

Exploring the linkage between the home domain and absence from work: Health, motivation, or both?

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Summary

The aim of this study was twofold. First, we examined depleting and enriching effects of employees' home domain (home demands and quality time spent at home) on unscheduled absence from work. Second, we tested the assumption of the medical and withdrawal models that absence duration and frequency are uniquely predicted by respectively health condition and job motivation. We used longitudinal, different-source data from 1014 employees. The results showed that home quality time was negatively related to absence frequency and duration in the following year through a physical pathway (less physical stress symptoms and health complaints) and through a psychological pathway (less psychological stress symptoms, increased job motivation). Employees with heavy home demands reported more physical and psychological stress symptoms, more health complaints, and lower job motivation. Accordingly, they had longer and more frequent sick leaves in the consecutive year. We conclude that the home domain adds to our understanding of absence from work. In addition, the model including cross pathways between health complaints and job motivation on the one hand, and absence frequency and duration on the other, best fitted the data. Thus, a clear distinction between volitional absence (frequency) and absence due to illness (duration) seems hard to justify. Copyright © 2012 John Wiley & Sons, Ltd.

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Although the literature on absenteeism is abundant, researchers thus far have been unable to satisfactorily disentangle the causes of this costly problem (Harrison & Price, 2003). The causes for absenteeism, defined as the failure to report for scheduled work (Johns, 2002), mainly have been sought within the work domain, such as job conditions and work attitudes (Erickson, Nichols, & Ritter, 2000). For example, researchers generally agree that work overload is positively related to sickness absence, whereas high job motivation is negatively related to sickness absence (Bakker, Demerouti, De Boer, & Schaufeli, 2003; Hardy, Woods, & Wall, 2003). It is possible that sickness absence can also be traced to the home domain. Employees have had to assume a growing number of family-related duties in the past few decades as more and more women have entered the workforce, the number of single-parent families has increased, and men have become more involved in household chores and childcare (Allen, Herst, Burck, & Sutton, 2000). The combination of work and home demands often leads to time pressure, stress, and conflict (Greenhaus &

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Beutell, 1985). Not surprisingly then, “family issues” became the most frequently cited reason for unscheduled absence among American workers (CCH, 1998). Nonetheless, studies investigating the effects of family responsibilities on absenteeism are scarce (Erickson et al., 2000). Therefore, the first aim of this study was to provide a more thorough explanation of unscheduled absence from work by including employees’ home characteristics. We refer to “home,” instead of “family,” because this encompasses today’s wide variety of possible home situations (e.g., living alone/with children/with friends). Moreover, in line with the current trend in the work–family literature to explore depleting and enriching linkages between the work and the home domain (e.g., Wayne Grzywacz, Carlson, & Kacmar, 2007; Weer, Greenhaus, & Linnehan, 2010), we will examine negative and positive relationships between employees’ home domain and sickness absence.

Our second aim concerns the distinction between absence duration and absence frequency, which is commonly made in the absenteeism literature (Darr & Johns, 2008). Although absence duration is thought to be caused by health issues, absence frequency is assumed to result from the employee’s dislike for the job (Hardy et al., 2003). Critics, however, argue that it is plausible that the number of times one calls in sick is also (partially) due to ill health, whereas taking longer sick leaves may also include voluntary, or avoidable, absence (Darr & Johns, 2008; Thomson, Griffiths, & Davison, 2000). Using a model-comparison approach, we will test whether the “different-cause” perspective of absence duration and frequency is justified. Our data are particularly suitable to compare absence models as we have different-source, longitudinal data of employee’s health, motivation, and absence rates. This enables us to question whether health complaints and job motivation reported by employees in the baseline year affect their absence duration and frequency as recorded by the company in the consecutive year.

Theoretical Framework

Depleting processes between home and work

Two approaches are commonly used to explain relations between the work and home domains: the conflict and the enrichment approach (Greenhaus & Beutell, 1985; Greenhaus & Powell, 2006). The conflict approach describes depleting processes between the home domain and work outcomes, assuming that time and energy are limited resources (Greenhaus & Beutell, 1985). This assumption can be deduced from more general resource theories that aim to explain stress, in particular the Conservation of Resource (COR) model (Hobfoll, 1989, 2002). The key assumption of the COR model is that people attempt to obtain, retain, and protect resources—such as self-esteem, socio-economic status, time, and energy—and that stress occurs when they risk losing or actually do lose such resources (Hobfoll, 2002). The conflict approach uses these insights to explain spillover effects between the work and the home domains. Assuming that employees have limited resources, demands made on them in one domain requires resources such as time and energy, thereby reducing the resources left over for the other domain (Greenhaus & Beutell, 1985; Goode, 1960). This implies that heavy responsibilities at home drain the employee’s resources or at least place them at risk. We will clarify how overload at home can deplete the employee’s personal resource supply, resulting in physical and psychological strain.

Home demands would particularly consume *physical* resources (e.g., vigor, sleep) because they require physical effort, may reduce sleep quality (e.g., care for newborns), whereas an overload of home demands reduces time in which employees can recover (Demerouti, Bakker, Geurts, & Taris, 2009; Weer et al., 2010; Voydanoff, 1988). Previous studies have indicated that heavy responsibility at home and commitment to the non-work role increase time pressure and consumes employee’s physical energy (Ten Brummelhuis, Haar, & Van der Lippe, 2010a; Van der Lippe, 2007; Weer et al., 2010). More specifically, Ten Brummelhuis, Haar et al. (2010) showed that couples who had children younger than six years and who performed more care tasks felt that they lacked time to recover from illness, could not have proper sleep, and felt under so much time pressure that their health suffered.

Similarly, Mostert (2009) found that female employees who had many tasks at home and needed to perform family tasks in a hurry reported more physical health complaints.

The home domain may also diminish *psychological* resources when employees have many tasks at home that they need to coordinate. Also, problems or conflict at home may evoke rumination and worries (Erickson et al., 2000; Peeters, Montgomery, Bakker, & Schaufeli, 2005). Empirical work–family studies confirmed that demanding home situations drain employees' psychological resources (Ross, Mirowsky, & Goldsteen, 1990; Weer et al., 2010). In a review study on the relation between family and health, Ross et al. (1990) concluded that most studies reported higher levels of psychological distress and depressive feelings among individuals with children at home. Likewise, Peeters et al. (2005) found that employees with heavy home demands experienced more feelings of burnout. Extending these studies, we will examine whether physical and psychological stress symptoms caused by home demands, being indicators of lack in physical and psychological resources (Hobfoll, 1989), offer an explanation for employees' absence levels.

