ARCHIVIO ISTITUZIONALE
DELLA RICERCA

Alma Mater Studiorum Università di Bologna
Archivio istituzionale della ricerca

The impact of workaholism on day-level workload and emotional exhaustion, and on longer-term job performance

This is the final peer-reviewed author's accepted manuscript (postprint) of the following publication:

Published Version:
Balducci C., Alessandri G., Zaniboni S., Avanzi L., Borgogni L., Fraccaroli F. (2021). The impact of workaholism on day-level workload and emotional exhaustion, and on longer-term job performance. WORK AND STRESS, 35(1), 6-26 [10.1080/02678373.2020.1735569].

Availability:
This version is available at: https://hdl.handle.net/11585/790103 since: 2024-02-05

Published:

DOI: http://doi.org/10.1080/02678373.2020.1735569

Terms of use:

Some rights reserved. The terms and conditions for the reuse of this version of the manuscript are specified in the publishing policy. For all terms of use and more information see the publisher's website.

This item was downloaded from IRIS Università di Bologna (https://cris.unibo.it/).
When citing, please refer to the published version.

(Article begins on next page)

12 September 2026

This is the final peer-reviewed accepted manuscript of:

Balducci, C., Alessandri, G., Zaniboni, S., Avanzi, L., Borgogni, L., & Fraccaroli, F. (2021). The impact of workaholism on day-level workload and emotional exhaustion, and on longer-term job performance. *Work & Stress*, *35*(1), 6–26. https://doi.org/10.1080/02678373.2020.1735569

The final published version is available online at:
https://doi.org/10.1080/02678373.2020.1735569

Terms of use:

Some rights reserved. The terms and conditions for the reuse of this version of the manuscript are specified in the publishing policy. For all terms of use and more information see the publisher's website.

This item was downloaded from IRIS Università di Bologna (https://cris.unibo.it/)

When citing, please refer to the published version.

The Impact of Workaholism on Day-Level Workload and Emotional Exhaustion, and on Longer-Term Job Performance

Abstract

By drawing on effort-recovery theory, we conducted two studies to explore the short-term process through which workaholism may affect health and to assess the implications of such a process for job performance. In Study 1 we hypothesised that workaholic tendencies would affect daily workload and that daily workload would mediate the relationship between workaholic tendencies and daily emotional exhaustion. Data were provided by 102 workers consisting mostly of entrepreneurs, managers and self-employed individuals, who were followed for ten consecutive working days. Multilevel structural equation modelling, controlling for the general level of workload, neuroticism and conscientiousness, supported the hypotheses. Building on the results of Study 1, in Study 2 we hypothesised that workaholism would lead in the long run to a decline in job performance. Study 2 considered 519 employees of a large organization and focused on their supervisors' performance ratings in two successive years. Workaholism was used to predict change in work performance. Work engagement was included in the model as a concurrent predictor of work performance. Contrary to what was hypothesised, workaholism did not affect performance; only work engagement did so, and in a positive way. The implications of the obtained results for further research on workaholism are discussed.

Keywords: workaholism; job performance; workload; burnout; work engagement; diary study.

The Impact of Workaholism on Day-Level Workload and Emotional Exhaustion, and on Longer-Term Job Performance

Major changes in how firms do business, mostly determined by increased global competitiveness and technological advances, have made workers increasingly exposed to a strong pressure to make a heavy work investment. Two main types of heavy work investment have been distinguished (Snir & Harpaz, 2012): A situational type, based on financial pressures or external demands due to holding a responsible job, and a dispositional type, based on internal factors such as a passion for work or an addiction to work. Workaholism or work addiction is generally seen as a dispositional type of heavy work investment, where the individual has an obsession for work and feels compelled to engage in work-related activities because of an uncontrollable internal drive (Loscalzo & Giannini, 2017).

Research on workaholism has grown considerably in the last few years. Although an agreed-upon definition of workaholism is still lacking, there is a general consensus on what constitutes its crucial dimensions (Clark, Michel, Zhdanova, Pui, & Baltes, 2016). First, workaholism involves a strong preoccupation and compulsion regarding one's work (Ng, Sorensen, & Feldman, 2007; Schaufeli, Taris, & Bakker, 2008; Scott, Moore & Miceli, 1997). Second, workaholics work in excess, even in the face of potential negative consequences (Ng et al., 2007; Schaufeli et al., 2008; Scott et al., 1997). Indeed, numerous studies have found a relationship between workaholism and compromised mental and physical health (see Clark et al., 2016).

Yet there are still a number of open issues on workaholism. For example, it has been claimed that because workaholics have a strong inner drive to work that has a dispositional basis, they need a high level of workload, which they themselves contribute to creating (Machlowitz, 1980; Schaufeli, Bakker, van der Heijden, & Prins, 2009). Surprisingly, the

influence of workaholism on workload has mostly been taken for granted, although Clark et al. (2016) concluded that the available evidence – based almost exclusively on cross-sectional studies – provides little insight about such an influence. Investigating the impact of workaholism on workload is important for a better understanding of workaholism: It may unveil one of the mechanisms through which workaholism leads to adverse health effects.

A second issue that warrants further attention concerns the relationship between workaholism and job performance. Since workaholics devote most of their time and energy to work, it is plausible that they have a higher job performance. Indeed, workaholics have been found to report higher levels of organizational commitment, job involvement and career prospects (Clark et al., 2016), which may suggest a higher performance. Interestingly, the meta-analysis by Clark et al. (2016) did not reveal a significant relationship between workaholism and job performance. However, the authors suggested that research on this topic is not methodologically robust and called for more solid studies, such as studies with multisource or objective performance data.

Therefore, we addressed the two gaps in the literature on workaholism mentioned above by conducting two different studies, which are strictly linked. In the first study, by adopting a daily diary design, we investigated the influence of workaholism on daily workload and whether this is related to the level of emotional exhaustion – the core and first emerging component of burnout (Lee & Ashforth, 1996) – reported at the end of the working day. By this we aimed at shedding light on a short-term process through which workaholism may affect health and the individual social functioning. In the second study, by using a longitudinal design with multisource data, we investigated the potential long-term implications of such a process on job performance.

We defined workaholism in terms of its two crucial dimensions, that is working compulsively and working excessively, and operationalized it accordingly (Schaufeli, Shimazu, & Taris, 2009). We used the effort-recovery model (Meijman, & Mulder, 1998) as the underlying theoretical framework for both studies. This is a cumulative process model of high workload-related health and performance outcomes. Its core idea is that high effort expenditure in response to high workload, especially if coupled with impaired recovery – which may be common occurrences among workaholics – drains individual energetic resources and can develop into negative load effects. Such load effects emerge initially as a deterioration in well-being and in the longer run as manifest losses of function and health impairment, with negative consequences for job performance.

Workaholism, Workload, and Emotional Exhaustion

It is widely acknowledged that personal characteristics may influence one's tendency to experience high workload (Bowling & Kirkendall, 2012). Workaholism is a personal characteristic including obsessiveness, mental rigidity, difficulty in delegating tasks, and seeking or accepting additional tasks despite being already busy (e.g., Porter, 1996; Schaufeli, Shimazu, & Taris, 2009). Such aspects of workaholism do not help in dealing effectively with workload and may actually lead to experiencing high levels of workload.

High levels of workload and the associated effort expenditure may fuel strain reactions and lead to negative health-related consequences. According to the effort-recovery model (Meijman & Mulder, 1998), this happens especially in the absence of recovery – that is, the process of psychophysiological unwinding that is the opposite of the activation occurring during effort expenditure.

Research has shown that workaholism is strongly and positively related to workload (Clark et al., 2016). Additionally, high workload impairs recovery (see Geurts & Sonnentag,

2003), both during and off-work, for example by reducing the time available for mini breaks (e.g., coffee breaks) and by requiring the individual to work for longer hours, thus limiting engagement in leisure time activities. Impaired recovery may be experienced at the end of the working day as symptoms of emotional exhaustion (Geurts & Sonnentag, 2006) – i.e., the feeling of being emotionally overextended and exhausted by one's work – and emotional exhaustion has been found to be positively and moderately related (i.e., r = .39) with workaholism (see Clark et al., 2016). Considering together these different pieces of evidence, in Study 1 we hypothesised the existence of a short-term process that is set in motion daily by workaholism, leading to symptoms of emotional exhaustion (i.e., a manifestation of impaired recovery) via increased levels of workload.

