilitated. Individuals forget their work more on days they reach self-family facilitation. In this case, people create a satisfying home situation and become more involved in their own and family interests, by which they can forget their work more easily.

Off-job activities and "wants"

How employees refill their resource reservoir is not only determined by how they spend their off-job time but also how they want to spend their off-job time. When people can actually match their preferences with the characteristics of the environment they feel satisfied (Edwards & Van Harrison, 1993). Our results build on to these ideas. We found that people enhance self-family facilitation when they engage in household activities and also want to spend time on this activity. Individuals who are into cooking are pleased when they spend time on this activity (in contrast to people who do not want to cook). In this case, they invest energy in an activity that is in line with their own interest and an activity that is important to them. This investment creates a feeling of achievement, which in turn enhances positive mood and well-being (Demerouti et al., 2009). At the same time, it is not a strain to engage in this activity, which preserves regulation resources (Baumeister et al., 1998). In this resourceful situation people are willing to

spend resources and therefore, resources can be invested when trying to create a positive interaction between the self and the family (Demerouti, 2009).

We also found that people detach less when they engage in household activities that they do not want to spend time on. The results suggest that it is difficult to detach when people have to force themselves to engage in activities they do not want to do, because this puts a further demand on regulatory resources (Baumeister et al., 1998) that is problematic for detachment (Cropley et al., 2006).

The time spent on Activities \times Wants interaction effect on self-family facilitation and detachment was marginal significant only for household activities (a match between the “wants” and the time spent on household activities enhances self-family facilitation, a mismatch decreases psychological detachment). Limited evidence for this interaction effect may be explained partly by the magnitude of the main effects. The strong main effects may have partly overruled the hypothesized moderation effects.

The current results can also clarify the findings of previous diary studies that could not support any effect of household activities on recovery (e.g., Rook & Zijlstra, 2006; Sonnentag, 2001; Sonnentag & Natter, 2004; Sonnentag & Zijlstra, 2006). The significant Activity \times Want interaction effect suggests that detachment decreases only when individuals engage in household activities when they do not want to do so. It is likely that the participants in the previous diary studies differed in the degree to which they wanted to spend time on household activities, thereby distorting the effects of household activities on well-being.

Effects on recovery and job performance

The results suggest that people feel more recovered, when they manage to fulfil their own interests and those of the family because this helps them forget about their work the previous evening. This is the first study that shows that self-family facilitation is an antecedent of recovery. Self-family facilitation can be seen as a meaningful and resourceful process. Resources (e.g., energy) gained during the time people spent on personal matters are transferred to the family domain, where they serve as means to obtain other valued resources (e.g., social support). These findings expand the results of a study by Moreno-Jiménez and colleagues (2009). They showed that people’s well-being decreases when they cannot balance their family- and work-role. We build up these findings by considering the role of the self and its interaction with the family. Further, our findings confirm that psychological detachment from work is essential for the recovery process (Sonnentag & Bayer, 2005).

Our study also shows that people who feel recovered in the morning perform better at work. This is consistent with the assumptions of the COR theory (Hobfoll, 1998). COR theory proposed that people invest resources only if they feel they can (Hobfoll, 1998). In other words, when people feel they have enough energy in the morning, they will put this energy in their work, which enhances performance (Beal et al., 2005). Our results are in line with the findings of Binnewies et al. (2009b), who showed that feeling recovered during leisure time predicted an increase in job performance after 6 months. We found evidence for this relationship on a day-to-day level, thus capturing its dynamic character.

Study limitations

The present study has some limitations that need to be acknowledged. First, some of the day-level variables in this study explain a small amount of variance in the outcome variables that somewhat minimizes the contribution of the findings. Nevertheless, the reported effect sizes are comparable to other diary studies (e.g., Bakker & Xanthopoulou, 2009; Binnewies et al., 2009a; Mojza, Lorenz, Sonnentag, & Binnewies 2010; Sanz-Vergel et al., 2009; Sonnentag et al., 2008; Xanthopoulou et al., 2008), and may be considered typical of diary studies. We believe that the interactions that have been supported in the present study are substantial and relevant, because the direction and the effects are in line with the theory and with our expectations. Also, it is important to keep in mind that interaction effects in general explain limited amounts of variance (McClelland & Judd, 1993). Nevertheless, future studies may use more robust designs in an attempt to further replicate the study findings.