Enriching processes between home and work

A growing number of authors emphasize on the possible benefits that combining work and home roles may have (Edwards & Rothbard, 2000; Greenhaus & Powell, 2006; Wayne et al., 2007). The home domain can also act as a resource, as posited by the *enrichment approach* (Greenhaus & Powell, 2006; Voydanoff, 2002). The enrichment approach builds on role accumulation theories (Marks, 1977) and the COR model (Hobfoll, 2002), the assumption being that resources can generate new resources. Hobfoll (2002) described how resources appear to come in bundles. To begin with, individuals who possess resources are better equipped to handle stressful circumstances. Furthermore, those individuals are more likely to avoid problematic situations, allowing them to invest in further resources instead of in preventing resource loss. In addition, individuals with more resources are less negatively affected when they experience resource drain, as they have substitute resources.

The enrichment approach specifies how several aspects of the home domain can act as a resource. *Physical* energy may be replenished to the extent that the home domain offers the opportunity to recover from work (Fritz, Sonnentag, Spector, & McInroe, 2010). The recovery literature consistently shows that spending time with family members or friends is positively related to well-being and enables employees to recover (Sonnentag, 2001). In addition, family members and friends may support the employee, for instance by assisting with domestic duties, thereby enabling the employee to replenish physical energy resources. Furthermore, employees receiving social support from their partner are less likely to experience severe stress and more likely to seek medical help to diminish stress complaints (Ross et al., 1990). Ross et al. (1990) summarized studies on the effect of having a partner and children on health. They concluded that individuals living together with a partner had a better physical health condition, measured by self-reports of health complaints as well as more objective health indicators (e.g., heart diseases, chronic illness).

The home domain may add to the employee's *psychological* resource supply because home life may bring forth several positive feelings. For instance, spending a relaxing day with family members may give the employee feelings of fulfillment, gratefulness, and meaning (Greenhaus & Powell, 2006; Ruderman, Ohlott, Panzer, & King, 2002). Also, social support in the home domain, such as friends advising on work related problems, may enable employees to put work problems into perspective and motivate them for work. A few empirical studies explored the enriching linkages between the home domain and work outcomes. Ruderman et al. (2002) showed that the home domain helps employees to function better in their work role due to enhanced self-esteem, emotional support, and advice. In a similar vein, Weer et al. (2010) reported that employees' non-work roles provided them with skills, perspectives, self-confidence, information, and social contacts. Another study found that employees who had high-quality relationships with their partner and who provided care for family members experienced more fulfillment and less emotional energy drain (Ten Brummelhuis, Van der Lippe, & Kluwer, 2010).

Extending these findings, we examine to what extent physical and psychological resources derived from the home domain protect employees from calling in sick.

Sickness absence models

The dominant paradigm in absence research consists of the withdrawal model and the medical model of absence (Johns, 1997). The key assumption of this paradigm is that two measures of sickness absences can be distinguished—frequency and duration—each explained by a unique predictor (e.g., Bakker et al., 2003; Hardy et al., 2003; Hensing, Alexanderson, Allebeck, & Bjurulf, 1998). The *withdrawal model* gives an explanation for absence frequency, referring to the number of times an employee calls in sick. This model assumes that low organizational commitment and dissatisfaction with work itself cause more frequent absence spells. Thus, the cause for absence frequency is motivational: Employees call in sick more often when they dislike their job (Johns, 1997, p. 120). The *medical model*, on the other hand, explains absence duration, referring to the time lost due to sick leave. This model assumes that absence duration is primarily linked to the employee's health status (Hensing et al., 1998). The cause for absence duration is thought to be medical: Employees are absent from work for more days when they are physically ill (Johns, 1997).

Several authors have remarked that there may be some difficulties with the strict distinction between the causes for absence frequency and duration (Martocchio & Harrison, 1993; Steel, 2003). It is arguable that an impaired health condition causes employees to call in sick more often, enhancing the number of absence incidences. Likewise, employees who have low motivation for their work may decide to illegitimately extend their sick leave, enhancing the number of days lost. Not surprisingly then, empirical research does not univocally support the view that absence duration and frequency have unique predictors. Darr and Johns (2008), for example, reported that physical illness predicted both absence duration and absence frequency. Absence duration has been related to motivational constructs, such as the value the employee places on non-work time (Youngblood, 1984). We will integrally examine the relationships between employees' health status and job motivation on the one hand and absence frequency and duration on the other hand. In the following section, we clarify how home characteristics can be linked to the absence models, whereby two competing hypotheses will be tested. The first is in line with the medical and withdrawal model, expecting unique predictors for absence frequency and absence duration. The second challenges this traditional view by expecting cross pathways between both predictors and the two absence measures.

Linking the home domain to absence models

We explore the relation between the home domain and absence from work by combining insights from the work–family literature and the absence literature. On the basis of the first, we assume that home demands increase the employee's physical and psychological stress symptoms. In contrast, employees who spend more quality time at home (relaxing and having high-quality interactions with family members and friends) are expected to experience less physical and psychological stress symptoms. Consequently, we link these physical and psychological stress symptoms to employees' health condition and motivation for work. According to the absence literature, these two factors then affect absence frequency and absence duration.

Two linking pathways are distinguished: a physical pathway and a psychological stress pathway. Theories from the field of biological psychology (Ursin & Eriksen, 2004) and neuroendocrinology (McEwen, 1998) help to understand the accumulation process whereby physical stress leads to various other health complaints. In order to cope with stressors (e.g., home overload), individuals are thought to mobilize additional resources. For instance, employees who have many chores at home invest time to complete all tasks, whereas employees who are in charge of the family schedule use cognitive resources (e.g., focus) for this coordination. In the short run, expending such effort to cope with stressors may result in physical stress reactions (e.g., a headache, feeling nervous). The body, however, is programmed to return to the pre-stressor state and activates several systems in the body to undo the initial stress reactions. Overfunctioning of these systems may cause various general health complaints in the long run (McEwen, 1998). After a prolonged time of feeling tense because of overload at home, employees may then be more susceptible for catching a cold or develop back complaints.