The available research has mainly investigated the relationship between workaholism and workload operationalized as a chronic work characteristic (Clark et al., 2016; Gilet, Morin, Sandrin, & Houle, 2018). Chronic work characteristics describe a job as it is in general and they are assumed to be as trait-like elements of a job, long lasting situational variables. However, recent research has increasingly focused on day-level work characteristics, including workload (Ilies, Dimotakis, & De Pater, 2010; Ohly & Fritz, 2010): these characteristics are more stait-like and describe a job on a given day. It has been argued that, compared to chronic work characteristics, day-level work characteristics are closer to and may better reveal the day-to-day lived and concrete experiences of employees and how they engage with work each day (Daniels, 2006; Gabriel et al., 2018).

Therefore, to document the daily nature of the process outlined above activated by workaholism, we focused on daily workload experiences (i.e., the day-to-day concrete and lived experiences of workload made by workers) and end of the day feelings of emotional exhaustion (i.e., symptoms of impaired recovery). Specifically, we investigated whether

workaholism has a direct effect on daily workload and an indirect effect – *via* daily workload – on emotional exhaustion as experienced at the end of the working day.

We tested the proposed model by adopting a daily diary approach, following a group of workers for ten consecutive working days. We measured workaholism with a general survey, while workload and emotional exhaustion, at the end of each working day, were subsequently measured by means of the diary. To partial out differences in the typical level of workload between the surveyed participants, we controlled for general workload. We also controlled for neuroticism, which has been found to have a positive and significant relationship with workaholism (see Giannini & Loscalzo, 2016) and a strong positive influence on emotional exhaustion (Thoresen, Kaplan, Barsky, Warren, & de Chermont, 2003). Similarly, we controlled for conscientiousness, since individuals high on this trait may be workaholics (Carter, Guan, Maples, Williamson, & Miller, 2015) and may voluntarily pursue more work or more difficult tasks, thus experiencing a higher workload (see Bowling & Kirkendall, 2012). We hypothesised the following:

Hypothesis 1. Workaholism will positively influence day-level workload.

Hypothesis 2. Day-level workload will mediate the relationship between workaholism and day-level emotional exhaustion.

Workaholism and Job Performance

According to some scholars (e.g., Baruch, 2011; Scott et al., 1997), since workaholism is moderately positively related with achievement-oriented personality traits such as type A behavior and perseverance (see Clark et al., 2016), then it should lead to a higher performance. According to others (Porter, 1996; Spence & Robbins, 1992), however, the high quantity of work that workaholics carry out may be associated with a lower quality of work, suggesting that workaholics may be generally poor performers.

Although the Clark et al. (2016) meta-analysis found a non-significant relationship between workaholism and job performance, the analysis was based on relatively few studies. Additionally, a closer inspection of the available studies shows inconsistent results, even when the same measure of workaholism and similar criterion variables were used. For example, Gorgievsky, Bakker and Schaufeli (2010) found that the central aspects of workaholism (i.e., working compulsively and working excessively), as operationalized by the measure developed by Schaufeli, Shimazu & Taris (2009), were unrelated to self-reported task performance. On the contrary, by using the same measure of workaholism, others (Falco, Girardi, Kravina, Trifiletti, Bartolucci et al., 2013; Shimazu & Schaufeli, 2009) found that workaholism weakly but negatively predicted self-reported performance.

Additionally, other studies on the same topic (e.g., Graves, Ruderman, Ohlott, & Weber, 2012; Laurence, 2010) adopted measures of workaholism that included work enjoyment (see Spence & Robbins, 1992), finding that the latter is weakly but significantly beneficial for performance. This suggests that workaholism or certain its aspects may have positive implications for performance. However, by including work enjoyment, these studies also investigated aspects that are central to work engagement without properly differentiating engagement, conceptually and empirically, from workaholism (see, on this, Taris, Van Beek, & Schaufeli, 2014). This led, in our opinion, to findings that are difficult to interpret as far as workaholism is concerned.

Work engagement is a different form of heavy work investment, defined as a positive, fulfilling, work-related state of mind characterized by vigor, dedication, and absorption (Schaufeli, Bakker, & Salanova, 2006). Similarly to workaholics, work-engaged employees work hard and invest their full self in work. However, they lack the strong compulsive tendency to work hard that is typical in workaholism (Taris et al., 2014). Work engagement is

weakly but significantly and positively related to workaholism (Clark et al., 2016) and it positively predicts job performance (Christian, Garza, & Slaughter, 2011). According to Loscalzo and Giannini (2017), workaholism and work engagement may even co-occur and it may be important to differentiate engaged from disengaged workaholics, with some recent studies supporting their view that disengaged workaholics report a worse health than engaged ones (Girardi, De Carlo, Dal Corso, Andreassen, & Falco, 2019; Spagnoli, Balducci, Kovalchuk, Maiorano, & Buono, 2018). However, given that previous evidence is unclear regarding the relationship between workaholism and job performance, in the present study we will focus on the main effect of workaholism on job performance, including work engagement as a competing factor in the prediction of performance.

A further critical aspect of the available research on the relationship between workaholism and job performance is that it relied almost exclusively on self-reported ratings of performance (e.g., Gorgievski et al., 2010). Such ratings are only modestly related with supervisory ratings, which are considered a more reliable and valid source of job performance ratings (Heidemeier & Moser, 2009). Finally, research in this area rarely implemented longitudinal studies (an exception is Shimazu, Schaufeli, Kamiyama, & Kawakami, 2015).

In the present study, to understand the impact of workaholism on performance we build on the process model introduced earlier (see hypotheses 1 and 2), which postulates that workaholism impairs recovery (as indicated by higher levels of emotional exhaustion) *via* increased workload. In a situation of incomplete recovery, workers have to mobilize compensatory efforts in order to perform adequately at work (Geurts & Sonnentag, 2006). In the long run, however, such compensatory efforts are no longer sustainable because incomplete recovery, when repeated, determines an accumulation of fatigue and exhaustion and, as a result, less energy available to perform at the usual standards. Additionally,

accumulated incomplete recovery may lead to health deterioration as manifested by higher levels of burnout. Workaholism is positively related to burnout (Schaufeli, Bakker, van der Heijden, & Prins, 2009), and burnout has been found at odds with the ability to perform effectively (Schaufeli, Leiter, & Maslach, 2009). Overall, this strongly suggests that workaholism negatively influences job performance.

We tested such a hypothesis by adopting a research design with the following unique features: We used prospective data in which workaholism predicted change in performance and we measured job performance by using supervisory ratings. Additionally, to focus on the unique aspects of workaholism, we also included work engagement. In line with robust previous findings (Christian et al., 2011), we expected that work engagement, unlike workaholism, would positively influence job performance. We hypothesised that:

Hypothesis 3. Workaholism will negatively impact supervisor–rated job performance.

Hypothesis 4. Work engagement will positively impact supervisor-rated job performance.

STUDY 1

The aim of Study 1 was to test the hypotheses that workaholism would influence day level workload (H1) and that the latter would mediate the workaholism-day emotional exhaustion relationship (H2).

Method

Participants and procedure. Study 1 focused on a heterogeneous sample of 102 Italian workers. Participants were females in 35.3% of the cases and had a mean age of 43.47 years (SD = 11.87, range 25-65). They had mostly completed university education (52.9%) and were entrepreneurs or self-employed (50%), managers (20.6%) and employees in the remaining cases. Additionally, they mostly worked in the private sector (78.2%), and the

number of working hours in a typical week were, on average, 46.4 (SD = 10.31, range = 30-80).

Participants were contacted among acquaintances of the researchers and by means of snowball sampling, targeting workers with potentially high levels of workaholism (Taris, Van Beek, & Schaufeli, 2012): Self-employed workers, managers, entrepreneurs, and employees holding a responsibility position in their organization. They were invited to take part in a daily survey on work-related well-being. Participation was voluntary. The refusals were very low, with only five individuals declining the invitation, mainly because they were not interested in the nature of the study.