A second potential limitation concerns the general measurement of the family status categories. A more specific measure would account for the duration of the family status, the number and age of potential children. These family-related factors could be of great influence on self-family facilitation. Therefore we propose that future research must take this information in consideration. Third, we focused only on three activity categories, thereby leaving social and passive activities as potential variables to influence the life-work interaction. Additionally, each measured category combined multiple specific activities, which might have different effects on self-family facilitation and psychological detachment. This could explain some of our nonsignificant findings. Future research could examine specific activities in a more detailed way, perhaps by using more detailed methodologies like the day-reconstruction method (Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004).

Further, because self–family facilitation and psychological detachment were measured at the same time (before going to bed) the causal direction between these variables is open for discussion. We showed that self–family facilitation leads to psychological detachment, because of a low activation of the functional system. However, one could also suggest that those who are better able to detach experience higher levels of self–family facilitation, because they are able to fully engage in their own interests and those of the family. Future research could investigate alternative hypotheses and take a closer look at reciprocity in the relationship between self–family facilitation and psychological detachment. Further, theoretically speaking, it is also possible to hypothesize recovery facilitates self–family facilitation, or that it is the immediate outcome of recovery. In our study, the way recovery was measured excludes the latter possibility but future studies may consider testing such effects.

Another limitation concerns the limited generalization of our findings to the majority of employees and occupations. Although we have focused on a heterogeneous sample of employees from various work settings, this is by no means a representative sample. However, this should not be considered a significant drawback in this study, because we were mainly interested in testing specific psychological process, where representativeness is not a prerequisite. Finally, for reasons of efficiency, the “want” for each specific off-job activity category was measured with only one item. A single-item measure is sensitive to errors and reliability cannot be calculated. However, the support for interaction effects is somewhat indicative that the measurement of “wants” is not extremely problematic in our study.

Implications and future research

The present study emphasizes that time on and off the job is interrelated, because resources that are depleted at work can be replenished during the evening hours, which in turn may be invested the next day at work. Psychological detachment and self–family facilitation during the evening hours initiates the supply of new resources. These insights are important for employers and employees. Employers should take into account the benefits of time off the job for job performance. Employers can also enhance the recovery process by facilitating off-job activities that fulfil employees’ wants. With regard to employees, it may be difficult to find a good interaction between all their different priorities (their work, the concerns of their family, and their own interests). It is highly relevant for employees to understand the importance of engaging in activities that fulfil their own interests and preferences, also for successful detachment from work on a daily basis.

The current study captures day-to-day variations in the recovery process of one workweek. Since weekend experiences might have a different effect on recovery, it would be interesting for future studies to take a look on the effects of weekend activities on recovery, and whether people are busy with activities they really want to do during the weekend. Further, this study underlines the important role of individuals’ “wants” on recovery and job performance. Future research may focus on other aspects in the person that may influence the life–work interaction, for example the impact of the amount of pressure (in the form of limited control or insufficient time management) people perceive when they engage in activities. Time pressure at work relates to work–family conflict that may affect well-being at work and at home (Ilies et al., 2007). It is reasonable to assume that off-job pressure may also influence the life–work interaction. Preliminary evidence for this assumption comes from research by Montgomery, Peeters, Schaufeli, and Den Ouden (2003) who showed that home demands lead to negative home-work interference.

This study did not take into account the amount of sleep and the sleep-quality in relationship to recovery. These variables are interesting for future research, because sleep has been found to be significant for recovery (Winwood, Bakker, & Winefield, 2007), and sleep quality determines fatigue levels (Sonnentag et al., 2008). Therefore, (quantity and quality of) sleep is likely to affect life–work interaction.

CONCLUSION

There are noticeable daily differences in how much individuals benefit from their off-job activities. On days individuals are able to spend time on activities they want to do they experience higher self–family facilitation, and they are more likely to switch off from their work. On days when there is a discrepancy between the things people do and the things people actually want to do, people cannot fully enjoy the time with their family, and they are more likely to think about their work. These findings suggest that people are able to keep a better life–work interaction when they can listen to what they really want, when they can combine their own and their family’s interests, and when they mentally switch off from work in the evening. Such experiences facilitate recovery and enhance performance on a day-to-day basis.

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Original manuscript received July 2010

Revised manuscript received November 2011

First published online June 2012