We expect that job motivation, a psychological state (Bakker, 2005; Ryan & Deci, 2000), will be influenced by psychological stress symptoms. Spillover of psychological states from one domain to the other has been mentioned as an important mechanism that links the work and home domains (Edwards & Rothbard, 2000). The theoretical reason for this is provided by the mood congruency hypothesis (Rusting & DeHart, 2000), suggesting that individuals with a positive mood interpret events more positively and have more positive feelings, whereas individuals with a negative mood have a more pessimistic view on things. Thus, when employees feel unhappy and depressed because of problems or high demands at home, it is likely that they carry these negative feelings to their work, impairing motivation for work. Moreover, because of their negative view, employees evaluate other life domains (e.g., work) in a more pessimistic way (Watson, 2000). It is then less likely that they assess their work as inspiring and motivating. By contrast, employees who experience little psychological stress and instead derive positive emotions from the home domain are thought to carry these positive emotions to work and evaluate events at work more optimistically. As a result, those employees will be more motivated for their work.

In line with the model-comparison approach, we test two hypotheses. The first expects that absence duration and absence frequency have unique predictors. Accordingly, home characteristics are related to absence duration through the physical pathway (physical stress symptoms → health complaints). A psychological pathway (psychological stress symptoms → job motivation) separately links home characteristics to absence frequency. For home demands, this means that a positive relationship with physical stress symptoms is expected, which in turn increases health complaints and then absence duration. Home demands will be positively related to absence frequency through enhanced psychological stress symptoms and diminished job motivation. The alternative hypothesis (b) assumes that a model including cross pathways fit the data better. Home demands are then related to absence duration in two ways: through the physical and the psychological pathway. Likewise, the linkage between home demands and absence frequency is also indirect through both pathways. We formulate a similar alternative hypothesis for the expected negative relationship between home quality time and absence from work.

Hypothesis 1a: Home demands are positively related to absence duration through the physical pathway only, while being positively related to absence frequency through the psychological pathway only.

Hypothesis 1b: Home demands are positively related to absence duration and absence frequency, through both the physical pathway and the psychological pathway.

Hypothesis 2a: Home quality time is negatively related to absence duration through the physical pathway only, while being negatively related to absence frequency through the psychological pathway only.

Hypothesis 2b: Home quality time is negatively related to absence duration and absence frequency, through both the physical pathway and the psychological pathway.

Method

Sample and procedure

We collected data in 2007 and 2008 at the Dutch subsidiary of an international financial consultancy firm with over 4500 employees. The company is a typical post-industrial, knowledge-intensive company. After we agreed with the company's privacy policy, the organization gave their consent and cooperation for data collection. Coding employee files with their personnel ID numbers guaranteed confidentiality of information whereas the organization protected

personal details. We had access to several types of data: a survey among employees, the company records of employees' absence rates, and the company's personnel records. We collected the survey data in September 2007 by using a Dutch web-based questionnaire. We informed employees about the online questionnaire through digital newsletters. In order to increase the response rates, we reminded respondents several times to fill in the survey. Although the organization asked employees to collaborate in the survey, we informed employees that participation was voluntary. We used the employees' absence records over the year 2008 for the dependent variables: individual absence frequency and duration. We used absence records over the year 2007 as control variables. We used the personnel records over 2007 to check the representativeness of our sample. Thus, although we measured the dependent variables absence frequency and absence duration in 2008, data for all other variables are from 2007. We merged the data sources using the employees' personnel ID numbers.

Of a total of 4617 employees, 1014 completed the questionnaire (a 22 per cent response rate). As regards job type, permanently tenured employees (98 per cent) were overrepresented (company level: 67 per cent, t -value = 8.63, $p < .001$). More specifically, our sample included 1 per cent partners (company: 3 per cent), 0.4 per cent interns (company: 16 per cent), 0.5 per cent detached employees (company: 10 per cent), and 0.1 other (company: 4 per cent). Thirty-nine per cent of the respondents held a management position. Respondents worked on average 36.55 hours weekly according to the company records, which is comparable with a mean of 36.10 hours for the company's total personnel file (t -value = 1.806, $p > .05$). A majority of the employees (75 per cent) had a full time job (36 hours weekly or more), which is comparable with the company's percentage (74 per cent, t -value = 0.29, $p > .05$). The mean tenure in our sample was 7.40 years, which is higher than the tenure of the company population (5.87, t -value = 6.10, $p < .001$). The mean age of our sample was 34.48, which was in line with the statistic for the overall personnel (34.02, t -value = 1.28, $p > .05$). Absence frequency in 2007 was 1.57 at the company level, which is similar to the mean number of spells we found for our sample in 2007 (1.54, t -value = 0.54, $p > .05$). The mean length of sick leaves in 2007 was 5.94 days, which is comparable with the number found for the total personnel (5.67 days, t -value = 0.27, $p > .05$). When comparing the absence rates of our sample between 2007 and 2008, we found that the mean length of absence spells was longer in 2008 ($M = 6.90$) in comparison with 2007 ($M = 5.94$). This difference was, however, not significant (t -value = 0.27, $p > .05$). The sample's absence frequency was similar in 2007 ($M = 1.54$) and 2008 ($M = 1.51$, t -value = 0.54, $p > .05$). There were somewhat more women in the response group than in the total company population (response group: 49 per cent female vs. 51 per cent male; company: 45 per cent female vs. 55 per cent male, t -value = 2.740, $p < .01$). Most employees had a university degree (40 per cent) or higher vocational education (31 per cent); 28 per cent of all participants had middle or lower vocational education. More than two thirds of all employees (79 per cent) were married or cohabiting.

Measures

Absence frequency

One of the dependent variables in this study is "individual absence frequency," the number of times an employee called in sick in 2008, based on data collected from the company's absence records. The organization registered the reason of absence as reported by the employee. We included only absence that was reported as being due to sickness, while omitting absence due to special leave (e.g., parental leave) or holidays.

Absence duration

The second dependent variable is "individual absence duration." Because the total time during which one is absent is highly correlated with the number of times one calls in sick, we divided the total time lost during 2008 (days) by the number of times an employee called in sick. Our measure of absence duration thus represents the mean number of days per spell during which an individual was absent due to illness during 2008. Absence due to special leave (e.g., parental leave) or vacation is not included in this measure. As the data were skewed to the right for both absence duration (skewness = 9.03, $SE = 0.08$; kurtosis = 94.05, $SE = 0.15$) and absence frequency (skewness = 1.65,

$SE=0.08$; kurtosis = 3.55, $SE=0.15$), we conducted log transformations. This resulted in reasonable normality distributions for absence duration (skewness = 1.37, $SE=0.08$; kurtosis = 2.59, $SE=0.15$) and absence frequency (skewness = 0.38, $SE=0.08$; kurtosis = -0.94 , $SE=.15$).