The data were collected by means of two questionnaires, a general questionnaire administered before the diary study period, and a diary questionnaire administered at the end of the working day for ten consecutive (working) days. Person-level variables and measures were derived from the general questionnaire, while day-level variables and measures were derived from the diary questionnaire. The 10 diary questionnaires were given all together to participants by including them in a survey pack, with the instruction to return the pack to the researchers at the end of the diary period. To reinforce compliance, the researchers carefully explained to participants how to fill in the daily surveys, emphasizing the importance of completing them at the end of the working day and for the agreed series of consecutive days.

Materials. The general questionnaire included measures of workaholism, workload generally associated with the job (i.e., general workload), neuroticism and conscientiousness.

Workaholism was measured by using the 10-item Dutch Work Addiction Scale (DUWAS; Schaufeli, Shimazu, & Taris, 2009) which derives from the two most frequently used workaholism inventories, namely the Work Addiction Risk Test (WART; Robinson, 1999) and the Workaholism Battery (WorkBat; Spence & Robbins, 1992). The DUWAS

investigates the respondent's feelings about his/her work, which reflect the two core components of workaholism: working compulsively (WC, e.g., "I feel that there's something inside me that drives me to work hard") and working excessively (WE: "I stay busy and keep many irons in the fire"). Responses are given on a 4-point scale varying from 1 ("Never or almost never") to 4 ("Almost always or always"). In comparison to the WART and the WorkBat, the DUWAS has shown stronger psychometric properties (see Snir and Harpaz, 2012) and it reflects our view of workaholism as made by two strongly related components (i.e., WC and WE). The DUWAS has been used repeatedly with heterogeneous samples of workers, including also – similarly to the present study – both employees and managers (e.g., Taris, van Beek & Schaufeli, 2012), suggesting that the scale is appropriate for a variety of occupations. Furthermore, the DUWAS has been validated in the national context of the present study (Balducci, Avanzi, Consiglio, Fraccaroli, & Schaufeli, 2017). The Italian version of the scale showed good internal consistency, strong test-retest stability, configural invariance with the original Dutch version and expected correlations with well-being and mental health variables such as anxiety and depressive symptoms. Cronbach's alpha (α) for the overall scale was .80 in the present study. For the analyses we derived the WE (α: .69) and WC (α: .67) subscale scores (*r* between the two: .67, $p < .001$) and used them as manifest indicators of the workaholism latent construct.

General workload was assessed by using three items (e.g., "I have to work very fast") from the 5-item job demand scale of the Job Content Questionnaire (JCQ; Karasek, Brisson, Kawakami, Houtman, Bongers, & Amick, 1998). We used the Italian version of the JCQ (Baldasseroni, Camerino, Cenni, Cesana, Fattorini, 2001), which showed adequate validity and reliability (Cesana, Ferrario, Sega, Milesi, De Vito et al., 1996; Ferrario, Fornari, Borchini, Merluzzi, & Cesana, 2005), and chose the items with the highest factor loadings

according to our use of the scale in other previous studies. The items were preceded by the instruction to consider the work situation as it is in general. Responses were collected on a 5-point scale varying from 1 ("Strongly disagree") to 5 ("Strongly agree"), rather than on the original 4-point agreement scale. Alpha was .74 in the present study. The three items were used as manifest indicators of the general workload construct.

Neuroticism was measured by four items derived from the corresponding scale of the Big Five factor markers (Goldberg, 1992), a big-five personality inventory included in the International Personality Item Pool (IPIP; https://ipip.ori.org/). We used the Italian version of the tool (Flebus, 2006) and selected items with the highest factor loadings according to our previous use of the scale in other studies. An example item is "I get stressed out easily". Responses to items varied from 1 ("It does not describe me at all") to 5 ("It describes me completely"). Alpha was .81 in the present study. For the analyses, we used two-item parcels as indicators of the corresponding latent construct.

Conscientiousness was also measured by four items derived from the corresponding scale of the Big Five factor markers (Goldberg, 1992), with an example item being "I get chores done right away". Items were selected from the Italian version of the tool (Flebus, 2006) following the same rationale reported above for the neuroticism items. The response scale was the same as for neuroticism. Since one item did not contribute to increasing the internal consistency of the scale, only three items were finally considered in the present study ($\alpha = .74$) and used as manifest indicators of the conscientiousness latent construct.

The diary questionnaire investigated the number of hours worked (used only for descriptive purposes), in addition to the day-level variables of main interest: Day workload and day emotional exhaustion.

Day workload was measured by adapting the three items used for the general workload scale described above (e.g. “Today I had to work very fast”) from the Job Content Questionnaire (Karasek et al., 1998). Adaptation of measurement tools which have not been originally developed for diary studies is common practice among researchers adopting the diary methodology (see Gabriel et al., 2018). Responses were given on a 7-point scale varying from 1 (“Strongly disagree”) to 7 (“Strongly agree”). The average Cronbach’s alpha for this measure across the 10 days of the diary study was .86 (range: .82-.90). For the analyses the three items were used as indicators of the day workload factor.

Day emotional exhaustion was investigated by adapting three items from the Italian version (Avanzi, Balducci, & Fraccaroli, 2013) of the Copenhagen Burnout Inventory (CBI – Kristensen, Borritz, Villadsen, Christensen, 2005). Participants were asked to think how they felt when completing the survey (i.e., at the end of the working day), with an example item being “How much do you feel emotionally exhausted?”. In the original version of the scale responses are collected on a 5-point frequency scale varying from 1 (Never) to 5 (Always). In the present study we adopted the same 7-point response scale used for day workload. The average alpha for this measure was .85 in the present study (range: .76-.89). The items were used as indicators of the emotional exhaustion latent construct.

Data analysis. Each study participant provided data at the person level (higher level, or level 2) and at the day level (lower level, or level 1), with level 1 data being nested within level 2 data. Thus, the structure of the data was multilevel and required the adoption of multilevel analysis (Hox, 2010). To test hypotheses 1 and 2 that workaholism would impact on day-level workload and that day-level workload would mediate the relationship between workaholism and emotional exhaustion at the end of the day, respectively, we conducted multilevel structural equation modelling (MSEM), which is superior to standard multilevel

modelling techniques in terms of bias and confidence interval coverage when applied to mediation analysis (Preacher, Zhang, & Ziphur, 2011).

The hypotheses were tested using a 2-1-1 model (Preacher et al., 2011), with workaholism being the level 2 variable and daily workload and daily emotional exhaustion being the level 1 variables. Level 2 variables vary only at the person level and thus have only between-person (or 'between') variance, while level 1 variables have both between-person variance and within-person (or 'within') variance. In a mediation model involving a level 2 variable, which has exclusively 'between' variance, only the between-person' indirect effect is present (Preacher et al., 2011), implying that the product of the 'between' path coefficients is the estimation of interest. Thus, hypotheses 1 and 2 tested, respectively, whether: a) workaholism affected the average level of daily workload in the observation period of 10 days, and b) whether, in the said observation period, the average level of daily workload mediated the relationship between workaholism and the average level of daily emotional exhaustion experienced at the end of the workday. General workload was included as a control variable affecting the corresponding day-level variable to partial out 'chronic' differences in workload between the surveyed jobs. Conscientiousness and neuroticism were also included as controls, influencing respectively daily workload (Bowling & Kirkendall, 2012) and daily emotional exhaustion (Thoresen et al., 2003). Following Preacher et al. (2011) we didn't center the variables, since this would not make any difference for the results. Model fit was assessed according to the following criteria: $\chi 2$ likelihood ratio statistic, Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), the Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Square Residual (SRMR). As standard practice, we accepted TLI and CFI values greater than .90 and RMSEA and SRMR values lower than .08 (Kline, 2016). The main analyses were implemented by using

Mplus 7.4 (estimation method: robust maximum likelihood). Preliminary descriptive and correlational analyses were conducted by using SPSS 22.

Results and Discussion

Table 1 reports descriptive statistics and correlations between the study variables.

Please insert Table 1 about here

Before running MSEM analyses, we examined the Intraclass Correlation Coefficient (ICC) for each day level variable. The ICC varied from .37 to .44 for the workload items and from .41 to .55 for the emotional exhaustion items. According to Preacher et al (2011), an ICC higher than .20 suggests a substantial amount of variance both within and between persons, indicating the appropriateness of a multilevel approach to hypotheses testing.

MSEM analyses indicated that the postulated model (Figure 1) fitted the data very well: χ^2 (102) = 153.51, $p < .001$; CFI = .98; TLI = .98; RMSEA = .02; $SRMR_{within}$ =.02; $SRMR_{between}$ = .06. All the observed variables loaded strongly on the respective latent construct (≥ .56). As for the structural part of the model (Figure 1), day workload was significantly and positively related to day emotional exhaustion both at the within (i.e., day) level (.38, $p < .001$) and at the between (i.e, person) level (.50, $p < .001$). Additionally, at the between level workaholism significantly influenced day workload (.44, $p < .001$) over and above general workload (.29, *ns*). Thus, participants with higher workaholic tendencies experienced a higher average level of daily workload (in the 10-day observation period), which supported Hypothesis 1. A test of the mediating role of day workload in the relationship between workaholism and day emotional exhaustion was significant (unstandardized estimate: 0.53, $t = 2.09$, $p < .05$, 95% CI = 0.03-1.03). This indicated that

participants with higher workaholic tendencies reported a higher average level of emotional exhaustion and that this was explained by a higher average level of daily workload. This supported Hypothesis 2. The model R^2 for day emotional exhaustion was .14 at the within level and .52 at the between level, while the model R^2 for day workload was .44 (only available at the between level).

Please insert Figure 1 about here

STUDY 2

In Study 1 we found evidence of a health deterioration process fuelled by workaholism, leading to higher emotional exhaustion at the end of the working day. In Study 2 we sought to investigate the implications of such a process for job performance, specifically testing the idea that workaholism will lead to a decrease in job performance in the long run.

Method

Participants and procedure. Participants were 519 employees (54.5% females), working for a large telecommunication company in Italy. They were recruited during a two-wave study (time lag: one year) aimed at investigating the individual predictors of job performance. The mean age of participants was 37.26 years (*SD* = 9.84, range 21-60), and their mean organizational tenure 16 years (*SD* = 10.49, range 1-39). Their years of education ranged from 8 to 18, with 65% having a university degree, 34% a high school diploma and the remaining 1% compulsory education. Performance ratings were obtained at the end of the years 2014 and 2015 from the Human Resources (HR) department of the company, while self-report measures were gathered in March-April 2014. Participation in the study was voluntary, and the research team guaranteed confidential data processing. In order to match

the answers that every respondent provided with his/her performance ratings, each participant was assigned a unique code by the HR department. An HR representative delivered the coded questionnaire to the employee. The completed questionnaires were collected by the research team. Subsequently, the HR department sent to the research team the coded performance rating of each employee, which was matched with his/her questionnaire through the code.

Measures. The measure of workaholism was again the Italian version of the DUWAS (Balducci et al., 2017). Due to constraints imposed by the HR department, which preferred a homogeneous response scale for all the used self-report measures, answers were collected on a 7-point scale ranging from 1 (Never) to 7 (Always/daily). Alpha was .78.

Work engagement was measured by using the Italian version (Balducci, Fraccaroli, & Schaufeli, 2010) of the Utrecht Work Engagement Scale (UWES-9; Schaufeli et al., 2006). The UWES-9 assesses the experience of vigor, dedication, and absorption – the three component aspects of work engagement – by means of nine items (e.g., "At my work, I feel bursting with energy"). Responses to items were given on the same 7-point scale adopted for the workaholism measure. Cronbach's alpha was .89.

Job performance was measured by using supervisor ratings. Supervisors rated their employees' performance through the company's established performance appraisal system. This 5-item scale had been developed by the HR department of the organization as a general, unidimensional measure of performance. The measure tapped five behavioural performance domains: *customer focus* ("He/she anticipates clients needs"); *communication* ("He/she adjusts his/her communication style to different people); *network management* ("He/she builds up constructive relationships in order to achieve common results"); *problem solving* ("He/she identifies problems correctly and finds appropriate solutions"); and *change management* ("He/she explores new opportunities that contribute to the ongoing change

process"). Responses were collected on a 10-point scale (labels: 1=inadequate; 10=beyond expectations). Alphas were .95 at Wave 1 and .93 at Wave 2.

Data analysis. To test hypotheses 3 and 4, regarding respectively the negative and positive influences of workaholism and work engagement on job performance, we built a univariate latent change (LC) model (McArdle, 2009). The LC model focuses on intra-individual change and inter-individual differences in the individual change. This model includes a measurement model with two latent factors representing supervisor-rated job performance at time 1 (T1) and at time 2 (T2), each loaded by the five indicators of job performance described above. Two additional higher-order factors, a latent intercept factor (I) and a latent slope factor (S) are used to capture change occurring between the two time points. The latent intercept factor was fixed to 1 at each measurement point (T 1 and T 2) and reflected the absolute mean-level job performance observed across individuals at the first time of measurement (Alessandri, Zuffianò, & Perinelli, 2017). The latent slope factor was fixed to 0 at T1 and to 1 at T2, and it reflected the amount of mean-level change in each construct observed across individuals. Variances associated with those factors can be interpreted as individual deviations around the estimated values. After establishing the good fit of the model, work engagement and workaholism were added to the model as predictors of the slope, while controlling for age, job tenure, and gender, which are all significant predictor of job performance (see, respectively, Ng & Feldmanm 2008; 2010; Roth, Purvis, & Bobko, 2012).

Model fit was assessed according to the standard fit indices already outlined for Study 1. To compare the fit of the nested models in the measurement invariance sequence, we used the delta chi-square difference test (symbolically: $\Delta\chi^2$; Kline, 2016).

Results and Discussion

Table 2 contains the correlations among job performance, work engagement, workaholism, and each of the covariates (i.e., gender, age, and job tenure).

Please insert Table 2 about here

The measurement model for the job performance measure fitted reasonably well: $\chi^2(29) = 117.65$, $p < .05$, CFI = .98, TLI = .97, RMSEA =.08, SRMR = .02. The latent factors representing job performance resulted strongly and significantly correlated over time (.74). Building upon this base-line model (or *configural invariance* model), we investigated the stability of (1) factor loadings (or metric invariance) and item intercepts (or scalar invariance) over time. The fit of the metric invariance model was as follows: $\chi^2(33) = 120.23$, $p < .05$, CFI = .98, TLI = .98, RMSEA =.07, SRMR = .03; while the fit of the scalar invariance model was as follows: $\chi^2(37) = 123.72$, $p < .05$, CFI = .98, TLI = .98, RMSEA =.07, SRMR = .07. The results showed that both sets of constraints did not lead to a significant decrement in model fit ($\Delta\chi^2(4) = 2.58$, $p = .63$, for the metric invariance model in comparison to the baseline model; $\Delta\chi^2(4) = 3.49$, $p = .48$ for the scalar invariance model in comparison to the metric invariance model).

We then fitted the LC model. The model fitted very well: $\chi^2(37) = 124.57$, $p < .01$, CFI = .97, TLI = .97, RMSEA = 0.06, SRMR = .07. The mean coefficients for the intercept (7.42; $t = 134.56$) and slope (.66, $t = 12.01$) were significant. Accordingly, there was a significant mean-level increase in job performance from T1 to T2. Likewise, the intercept (.99, $t = 10.21$) and slope (.78, $t = 9.67$) variances were significant, suggesting the presence of significant between-individual variability around both, i.e., the level of job performance at T1, and the average observed change in job performance from T1 to T2. A negative

relationship (-.57, t = -14.93) between the slope and intercept suggested that individuals with higher job performance levels at T1 showed less change in job performance.