We included *health complaints* as the employee's perceived symptoms related to the musculoskeletal system, symptoms related to respiratory tract diseases, and complaints about the eyes and sight. We measured these variables using existing validated scales developed by occupational physicians in the Netherlands (VVBA, 2000). We rated all items on 5-point scales ranging from 1 (*never*) to 5 (*always*). We measured problems with the musculoskeletal system with five items (Cronbach's $\alpha=.82$), such as "Is your lower back stiff or painful?" We used three items to identify symptoms related to respiratory tract diseases (Cronbach's $\alpha=.68$), such as "Do you have recurrent problems with your breathing (coughing, shortness of breath, wheezing)?" Two items referred to problems related to sight, including "Do you have tired or burning eyes?" and "Do you have problems with your sight (even if you wear contact lenses or glasses)?"

We measured *job motivation* as intrinsic motivation for one's job, referring to the drive to perform a certain activity for the pleasure and satisfaction inherent in the activity (Ryan & Deci, 2000). We used Bakker's (2008) intrinsic motivation subscale including six items (Cronbach's $\alpha=.72$) such as "I would still do this work, even if I received less pay," "When I am working on something, I am doing it for myself," and "I get my motivation from the work itself, and not from the reward for it." We rated all these items on 5-point scales ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

We measured physical stress symptoms with a 6-item sub-dimension of the health scale (VVBA, 2000) on *physical stress complaints* (Cronbach's $\alpha=.78$), such as "Do you have nervous complaints (feeling nervous)?" "Do you suffer from severe headaches?" "Do find it difficult to concentrate?" "Do you have stomach complaints?" and "Do you have pain or a tight feeling in your chest or around your heart?" We rated all items on 5-point scales ranging from 1 (*never*) to 5 (*always*). A confirmatory factor analysis justified a division of the health scale into the sub-dimensions "health complaints" and "physical stress complaints." A 2-factor model significantly improved the model fit in comparison with a 1-factor model ($\Delta\chi^2(1)=590.63$, $p<.001$).

For psychological stress symptoms, we used the scale on *depressive feelings* measured by a short form of the Center of Epidemiologic Studies of Depression scale (Kohout, Berkman, Evans, & Cornoni-Huntley, 1995; Radloff, 1977). This short form consisted of eight items that assessed employees' feelings during the past two weeks (Cronbach's $\alpha=.92$). Sample items included, "I felt depressed," "I was unhappy," "I felt lonely," "I felt sad," and "I did not enjoy life." We rated all items on 5-point scales ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

We measured *home demands* on a scale developed by Ten Brummelhuis, Van der Lippe et al. (2010) consisting of six items (Cronbach's $\alpha=.74$). The scale included two items measuring physical home demands (e.g., "the tasks I perform at home are physically demanding"), two items measuring emotional home demands (e.g., "I am often emotionally exhausted due to conflicts at home"), and two items measuring mental home demands (e.g., "In comparison to other households my family duties are mentally more demanding"). Answer categories ranged from 1 (*strongly disagree*) to 5 (*strongly agree*).

We measured *home quality time* on a 3-item scale developed by Ten Brummelhuis (2009) to measure the relaxing and social interactive time spent in the home domain. The items were "My partner and I manage to spend time together," "I have free time for myself, besides my work and family tasks," and "I frequently do not have enough time to do fun things with my children/family members/friends" (reverse coded; Cronbach's $\alpha=.72$).

Control variables

We take into account several family characteristics as they may correlate with home demands and resources and therefore confound the relationships under study. We asked whether the employee had a *partner*, resulting in a dummy variable for presence of a partner (0 = *no*, 1 = *yes*). We measured having children as the *number of children* living at home, ranging from 0 to 7 children in this sample. Respondents filled in how many hours a week they spent on buying groceries, tidying up, cleaning, cooking, keeping the household accounts, doing repairs (*household chores*), taking care of children, accompanying children, and caring for other people (*care tasks*). We included

the demographic variables *age* (in years) and *sex* (coded as 0 = *male* and 1 = *female*) as control variables. Then, we controlled for several indicators of employees' workload and the available job resources, as those factors may influence sickness absence levels (Bakker et al., 2003). We asked employees to estimate their weekly *work hours*, using the following question: "On average, how many hours do you actually work in your job at [company name]? (Count overtime, but not your travel time. Take an average week, without holidays)". We entered *management position* as a dummy, labeled 0 (*staff position*) and 1 (*management position*). We measured *work overload* with six items from the Job Content Questionnaire (JCQ; Karasek et al., 1998), including items such as "Do you have to work very hard?" (Cronbach's $\alpha = .81$), using 4-point scales ranging from 1 (*almost never*) to 4 (*always*). We measured *job autonomy* with the Decision Authority Scale (JCQ; Karasek et al., 1998). The scale consisted of four items—for example, "Can you determine the content of your work yourself?" (Cronbach's $\alpha = .79$)—using a 4-point scale ranging from 1 (*almost never*) to 4 (*always*). We measured *co-worker social support* with four items from the JCQ (Karasek et al., 1998)—for example, "My colleagues help me get my work done" (Cronbach's $\alpha = .74$). Answer categories ranged from 1 (*totally disagree*) to 5 (*totally agree*). We also controlled for three organizational context variables that are commonly related with sickness absence (Johns, 1997). We measured *trust in management* with the scale developed by De Ridder (2004), consisting of nine items such as "Managers in this organization cannot be trusted (reversal coded)" (Cronbach's $\alpha = .87$). Answer categories ranged from 1 (*totally disagree*) to 5 (*totally agree*). We measured *procedural justice* with an 11-item scale developed by Moorman (1991), including the sample item "In my organizations, procedures for decision making are established in a fair manner" (Cronbach's $\alpha = .96$). Answer categories ranged from 1 (*to a very minor extent*) to 6 (*to a very large extent*). To measure *job insecurity*, we used four questions derived from the JCQ focusing on the perceived security of one's job—for example, "If you lose your job, could you find comparable work without having to move?" (Cronbach's $\alpha = .93$)—based on a 5-point scale ranging from 1 (*very likely*) to 5 (*impossible*). Finally, we controlled for employees' *absence frequency* and *absence duration in 2007*. The measures are similar to the sickness measures for 2008. As described above, we drew these measures from company records.