We then included in the model the measures of work engagement, workaholism, and all covariates (i.e., gender, age, and job tenure) as predictors of the intercept and slope. We also regressed the slope on the intercept to control for the effect of the starting level on observed changes. This model fitted the data very well $\chi^2(85) = 158.39$, $p < .01$, CFI = .98, TLI = .98, RMSEA = 0.05, SRMR = .03. Again, the mean coefficients for the intercept (7.29; t = 18.90) and slope (1.16, t = 2.56) were significant, as well as their variances (intercept: .76, t = 8.72; slope: .42, t = 10.21). As shown in Figure 1, work engagement, but not workaholism, significantly predicted change (i.e., the slope factor) in job performance from T1 to T2, such that the higher the individual level of work engagement at T1, the higher the observed change from T1 to T2 on job performance. These results did not support Hypothesis 3, while they supported Hypothesis 4. Work engagement and workaholism were strongly and significantly correlated (.51, t = 15.02). Among covariates, only job tenure significantly predicted the intercept (-.22, t = -4.74), but not the slope (-.07, t = -1.37): accordingly, individuals with lower organizational tenure obtained higher scores in job performance at T1. Finally, the model explained a significant proportion of variance in both the intercept (R^2 = .06), and the slope (R^2 = .10) of job performance.

Please insert Figure 2 about here

GENERAL DISCUSSION

The main aims of the present studies were to investigate a short-term process through which workaholism, by impacting on daily workload, may affect health (i.e., emotional exhaustion) and to assess the long-term implications of such a process for job performance.

In line with our first hypothesis, in Study 1 we found that workaholism positively affected the average level of daily workload reported subsequently (during a 10-day observation period) over and above the level of workload generally associated with the job. General workload may be thought of as an enduring or chronic characteristic of the job, that is, the typical level of workload associated with the job. Daily workload reflects more closely what actually happens in work situations and the concrete workload experiences of individuals related to how they engage with work on a daily basis (Gabriel et al., 2018). Of course, daily workload is related to the typical level of workload associated with the job (i.e., general workload). Our results suggest that, keeping under control general workload, workaholism uniquely and strongly impacts daily workload, in other words that among individuals with similar level of general workload, those more workaholic report higher levels of daily workload. This is compatible with the idea that workaholics significantly fuel their workload to satisfy their need to work excessively. By revising obsessively an already completed task, by taking on more work than can be accomplished, and by refusing to delegate activities – which are all typical behaviors in work addiction – workaholics *de facto* prolong their work and make it substantially more intense. This interpretation is also supported by the positive and significant correlation (r = .31) between workaholism and average daily hours worked.

Higher levels of workload have their psychophysical costs. According to the effort-recovery model (Geurts & Sonnentag, 2006; Meijman, & Mulder, 1998), high workload may deplete individual energetic resources if such resources are not restored, thus producing

strain-related reactions. There is a well-established link between workload and burnout (Schaufeli, Leiter & Maslach, 2009). In line with our second hypothesis, we found that workaholism positively impacted on the average level of emotional exhaustion (i.e., the crucial dimension of burnout) reported at the end of the working day in the two-week observation period through the mediation of daily workload. This suggests that workaholism may initiate a health impairment process by fueling high workload on a daily basis, which in its turn limits daily recovery experiences and produces symptoms of impaired recovery (i.e., emotional exhaustion) at the end of the working day.

Overall, we contribute to shedding light on one of the mechanisms through which workaholism may adversely impact on health conditions in the long run. Previous research has repeatedly found that workaholism is detrimental to health (Ng et al., 2007; Clark et al., 2016); however, studies exploring the mechanisms through which it may act were lacking. A study by Schaufeli, Bakker, van der Heijden, and Prins (2009) found that workaholism positively influences burnout by fueling role conflicts such as work-home interference; however, its conclusions were limited by the cross-sectional nature of the investigation. Our study (Study 1), by repeatedly exploring the daily work-related experiences (i.e., workload and emotional exhaustion) of the participating individuals and by linking these to the participants' previously measured workaholic tendencies, revealed a different potential mechanism. This mechanism, involving workload, was frequently hypothesized by scholars in this area (e.g., Porter, 1996), but lacked a more solid test, which we have provided here.

Contrary to what was hypothesized (Hypothesis 3), in Study 2 we did not find that workaholism negatively influenced work performance. Only work engagement, that is, the 'positive facet' of high work investment, affected job performance and in a positive and expected way (Hypothesis 4). These results are similar to those obtained by Gorgievski et al.

(2010), who found that the workaholism dimensions (i.e., working excessively and working compulsively) were not related to task performance. However, the study by Gorgievski et al. (2010) was cross-sectional and entirely based on self-reported data. Additionally, the results obtained in the present study are different from those that emerged in Falco et al. (2013) and Shimazu and Schaufeli (2009), who found that workaholism negatively predicted job performance. However, also the design of these studies was not robust: the longitudinal study by Falco et al. (2013) did not control for the baseline level of job performance and the study by Shimazu and Schaufeli (2009) was cross-sectional. With the present study, based on a longitudinal design and including supervisors' rated job performance, we overcome some of the noted (see Clark et al., 2016) limitations of previous research in this area.

The unobserved negative impact of workaholism on job performance that emerged in the present study may be explained by the fact that compensatory efforts might have masked performance reduction in workaholics, preventing us from detecting a decline in performance within the chosen observation period. Performance could have been preserved at the expense of increased psychological and physiological costs, coupled with a decreased investment in non-work-related personal goals such as leisure and rest (see Hockey, 1997). These regulatory mechanisms are highly likely to be at play in workaholics, given the centrality of work for them. Compensatory efforts may have also been facilitated by effective performance management practices adopted by the organization (training, feedback, etc.). Longer observation periods may therefore be needed to detect a possible decrease in job performance in relation to high levels of workaholism.

Alternatively, the measure of job performance used in this study may have not sufficiently covered performance facets in which the decline has actually happened (e.g., adaptive and contextual performance, counterproductive work behaviors). It could also be

that supervisors rated workaholics more positively (e.g., because they work for very long hours and this is usually appreciated by supervisors), thereby compensating an actual decrease in performance. To understand whether this is the case, future studies could also look at objective job performance data. Finally, and not in accordance with our hypothesis, it is also possible that workaholism, despite displaying elements that may indeed be detrimental for performance (e.g., obsessiveness, mental rigidity, and difficulty in delegating tasks; Schaufeli, Taris, & Bakker, 2008), may also feature characteristics, such as achievement orientation and perseverance, that are beneficial for performance. More research is needed to better clarify which of the above alternative explanations is the most effective in accounting for the potential null effect of workaholism on performance. Additionally, the search for potential moderators of the workaholism-performance relationship may also be a fruitful avenue for future research.

Regarding the positive impact of work engagement on job performance, this result is in line with theory and previous research that have demonstrated the positive implications of work engagement for job performance (Christian et al., 2011). Overall, our Study 2 confirms previous findings (e.g., Shimazu et al., 2015) on the differences between work engagement and workaholism and the view that, while the former is a beneficial form of heavy work investment, the latter is not – not only for the individual, but also for organizations. Additionally differently from most previous research (see Clark et al., 2016), our Study 2 supported such a view with a longitudinal research design including multisource data, thus providing a solid base of evidence.

Implications

This study strongly undermines the validity of the idea that workaholism may have some good consequences (Baruk, 2011) – if not for the individual, at least for the

organization. Not only are workaholic individuals at increased risk of developing burnout symptoms, but they do not show increased levels of job performance. Considering that workaholism is seen as a relatively stable personal characteristic (e.g., Scott et al., 1997), organizations should have measures in place to deactivate its effect.

Organizations should raise awareness among their managers, supervisors, and employees at all levels that working constantly in an excessive manner may be detrimental to health and does not necessarily lead to a higher performance. Organizations should also pay attention to employees that work excessively without having a higher than average performance because they may have workaholic problems that affect their health. Such employees should have the opportunity to understand their difficulties through appropriate counselling. Organizations should also promote work-family initiatives, for example aimed at developing a family supportive leadership (Hammer, Kossek, Yragui, Bodner, & Hanson, 2009). Enforced vacation and email blocking could be further organizational interventions which induce employees to disconnect from work. Finally, organizations should promote work engagement – a healthy and productive form of heavy work investment –, for example by ensuring that employees at all levels have available adequate job resources to achieve their work goals and to manage their job demands.

All the above initiatives cannot change workaholic tendencies; however, they can create the conditions for them to remain silent. In fact, traits may manifest as responses to trait-relevant situational cues which may be situated at different levels, for example at the social level (e.g., a senior manager rewarding workaholic behavior) and at the organizational level (e.g., the existence of a workaholic culture) (Tett & Burnett, 2003). Thus, if these cues are not present, then workaholism may remain silent, with positive consequences for both the individual and the organization.