Analysis

We used structural equation modeling (SEM), AMOS (Arbuckle, 2006) for testing our hypotheses. SEM is a preferable data analysis strategy for mediation models involving latent constructs (Baron & Kenny, 1986). We used the goodness-of-fit index (*GFI*) and the root mean square error of approximation (*RMSEA*) to examine the fit of the model to the data. We also used the comparative fit index (*CFI*) and the Tucker–Lewis index (*TLI*). Models with fit indices of $>.95$ and an *RMSEA* of $<.06$ indicate a close fit between the model and the data, whereas fit indices between $.90$ and $.95$ represent a reasonable fit (Hu & Bentler, 1999).

We used Anderson and Gerbing's (1988) approach by first testing the fit of the model's measurement components. We included the indicators of the endogenous variables as parcels, using three parcels for each latent outcome variable. A parcel can be defined as an aggregate-level indicator comprised of the average of two or more items. The psychometric advantage of parceling is that parcels result in more reliable measurement models (Little, Cunningham, & Shahar, 2002). At the model level, parceling is preferable over using more items as indicators of a construct as it reduces type I errors in the item correlations, reduces the likelihood of *a priori* model misspecification, results in more stable solutions, and takes less iterations to converge. We followed the Item-to-Construct Balance procedure as described by Little et al. (2002), creating latent constructs that were indicated by three parcels. We chose combinations of parcels on the basis of the item-to-construct estimates whereby the first highest item is combined with the lowest item, the second highest item with the second lowest, and so on. We refer to Little et al. (2002) for further details on the calculation of the parcels. When this fit was acceptable, we tested the fit of the structural model, including causal pathways between constructs.

In the structural model, we allowed a correlation between the two exogenous variables home demands and home resources. It is arguable that employees with more demanding home demands (heavy physical load, conflicts at home) have less quality time at home (relaxing and positively interacting with family members). In addition, we included a common error term tapping on physical stress complaints and depressive feelings. We chose this strategy to control for possible common method bias among these strain variables that are conceptually related and measured at the same time. Momentary circumstances such as stressor or mood may have influenced both psychological and physical strain symptoms (Watson & Pennebaker, 1989).

We used bootstrapping to test whether the significant pathways running between the predictors and the outcome variables via double mediation of physical stress complaints → health complaints and depressive feelings → job motivation do in fact represent mediated relationships. Bootstrapping is a statistical resampling method that estimates the parameters of a model and their standard errors strictly from the sample (Preacher & Hayes, 2008). We extracted new samples (with replacement) from our sample 2000 times and calculated all direct and indirect estimates of the hypothesized model. Bootstrapping is especially useful when testing a multiple mediator model (Preacher & Hayes, 2008). In such a model, it is not always possible to find a significant direct relationship between the predictor (x) and the outcome variable (y) if the process that is to be mediated is theoretically distal (Shrout & Bolger, 2002). Furthermore, bootstrapping computes more accurate confidence intervals (CIs) of indirect effects ($x \rightarrow m \rightarrow y$) than the more commonly used methods, such as the causal steps strategy (Baron & Kenny, 1986) and the Sobel test, as it does not impose the assumption that the sampling distribution is normal (Preacher & Hayes, 2008). This is especially relevant for indirect effects, as these have distributions that are skewed away from zero (Shrout & Bolger, 2002). The null hypothesis, which states that x does not have an indirect effect on y via m , is rejected when the entire CI lies above or below zero. For more information on bootstrap analyses, we refer to MacKinnon (2008) and Shrout and Bolger (2002).

We followed the method for alternative model testing of nested models described by Vandenberg and Grelle (2009). We tested whether the most parsimonious model fit the data just as well as the model with more parameters by using a chi-square difference test. Finally, to create models that are as parsimonious as possible, we tested for each control variable whether excluding it affected the relationships under study. Except for the control variables autonomy, trust in management, procedural justice, and job insecurity, none of the control variables had significant relationships with the absence measures, and they did not affect the relationships under study. Therefore, we continued to test our models including only four control variables.

Results

Descriptive statistics

Table 1 shows the descriptive statistics for each variable measured in the study. Table 1 also includes the inter-correlation among various variables and the internal consistency of the multiple-item measures.

The measurement model included six latent variables: (i) home demands, (ii) home quality time, (iii) physical stress complaints, (iv) depressive feelings, (v) health complaints, and (vi) job motivation. We assessed the latent endogenous factor of health complaints by using three latent variables, namely symptoms related to sight, musculoskeletal system issues, and respiratory tract disease. This measurement model using three parcels for each latent variable showed a good fit to the data ($\chi^2(120) = 291.28$ ($p < .001$), $CFI = .97$, $GFI = .98$, $TLI = .97$, $RMSEA = 0.038$), with loadings ranging from .53 to .90. A measurement model using all items—not parcels—also resulted in a good fit ($\chi^2(637) = 1893.40$ ($p < .001$), $CFI = .91$, $GFI = .92$, $TLI = .91$, $RMSEA = 0.044$). All items had significant loadings (range: .36–.90) on the intended factors.

Table 1. Means, standard deviations, correlations, and reliabilities of model variables.

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Absence frequency 2008 ^a	0.29	0.27											
2. Absence duration 2008 ^a	0.58	0.61	.66**										
3. Absence frequency 2007	1.54	1.73	.45**	.30**									
4. Absence duration 2007	5.94	27.35	.08**	.08**	.03								
5. Health complaints	2.03	0.67	.20**	.12**	.14**	.13**							
6. Job motivation	3.22	0.55	-.12**	-.11**	-.16**	-.08**	.19**						
7. Physical stress complaints	2.38	0.68	.14**	.08**	.18**	.14**	.55**	.72					
8. Depressive feelings	1.72	0.69	.03	.05	.08**	.11**	.32**	.25**	.80				
9. Home demands	2.10	0.55	.11**	.06	.13**	.05	.19**	.20**	.49**	.92			
10. Home quality time	3.40	0.73	-.03	-.01	-.02	-.05	-.17**	.11**	.31**	.32**	.74		
11. Gender (1 = female)	0.49	0.50	.21**	.19**	.19**	.05	.20**	-.06	-.27**	-.24**	-.35**	.72	
12. Age	34.48	10.40	-.01	.04	-.06*	.02	-.03	.12**	-.16**	-.06	-.07*	.05	-.04
13. Partner	0.79	0.41	.04	.02	-.01	-.01	-.01	.12**	-.07*	-.12**	.03	-.14**	-.08*
14. Number of children	0.66	1.04	-.09**	-.05	-.12**	.00	-.13**	.13**	-.12**	-.08	.12**	-.14**	-.17**
15. Children < 4 years	0.13	0.34	-.02	-.03	-.05	.02	-.12**	.09*	-.06*	-.11**	.07*	-.07*	-.10**
16. Hours household chores	8.10	8.35	.05	.04	-.00	.04	.08*	-.04	.05	.02	.17**	-.05	.13**
17. Hours care tasks	6.86	11.70	.05	.03	-.02	-.02	-.04	.04	-.01	-.05	.20**	-.10**	.08*
18. Work hours	40.05	10.25	-.11**	-.12**	-.04	.00	-.11**	.07*	-.08*	.02	-.16**	-.11**	-.40**
19. Management position	1.39	0.49	-.08*	-.06	-.12**	-.04	-.14**	.16**	-.11**	-.08**	-.12**	-.10**	-.33**
20. Job demands	2.50	0.46	.04	.02	.01	.00	.13**	-.02	.20**	.14**	.05	-.23**	-.08**
21. Job autonomy	2.70	0.56	.00	.00	-.08*	.01	-.15**	.31**	-.19**	-.15**	-.16**	.03	-.17**
22. Co-worker social support	3.88	0.50	-.06	-.10**	-.12**	-.07*	-.14**	.31**	-.16**	-.22**	-.13**	.12**	-.08
23. Trust in management	3.58	0.53	-.05	-.05	-.12**	-.02	-.15**	.37**	-.21**	-.25**	-.10**	.11**	-.05
24. Organizational justice	3.91	0.84	-.08*	-.11**	-.10**	-.03	-.20**	.38**	-.24**	-.23**	-.14**	.12**	-.09**
25. Job insecurity	2.02	0.90	.07*	.09**	.06	-.00	.07*	-.02	.04	.09*	.10**	-.00	.10**

Note: Scale reliabilities are shown in the diagonal. $n = 1014$.

^aLog-transformed variable.

** $p < .01$;

* $p < .05$.

Continues

Continued

	12	13	14	15	16	17	18	19	20	21	22	23	24	25
12. Age														
13. Partner	.25**													
14. Number of children	.31**	.29**												
15. Children < 4 years	-.02	.20**	.44**											
16. Hours household chores	.09**	.05	.07*	.04										
17. Hours care tasks	.07**	.17**	.34**	.37**	.53**									
18. Work hours	-.12**	.02	-.01	-.03	-.15**	-.21**								
19. Management position	.24**	.23**	.27**	.14**	-.03	.08*	.28**							
20. Job demands	.04	.13**	.05	-.01	.04	.04	.24**	.26**	$\alpha = .81$					
21. Job autonomy	-.21	.14**	.20**	.14**	-.09	.05	.14**	.37**	.03	$\alpha = .79$				
22. Co-worker social support	-.07*	-.02	.06	.03	-.10**	-.05	.07	.07*	-.06	.17**	$\alpha = .74$			
23. Trust in management	-.03	.02	.03	.04	-.09**	-.05	.03	.01	-.16**	.20**	.39**	$\alpha = .87$		
24. Organizational justice	-.09**	-.02*	.05	.10*	-.16**	-.07*	.08*	.01	-.18**	.19**	.39**	.70**	$\alpha = .96$	
25. Job insecurity	.51**	.08**	.07	-.05	.07*	.03	-.25**	-.06	-.10**	-.02	-.17**	-.07*	-.13**	$\alpha = .93$

Separate or cross pathways?

We compared the model fit of a model with separate pathways (health complaints → absence duration; job motivation → absence frequency) to a model including cross pathways. The first, most parsimonious model resulted in an adequate model fit ($\chi^2(277)=1220.95$ ($p < .001$), $CFI=.92$, $GFI=.90$, $TLI=.89$, $RMSEA=0.058$). As expected, health complaints were positively related to absence duration ($\beta=.08$, $p < .05$), whereas job motivation was negatively related to absence frequency ($\beta=-.10$, $p < .05$). The second model also had an adequate model fit ($\chi^2(275)=1198.16$ ($p < .001$), $CFI=.92$, $GFI=.90$, $TLI=.89$, $RMSEA=0.058$). Moreover, this model significantly improved the model fit ($\Delta\chi^2(2)=22.79$ ($p < .001$)). The cross pathways were also significant. Job motivation was negatively related to absence duration ($\beta=-.09$, $p < .05$), whereas health complaints were positively related to absence frequency ($\beta=.15$, $p < .01$). Our results thus provide support for the idea that health complaints and job motivation are both related to absence duration and absence frequency. The idea that absence duration is uniquely predicted by health, whereas absence frequency is uniquely predicted by job motivation, was not supported by our findings.

Home domain and sickness absence

Figure 1 shows the pathway estimates of the final structural model, including the home measures. We found that home demands were positively related to absence duration via the physical pathway: Home demands were positively related to physical stress complaints ($\beta=.30$, $p < .001$). Physical stress complaints in turn were positively related to health complaints ($\beta=.79$, $p < .001$), which were positively related to absence duration ($\beta=.11$, $p < .01$). Home demands were positively related to absence frequency through the psychological pathway: Home demands were positively related to depressive feelings ($\beta=.33$, $p < .001$), which in turn were related to lower job motivation ($\beta=-.16$, $p < .001$). Job motivation, finally, was negatively related to absence frequency ($\beta=-.09$, $p < .05$). The bootstrap results (Table 2) indicated that these indirect relationships were significant. We also found support for the cross pathways. The bootstrap of the specific indirect effects indicated that home demands were indirectly, positively related to absence frequency through the physical pathway (Table 2: $\beta=.25$, $p < .05$), whereas home demands were indirectly, positively related to absence duration through the psychological pathway (Table 2: $\beta=.05$, $p=.05$). As all four indirect pathways were significant, linking home demands to absence duration and frequency through the physical and the psychological pathway, Hypothesis 1b, and not Hypothesis 1a, was supported.