Methodological issues and limitations

In Study 1 the data, which were all self-reported, may have been contaminated by the common method bias. However, we controlled for neuroticism, which is a powerful determinant of this bias (Spector, 2006). Additionally, our analysis is consistent with the idea that workaholism affects day-level experiences including workload. However, this is not at odds with the possibility that chronically high workload strengthens, in the longer run, workaholic tendencies (Balducci, Avanzi, & Fraccaroli, 2018), implying a reciprocal influence between workaholism and workload. Regarding the link between workload and emotional exhaustion, the two constructs were both measured at the end of the working day. Future research could improve the investigation of this link by measuring day workload during the day and emotional exhaustion at the end of the day. Another issue is the compliance of the participants with the data collection procedure, which may be a concern in paper-and-pencil diary studies (Ohly, Sonnentag, Niessen, & Zapf, 2010). Future research could, therefore, implement an electronic daily diary study that allows time of completion to be tracked. Finally, participants were predominantly males. Thus, future studies should try to obtain a more balanced sample in terms of gender.

A limitation of Study 2 is that we focused on a sample of employees with non-managerial jobs. Workaholism tends to be higher among managers (Taris, Van Beek, & Schaufeli, 2012), thus focusing on this kind of workers could be more meaningful. Furthermore, the high correlation obtained between workaholism and work engagement (r =.52) raises some concern regarding their separability. However, in supplemental analyses (available upon request from the first author) we found clear evidence that the two constructs could be differentiated. Additionally, the high correlation emerged between workaholism and

work engagement suggests that they may co-occur and that it may be meaningful, in future studies, to differentiate engaged from disengaged workaholics (Loscalzo & Giannini, 2017).

A further limitation is that the health deterioration process initiated by workaholism (Study 1) and its implications for job performance (Study 2) were investigated separately. Thus, future research could test an integrated model where the consequences of workaholism for health and job performance are investigated in the same study. A further issue regarding both studies is that in a number of cases we modified validated scales, which is not good practice. However, for all the adopted scales we run confirmatory factor analysis (available upon request from the first author), which supported their factorial validity. Additionally, in different parts of the manuscript we referred to the term "workaholics". However, a screening scale which identifies workaholics by using a validated threshold has not been developed so far. We believe that this is an area worth of future investigation.

Finally, well-known social and cultural differences in aspects such as work centrality, working-time regimes and work-life balance (Schaufeli et al., 2009) may be a threat to the generalizability of the emerged findings. Such aspects may make workaholism behavior more or less acceptable (see Ng et al., 2007), which may impact on its consequences. Therefore, future research could compare the results of studies carried out in countries with different profiles on such social and cultural aspects.

Despite the mentioned limitations, our two studies significantly contribute to workaholism research. By using a clear definition of workaholism, the studies have highlighted a mechanism through which workaholism, acting on day-level experiences, may impact on health in the longer run and provided robust evidence that workaholics may not be productive workers.

REFERENCES

Alessandri, G., Zuffianò, A., & Perinelli, E. (2017). Evaluating intervention programs with a pretest-posttest design: a structural equation modeling approach. *Frontiers in Psychology*, *8*, 223.

Avanzi, L., Balducci, C., & Fraccaroli, F. (2013). Contributo alla validazione italiana del Copenhagen Burnout Inventory (CBI). *Psicologia della Salute*, *2*, 120-135.

Baldasseroni, A., Camerino, D., Cenni, P., Cesana, G. C., Fattorini, E., Ferrario, M., et al. (2001). La valutazione dei fattori psicosociali: Il Job Content Questionnaire. *Fogli di Informazione ISPESL*, 3, 20-30.

Balducci, C., Avanzi L., Consiglio, C., Fraccaroli, F., & Schaufeli, W. (2017). A cross-national study on the psychometric quality of the Italian version of the Dutch Work Addiction Scale (DUWAS). *European Journal of Psychological Assessment, 33*(6), 422-428.

Balducci C., Fraccaroli F., Schaufeli W. B. (2010). Psychometric properties of the Italian version of the Utrecht Work Engagement Scale (UWES-9): A cross-cultural analysis. *European Journal of Psychological Assessment*, *26*(2), 143-14.

Balducci, C., Avanzi, L., Fraccaroli, F. (2018). The individual 'costs' of workaholism: An analysis based on multisource and prospective data. *Journal of Management. 44*(7), 2961-2986.

Baruch, Y. (2011). The positive well-being aspects of workaholism in cross cultural perspective. *Career Development International*, *16*, 572-591.

Bowling, N. A., & Kirkendall, C. (2012). Workload: A review of causes, consequences, and potential interventions. In J. Houdmont, S. Leka, & R. Sinclair (Eds.), *Contemporary Occupational Health Psychology* (221-238). Chichester, UK: Wiley.

Carter, N. L., Guan, L., Maples, J. L., Williamson, R. L., & Miller, J. D. (2015). The downsides of extreme conscientiousness for psychological wellbeing: The role of obsessive compulsive tendencies. *Journal of Personality*, *84*(4), 510-522.

Cesana, G. C., Ferrario, M., Sega, R., Milesi, C., De Vito, G., Mancia, G., & Zanchetti, A. (1996). Job strain and ambulatory blood pressure levels in a population-based employed male sample in Northern Italy. *Scandinavian Journal of Work Environment and Health*, *22*, 294-305.

Christian, M. S., Garza, A. S., & Slaughter, J. E. (2011). Work engagement: A quantitative review and test of its relations with task and contextual performance. *Personnel Psychology*, *64*, 89-136.

Clark, M. A., Michel, J. S., Zhdanova, L., Pui, S. Y., & Baltes, B. B. (2016). All work and no play? A meta-analytic examination of the correlates and outcomes of workaholism. *Journal of Management*¸ *42*, 1836-1873.

Daniels, K. (2006). Rethinking job characteristics in work stress research. *Human Relations*, *59*(3), 267-290.

Falco, A., Girardi, D., Kravina, L., Trifiletti, E., Bartolucci, G. B., Capozza, D., & De Carlo, N. A. 2013. The mediating role of psychophysic strain in the relationship between workaholism, job performance, and sickness absence: A longitudinal study. *Journal of Occupational and Environmental Medicine*, *55*, 1255-1261.

Ferrario, M., Fornari, C., Borchini, R., Merluzzi, F., Cesana, G. (2005). Job stress in the service industry. Evaluation of the Italian version of the Job Content Questionnaire. *La Medicina del Lavoro*, *96*(3),191-199.

Flebus, G. B. (2006). Versione Italiana dei Big Five Markers di Goldberg. Unpublished manuscript.

Gabriel, A., Podsakoff, N. P., Beal, D. J., Scott, B. A., Sonnentag, S., Trougakos, J. P., & Butts, M. M. (2018). Experience sampling methods: A discussion of critical trends and considerations for scholarly advancement. Organizational Research Methods. Advance online publication. Doi: 10.1177/1094428118802626

Geurts, S. A. E., & Sonnentag, S. (2006). Recovery as an explanatory mechanism in the relation between acute stress reactions and chronic health impairment. *Scandinavian Journal of Work, Environment & Health*, *32*, 482-492.

Giannini, M., & Loscalzo, Y. (2016). Workaholism: Health risk and prevention in the organizations. In: Di Fabio A. (ed.) *Neuroticism: Characteristics, impact on job performance and health outcomes* (pp. 49-60). New York: Nova Publisher.

Gilet, N., Morin, A. G. S., Sandrin, E., & Houle, S. A. (2018). Investigating the combined effects of workaholism and work engagement: A substantive-methodological synergy of variable-centered and person-centered methodologies. *Journal of Vocational Behavior*, *109*, 54-77.

Girardi, D., De Carlo, A., Dal Corso, L., Andreassen, C. S., & Falco, A. (2019). Is workaholism associated with inflammatory response? The moderating role of work engagement. Testing, Psychometrics, Methodology in Applied Psychology, 26, 305-322.

Goldberg, L. R. (1992). The development of markers for the Big-Five factor structure. *Psychological Assessment*, *4*, 26-42.