Hypotheses 2a and 2b concerned the indirect relationships between home quality time and sickness absence. We found that home quality time was negatively related to absence duration via the physical pathway: Home quality

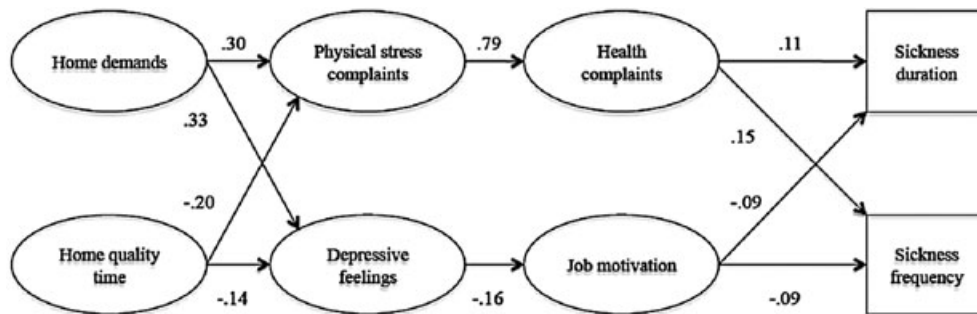


Figure 1. Path estimates of relationship between home demands and home quality time on sickness absence. All pathways are significant at the $p < .05$ level

Table 2. Specific indirect pathways and total effects using bootstrapping

	Bootstrapping		BC 95% CI		
	Estimate	SE	Lower	Upper	<i>p</i>
Indirect effects $x \rightarrow m1 \rightarrow m2 \rightarrow y$					
H1a) Home demands \rightarrow physical stress \rightarrow health \rightarrow absence duration	.245	.078	.156	.321	.033
H1a) Home demands \rightarrow depressive feelings \rightarrow motivation \rightarrow absence frequency	.052	.027	.020	.086	.044
H1b) Home demands \rightarrow physical stress \rightarrow health \rightarrow absence frequency	.245	.040	.167	.318	.001
H1b) Home demands \rightarrow depressive feelings \rightarrow motivation \rightarrow absence duration	.052	.028	-.003	.087	.052
H2a) Home quality time \rightarrow physical stress \rightarrow health \rightarrow absence duration	-.152	.059	-.232	-.061	.035
H2a) Home quality time \rightarrow depressive feelings \rightarrow motivation \rightarrow absence frequency	-.022	.012	-.042	.000	.052
H2b) Home quality time \rightarrow physical stress \rightarrow health \rightarrow absence frequency	-.152	.039	-.230	-.077	.002
H2b) Home quality time \rightarrow depressive feelings \rightarrow motivation \rightarrow absence duration	-.022	.013	-.042	.011	.058
Total effects $x \rightarrow y$					
Home demands \rightarrow absence frequency	.041	.013	.019	.069	.001
Home quality time \rightarrow absence frequency	-.024	.009	-.044	-.010	.001
Home demands \rightarrow absence duration	.031	.013	.008	.059	.010
Home quality time \rightarrow absence duration	-.018	.009	-.039	-.004	.018

Note: BC=bias corrected; CI=confidence interval. Entries represent standardized coefficients. $n = 1014$.

time was negatively related to physical stress complaints ($\beta = -.20, p < .001$). Accordingly, the bootstrap showed a negative indirect effect of home quality time on absence duration through the physical pathway (Table 2: $\beta = -.15, p < .05$). Home quality time was related to reduced absence frequency through the psychological pathway: Home quality time was negatively related to depressive feelings ($\beta = -.14, p < .01$). The bootstrap results (Table 2) indicated that the specific indirect effect of home quality time on absence frequency through the psychological pathway was significant (Table 2: $\beta = -.22, p = .05$). Again, we found support for the cross pathways as formulated in Hypothesis 2b. Home quality had an indirect effect on absence frequency through the physical pathway (Table 2: $\beta = -.15, p < .01$), whereas home quality time was indirectly, negatively related to absence duration through the psychological pathway (Table 2: $\beta = -.22, p = .06$). Note, however, that this last indirect effect was significant at the $p < .10$ level.

Table 2 provides an overview of all specific indirect pathways linking the home domain variables to the sickness absence variables. This table also shows that the total effects of home demands and home quality time on the two absence measures were significant.

Discussion

The first objective of this study was to expand our knowledge of the relationship between the home domain and sickness absence. Using a resource approach, we had a closer look at the mechanisms linking the home domain and the work domain. Our study provides further support for the idea that negative and positive relations between the home and the work domain can be explained by changes in employees' physical and psychological resource supply. On the one hand, we found support for the conflict approach (Greenhaus & Beutell, 1985), suggesting that the home domain conflicts with work because the demanding aspects of the home role costs physical and psychological resources. More specifically, we found that employees with a heavy burden at home reported more physical stress complaints, such as severe headaches and difficulty to concentrate, and more psychological stress, indicated by feelings of unhappiness, depression, and loneliness. On the other hand, our

results also support the idea from the enrichment approach (Greenhaus & Powell, 2006) that family life may bring forth resources. We found that employees who spend quality time at home, either by relaxing or by having pleasant social interactions with family and friends, experienced less physical stress complaints, while feeling more cheerful, happy, less lonely, and less depressed. This result confirms previous speculations that the home domain can act as a source of fulfillment, feelings of relatedness, and gives meaning to life (Graves et al., 2007; Greenhaus & Powell, 2006). Furthermore, the result that quality time spent at home goes together with reduced physical stress complaints fits in with studies on recovery, showing that the home domain is important for employees to recharge after a working day (Fritz et al., 2010).

Next, we examined whether the home domain, through changes in physical and psychological resources, influenced the number of times employees called in sick and the duration of those sick leaves. Home demands and home quality time were respectively positively and negatively related to absence duration and frequency via a physical and a psychological pathway. Employees who reported more *physical* stress symptoms—due to more home demands and less home quality time—had more health complaints. Consequently, this impaired health condition was positively related to the number of absence spells and the mean number of days lost in the following year. In a similar vein, employees who had higher levels of *psychological* stress symptoms due to high home demands and low home quality time were less intrinsically motivated for their jobs. Diminished job motivation, in turn, was significantly related to enhanced absence rates in the next year. These results extend previous studies that found a relationship between family characteristics and sickness absence (Erickson et al., 2000; Ross et al., 1990) by unraveling in detail how the home domain firstly affects the employees' physical and psychological resource supply, then their health condition and job motivation, and finally absence from work.

Our second aim was to test whether absence duration and absence frequency each have unique predictors (Johns, 1997; Hardy et al., 2003; Hensing et al., 1998). The medical and withdrawal models assume that absence duration is caused by health issues, whereas absence frequency is an indication of low job motivation. In contrast with this idea, we found that the employees' physical health condition played a role in both the number of absence spells and the mean duration of these spells. Similarly, employees who had low job motivation called in sick more often, but also took longer sick leaves in the next year. These results support the critical notes that have been voiced by others (Darr & Johns, 2008; Martocchio & Harrison, 1993) that employees with an impaired health condition presumably not only report sick for more days but also call in sick more often. Likewise, employees who have lower motivation for their job call in sick more frequently and are more likely to stay at home for a longer period when they report sick. We remark that the effects of health and motivation on sickness absence may be somewhat intertwined (Harvey & Nicholson, 1999). There is a grey zone in which employees could report sick because they do not feel well. The threshold for actually calling in sick is possibly higher for employees who are very motivated for their job than for employees who dislike their jobs. Similarly, motivated employees presumably return as soon as possible to work after having stayed at home ill, whereas de-motivated employees extend this period of being sick at home with a few days.

Although our study does not support a clear distinction between the medical and the withdrawal models, the results should be interpreted with some caution. We used a long timeframe, linking the employee's health condition and job motivation to absence records of the following year. A study design using a shorter time frame may have led to different results. It is imaginable that job motivation is a more volatile attitude, whereas the employee's health condition is more stable. Health, then, is likely to have an impact on sickness absence that lasts over a longer time span, whereas the effects of job motivation have a shorter time frame. Our results indeed showed that health was a somewhat stronger predictor of absence frequency and duration than job motivation. It is possible that the medical and the withdrawal model correctly assign health as the main reason for absence duration and motivation as the main reason for absence frequency, but only in the short run. Future studies using a shorter timeframe are needed to confirm this speculation. Nevertheless, our study indicates that a critical attitude against the strict distinction between the antecedents of absence frequency and absence duration seems sensible.

Limitations, future directions, and implications

These results must be viewed in the light of a number of limitations. First, we cannot draw conclusion about the causality of the relationships among the variables collected in 2007. We acknowledge that arguments can be given for causal reversed relationships in our model. For example, employees who have an impaired health condition may perceive their home demands as being heavier. This is, however, a methodological issue, questioning whether home demands reflect the actual demands at home or employees' perception of them. We chose to base the causality of the expected pathways in our model on theoretical arguments, assuming for instance, that home demands reduce employees' physical resources, thereby impairing their health condition. Nevertheless, we suggest that future studies use a three-wave or four-wave study design, pointing out whether home characteristics indeed cause changes in respondent's physical and psychological resources, and their future health complaints and job motivation. Second, it is possible that contextual factors at the societal level in 2008 (e.g., economic recession) affected sickness absence in 2008. Ideally, we had ruled out alternative explanations for employees' absence rates by controlling for contextual factors measured in 2008. We note, however, that we did control for several contextual factors (e.g., trust in management and job insecurity) measured at the final quarter of 2007. Third, our study design resulted in a selective sample including employees from a single organization. Additional research should examine whether our findings can be generalized to employees in other jobs and organizations. Fourth, some of the pathway coefficients were rather small. Caution may thus be warranted for the practical implications of the present study. It should be noted, however, that coefficients for relationships that are theoretically distal, such as the linkage between home and work, are usually small (Shrout & Bolger, 2002). Moreover, the use of a long-term time frame is likely to dilute effect sizes. It is therefore rather remarkable that we found significant relationships between employees' home characteristics and their absence rates of the following year. We believe that our results are important, at least from a theoretical perspective, as they shed light on the linkage between the home domain and the work outcome absenteeism. Also, our measure for absence duration was a merit. By using the mean time lost per absence spell, we limited the overlap between the measures for absence frequency and duration.

Our results provide several leads for future research. To begin with, more research is needed to unravel other possible mechanisms that explain negative and positive relationships between the home domain and absence behavior, such as a lack of time to fulfill dual roles, or skills that are learnt in one domain. Moreover, it would be interesting to examine an additional set of cross pathways, namely between physical and psychological stress symptoms on the one hand and health and job motivation on the other. On the basis of COR theory, one could argue that a reduction in any type of personal resource (physical or psychological) impairs general health and impedes one's motivation for work. To test this additional alternative model, the predictor and outcome should be measured on different points in time, and preferably stress symptoms should be measured by observed health indicators. A further extension of the measurement of employees' home domain (including e.g., conflicts at home and help with home demands) could also foster a better understanding of the relationship between the home domain and absence from work. Finally, combined effects of the factors that were included in our model could be investigated. For example, it is possible that a low job motivation strengthens the negative effect of heavy demands and impaired health on absence from work.

This study provides useful insights for managerial practice. First, our results undermine the prevailing idea that the home domain impedes employees from being present at work. Instead, the home domain seems to offer employees the opportunity to restore resources for work, which reduces health complaints and contributes to job motivation. Nevertheless, our results indicate that employees who have a heavy burden at home might particularly benefit from additional support in balancing dual roles. In addition to common policies that target organizational factors in order to reduce absenteeism (e.g., reducing workload, creating an inspiring work environment), organizations could support those employees by helping to find reliable household help, offering onsite childcare, or providing other types of chore outsourcing (Glass & Finley, 2002).

Conclusion

Our study sheds new light on the absence literature and the work–family literature. As regards the first, our results suggest that both health and motivation for work are predictive of how often and how long employees report sick. With regard to the latter, our study contrasts with the dominant view that family life impedes employees from being present at work (e.g., Rhodes & Steers, 1990). Instead, we found that home domain may prevent employees from calling in sick. By linking ideas from the work–family literature to absence models, we could show that quality time spent at home replenishes employees' physical and psychological resources, contributing to health and motivation for work and consequently diminishing sickness absence. Nevertheless, a heavy burden at home can enhance sickness absence because home demands consume physical and psychological resources, weakening health and motivation for work. All in all, our study showed that the home domain, acting as an energy producer and consumer, influences absence from work and thus adds to our understanding of this complex problem.

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