Gorgievski, M. J., Bakker, A. B., & Schaufeli, W. B. (2010). Work engagement and workaholism: comparing the self-employed and salaried employees. *The Journal of Positive Psychology*, *5*(1), 83–96.

Graves, L. M., Ruderman, M. N., Ohlott, P. J., & Weber, T. J. (2012). Driven to work and enjoyment of work: Effects on managers' outcomes. *Journal of Management*, *38*, 1655-1680.

Hammer, L. B., Kossek, E. E., Yragui, N. L., Bodner, T. E., & Hanson, G. C. (2009). Development and validation of a multidimensional measure of family supportive supervisor behaviors (FSSB). *Journal of Management*, *35*, 837-856.

Heidemeier, H., & Moser, K. (2009). Self–other agreement in job performance ratings: A meta-analytic test of a process model. *Journal of Applied Psychology*, *94*, 353-370.

Hockey, G. R. J. (1997). Compensatory control in the regulation of human performance under stress and high workload: A cognitive-energetical framework. *Biological Psychology*, *45*, 73-93.

Hox, J. J. (2010). Multilevel analysis. New York: Routledge.

Ilies, R., Dimotakis, N., & De Pater, I. E. (2010). Psychological and physiological reactions to high workloads: Implications for well-being. *Personnel Psychology*, *63*, 407-436.

Karasek, R., Brisson, C., Kawakami, N., Houtman, I., Bongers, P., & Amick, B. (1998). The Job Content Questionnaire (JCQ): An instrument for internationally comparative assessments of psychosocial job characteristics. *Journal of Occupational Health Psychology*, *3*, 322-355.

Kline, R. (2016). *Principles and practice of structural equation modelling*. New York: Guilford Press.

Kristensen, T. S., Borritz, M., Villadsen, E., & Christensen, K. B. (2005). The Copenhagen Burnout Inventory: A new tool for the assessment of burnout. *Work & Stress*, *19*, 192-207.

Laurence, G. A. (2010). *Workaholism and expansion and contraction oriented job crafting: The moderating effects of individual and contextual factors*. Doctoral dissertation. Available from ProQuest Dissertations and Theses database. UMI No. 3429621.

Lee, R. T., & Ashforth, B. E. (1996). A meta-analytic examination of the correlates of the three dimensions of job burnout. *Journal of Applied Psychology, 81*(2), 123-133.

Loscalzo, Y., & Giannini, M. (2017). Clinical conceptualization of workaholism: A comprehensive model. *Organizational Psychology Review*, *2*, 306-329.

Machlowitz, M. (1980). *Workaholics: Living with them, working with them*. Reading, MA: Addison-Wesley.

McArdle, J. J. (2009). Latent variable modeling of differences and changes with longitudinal data. *Annual Review of Psychology, 60*, 577-605.

Meijman, T. F., & Mulder, G. (1998). Psychological aspects of workload. In P. J. D. Drenth, & H. Thierry (eds.), *Handbook of work and organizational psychology* (Vol. 2, pp. 5–33). Hove: Psychology Press.

Ng, T. W., & Feldman, D. C. 2008. The relationship of age to ten dimensions of job performance. *Journal of Applied Psychology*, *93*, 392-423.

Ng, T. W., & Feldman, D. C. 2010. The relationships of age with job attitudes: A meta-analysis. *Personnel Psychology*, *63*, 677-718.

Ng, T. W. H., Sorensen, K. L., & Feldman, D. C. (2007). Dimensions, antecedents, and consequences of workaholism: A conceptual integration and extension. *Journal of Organizational Behavior*, *28*, 111–136.

Ohly, S., & Fritz, C., (2010). Work characteristics, challenge appraisal, creativity, and proactive behavior: A multi-level study. *Journal of Organizational Behaviour*, *31*, 543-565.

Ohly, S., Sonnentag, S., Niessen, C. & Zapf, D. (2010). Diary studies in organizational research: An introduction and some practical recommendations. *Journal of Personnel Psychology*, *9*(2), 79-93.

Porter, G. (1996). Organizational impact of workaholism: Suggestions for researching the negative outcomes of excessive work. *Journal of Occupational Health Psychology*, *1*(1), 70–84.

Preacher, K. J., Zhang, Z., & Zyphur, M. J. (2011). Alternative methods for assessing mediation in multilevel data: The advantages of multilevel sem. *Structural Equation Modeling, 18,* 161-182.

Robinson, B. E. (1999). The Work Addiction Risk Test: Development of a tentative measure of workaholism. *Perceptual and Motor Skills, 88,* 199-210.

Roth, P. L., Purvis, K. L., & Bobko, P. (2012). A meta-analysis of gender group differences for measures of job performance in field studies. *Journal of Management*, *38*, 465-474.

Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire. *Educational and Psychological Measurement*, *66*, 701-716.

Schaufeli, W. B., Bakker, A. B., van der Heijden, F. M. M. A., & Prins, J. T. (2009). Workaholism, burnout, and well-being among junior doctors: The mediating role of role conflict. *Work & Stress, 23*, 155-172.

Schaufeli, W.B., Leiter, M.P. & Maslach, C. (2009). Burnout: 35 years of research and practice. *Career Development International, 14*, 204-220.

Schaufeli, W. B., Shimazu, A., & Taris, T. W. (2009). Being driven to work excessively hard: the evaluation of a two-factor measure of workaholism in the Netherlands and Japan. *Cross-Cultural Research, 43*, 320-348.

Schaufeli, W. B., Taris, T. W., & Bakker, A. B. (2008). It takes two to tango: Workaholism is working excessively and working compulsively. In R. J. Burke & C. L. Cooper (eds.), *The long work hours culture: Causes, consequences and Choices* (pp. 203-225). Bingley, UK: Emerald Group Publishing Limited.

Scott, K. S., Moore, K. S., & Miceli, M. P. (1997). An exploration of the meaning and consequences of workaholism. *Human Relations, 50*, 287-314.

Shimazu, A., Schaufeli, W. (2009). Is workaholism good or bad for employee well-being? The distinctiveness of workaholism and work engagement among Japanese employees. *Industrial Health, 47*, 495–502.

Shimazu, A., Schaufeli, W., Kamiyama, K., & Kawakami, N. (2015). Workaholism vs. work engagement: The two different predictors of future well-being and performance. *International Journal of Behavioral Medicine, 22*, 18-23.

Snir, R., & Harpaz, I. (2012). Beyond workaholism: Towards a general model of heavy work investment. *Human Resource Management Review*, *22*, 232-243.

Spagnoli, P., Balducci, C., Kovalchuk, L. S., Maiorano, F., & Buono, C. (2017) . Are engaged workaholics protected against job-related negative affect and anxiety before sleep? A study of the moderating role of gender. *International Journal of Environmental Research and Public Health*, 15, 1996. doi:10.3390/ijerph15091996

Spector, P. E. (2006). Method variance in organizational research: Truth or urban legend? *Organizational Research Methods*, *9*, 221-232.

Spence, J. T., & Robbins, A. S. (1992). Workaholics: Definition, measurement, and preliminary results. *Journal of Personality Assessment, 58*, 160-178.

Taris, T W., Van Beek, I., & Schaufeli, W. (2012). Demographic and occupational correlates of workaholism. *Psychological Reports, 110,* 547-554.

Taris, T W., Van Beek, I., & Schaufeli, W. (2014). The beauty versus the beast: On the motives of engaged and workaholic employees. In I. Harpaz, & R. Snir (eds.), *Heavy work investment: Its nature, sources, outcomes, and future directions* (pp. 121-138). New York: Routledge.

Tett, R. P, & Burnett, D. D. (2003). A personality trait-based interactionist model of job performance. *Journal of Applied Psychology*, *88,* 500-517.

Thoresen, C. J., Kaplan, S. A., Barsky, A.P., Warren, C. R., & de Chermont, K. (2003) The affective underpinnings of job perceptions and attitudes: A meta-analytic review and integration. *Psychological Bulletin, 129*(6), 914-945.

Table 1. Descriptive Statistics and Intercorrelations of Study Variables (Study 1)

	M (*SD*)	1	2	3	4	5	6	7	8	9	10	11
1 Workaholism	2.57 (0.53)	1										
2 General workload	3.98 (0.71)	.51***	1									
3 Neuroticism	2.54 (0.94)	.42***	.16	1								
4 Conscientiousness	3.74 (0.84)	.21*	.14	-.01*	1							
5 Day workload	4.88 (1.06)	.49***	.47***	.25*	.10	1	.35***	.31***				
6 Day exhaustion	4.12 (1.37)	.48***	.28**	.43***	-.02	.58***	1	.36***				
7 Day hours worked	8.56 (1.74)	.31***	.26*	-.08	-.08	.32**	.24*	1				
8 Gender[a]	-	.08	.01	-.18	-.23*	-.14	-.05	.25*	1			
9 Age	43.47 (11.87)	-.06	-.19	-.12	.18	-.11	.03	-.03	.03	1		
10 Educational level[b]	-	.06	-.02	.18	.04	.04	.01	.12	-.12	-.20*	1	
11 Position[c]	-	.06	-.13	-.05	.01	-.03	-.05	.10	.11	.33**	-.18	1

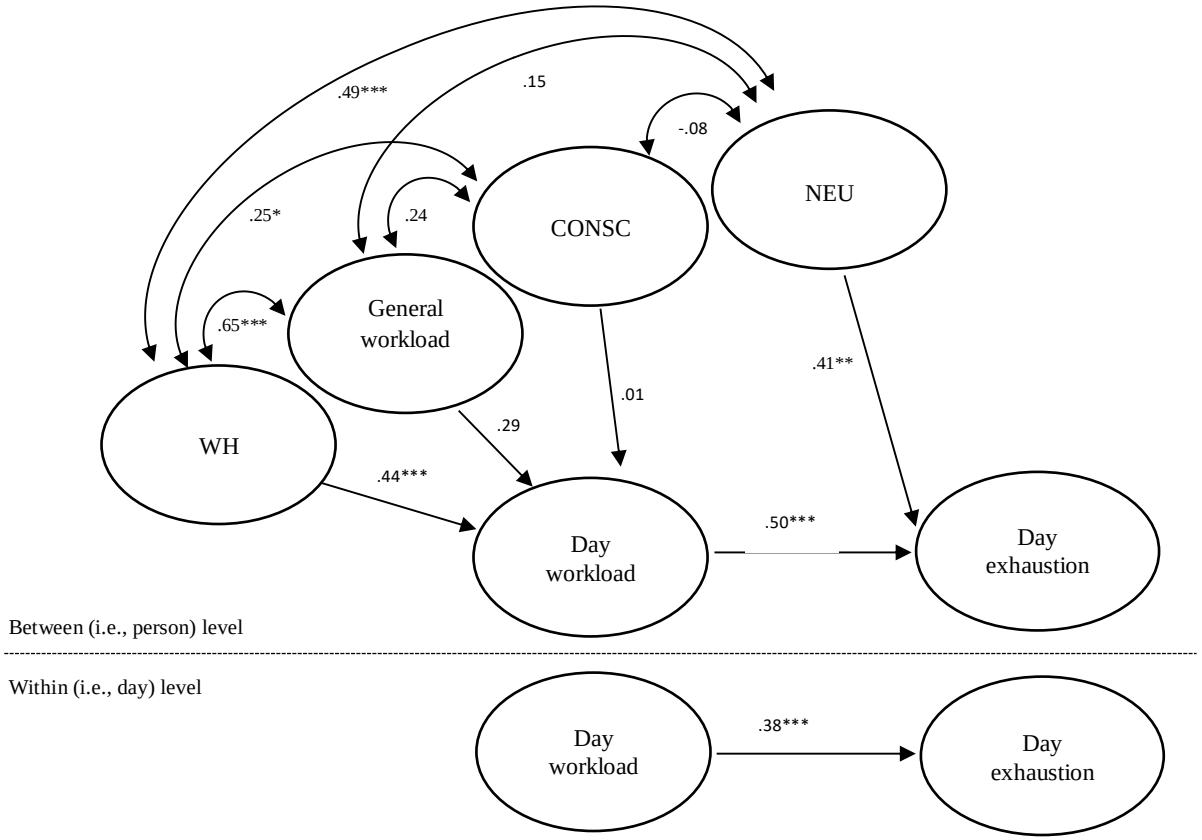
Note. 'Between' (person-level) correlations are reported below the diagonal – day-level variables were averaged across the ten days before computing these correlations and the reported descriptive statistics. 'Within' (day-level) correlations are reported above the diagonal. [a] 0 = Female, 1 = Male. [b] 0 = Up to high school, 1 = University education. [c] 0 = Employee, 1 = Entrepreneur, manager or self employed. * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 2. Descriptive Statistics and Intercorrelations of Study Variables (Study 2)

	M (SD)	1	2	3	4	5	6	7
1. Job performance T1	7.3 (1.04)	1						
2. Job performance T2	7.7 (1.22)	.53**	1					
3. Work engagement	5.48 (0.81)	.12*	.16**	1				
4. Workaholism	4.42 (0.80)	.01	.12*	.52**	1			
5. Gender[a]	-	.06	-.05	.02	.02	1		
6. Age	37.26 (9.84)	.10	-.09	.01	-.06	-.05	1	
7. Organizational tenure	16 (10.49)	-.20**	-.21**	.02	-.04	.01	.46**	1

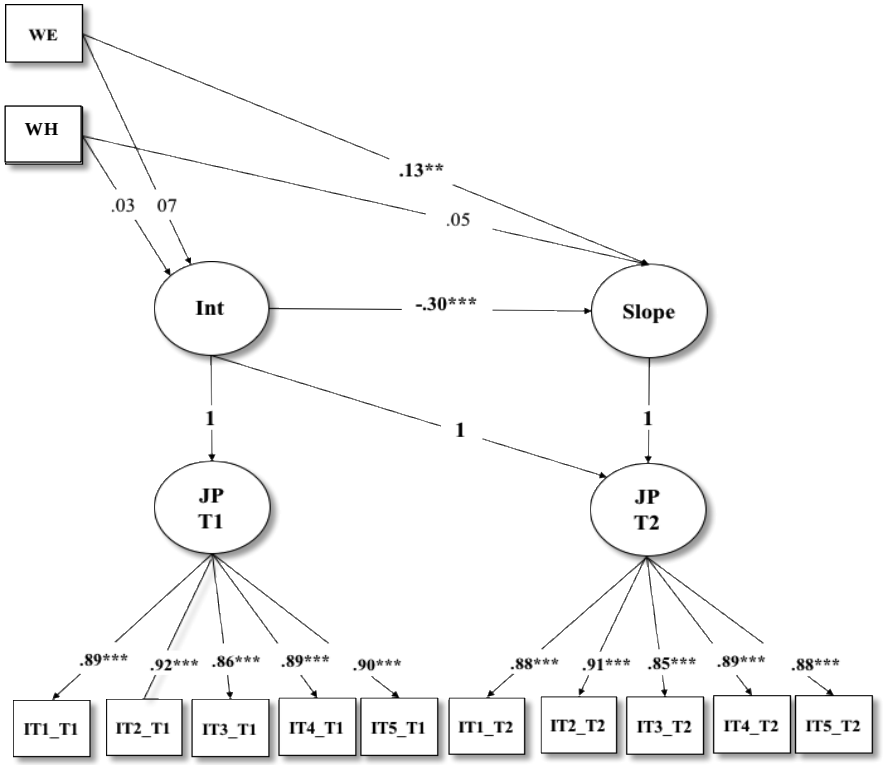
Note. [a] 0 = Females, 1= Males. * $p < .05$; ** $p < .01$;

Figure 1. The Multilevel Structural Equation Model Tested in Study 1. Standardized Coefficients Are Reported in Paths.



Note. WH: Workaholism. CONSC: Conscientiousness. NEU: Neuroticism. * $p < .05$; ** $p < .01$; *** $p < .001$

Figure 2. The Latent Change Model Tested in Study 2. Standardized Coefficients Are Reported in Paths.



Note. The model included the effect of age, gender, and job tenure, as well as the covariance between work engagement workaholism. WE = work engagement; WH = workaholism; JP = job performance; T1-T2 = Time 1 and Time 2; Int = Intercept. * $p < .05$; ** $p < .01$; *** $p < .001$.