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The role of workaholism in the job demands-resources model

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The role of workaholism in the job demands-resources model

Abstract

Background and Objectives: The present study tries to gain more insight in workaholism by investigating its antecedents and consequences using the job demands-resources model.

Design: We hypothesized that job demands would be positively related to workaholism, particularly when job resources are low. In addition, we hypothesized that workaholism would be positively related to negative outcomes in three important life domains: health, family, and work.

Methods: The research involved 617 Italian workers (employees and self-employed). To test the hypotheses we applied structural equation modeling (SEM) and moderated structural equation modeling (MSEM) using Mplus 6.

Results: The results of SEM showed a good model where workload, cognitive demands, emotional demands, and customer-related social stressors were positively related to workaholism and work-family conflict (partial mediation). Additionally, workaholism was indirectly related to exhaustion and intentions to change jobs through work-family conflict. Moreover, MSEM analyses confirmed that job resources (job security and opportunities for development) buffered the relationship between job demands and workaholism. Particularly, the interaction effects were statistically significant in five out of eight combinations.

Conclusions: These findings suggest that workaholism is a function of a suboptimal work environment and predicts unfavorable employee outcomes. We discuss the theoretical and practical implications of these findings.

Keywords: Job demands-resources model; Job demands; Job resources; Workaholism; Work-family conflict

Introduction

Over the past decades, the working world has changed significantly. Many today's western countries value success and accomplishment, and consider work as a central life aspect shaping our identity, self-esteem, and sense of psychological well-being. Furthermore, with the expansion of technology, the idea of a Monday through Friday 40-hour workweek is fading away. With the appearance of Internet, laptops, smartphones and personal digital assistants, individuals can always stay connected to their work (Derks & Bakker, 2010). Taken together, these changes lead employees to work harder than before (van Beek, Hu, Schaufeli, Taris, & Schreurs, 2012), phenomenon related to the notion of workaholism in literature (Shimazu & Schaufeli, 2009).

Nowadays, the term workaholism is widely used among lay people, and the scientific interest in this topic is increasing. Nevertheless, our knowledge about workaholism is still limited (Schaufeli, Bakker, van der Heijden, & Prins, 2009a). The literature seems to lack studies investigating the relationship between workaholism and working conditions, although organizations increasingly push their employees to work harder and longer to remain successful in the global competition (Fry & Cohen, 2009).

The current study tries to gain more insight in workaholism by investigating its role in the job demands-resources (JD-R) model, a job characteristics model which considers work characteristics as the most important predictors of stress symptoms and well-being at work (Bakker & Demerouti, 2007, 2014). The main goal of the study is to understand whether job demands are related to workaholism, and whether job resources can moderate this relationship. Moreover, the study aims to investigate the direct and indirect effects of workaholism on three negative outcomes: work-family conflict, exhaustion and intentions to change jobs.

Defining workaholism

Currently, there is not an agreed-upon definition of workaholism. Nevertheless, scientific interest in this topic is growing since workaholism is considered as one of the most common addictions that can impact different areas of human functioning at the individual, family, organizational, and societal levels (Vodanovich & Piotrowski, 2006). Although many writers have conceptualized workaholism as pathology, it is still not generally accepted as a clinical condition (Molino, Ghislieri, & Colombo, 2012). In fact, workaholism is not officially listed in the Diagnostic and Statistical Manual (DSM-5). However, it is considered a symptom of the obsessive-compulsive personality disorder, which is characterized by perfectionism, inflexibility and preoccupation with work, and by an excessive devotion to work and productivity to the exclusion of leisure activities and friendships (American Psychiatric Association, 2013).

Oates (1971) coined the term workaholism to describe an excessive and uncontrollable need to work that permanently disturbs health, happiness and relationships. A later definition of workaholism is “the tendency to work excessively hard and being obsessed with work, which manifests itself in working compulsively” (Schaufeli, Shimazu, & Taris, 2009b, p. 322). Among the different conceptualizations of workaholism, in this study we assumed the addiction perspective, adopting the definition and measure of workaholism proposed by Andreassen, Griffiths, Hetland and Pallesen (2012). The authors consider workaholism as “being overly concerned about work, being driven by an uncontrollable work motivation, and spending so much energy and effort on work that it impairs private relationships, spare-time activities and/or health” (Andreassen et al., 2012, p. 265); they developed a new one-dimensional scale (Bergen Work Addiction Scale; BWAS) for the assessment of workaholism. This scale considers each of the seven core elements of all addictions (Griffiths,

2005): salience, mood modification, (reduced) tolerance, withdrawal, conflict, relapse, and health problems.

In contrast with the prevailing perspective which considers workaholism as a compulsion or a stable individual characteristic, many scholars have conceptualized workaholism as a behavioral addiction with harmful consequences for individuals (Porter, 1996; Sussman, 2012; Wojdylo, Baumann, Buczny, Owens, & Kuhl, 2013), and have argued that the work environment may play a role in stimulating it (Burke, 2001; Fry & Cohen, 2009; Ng, Sorensen, & Feldman, 2007; van Wijhe, Schaufeli, & Peeters, 2010). Among the work-related factors which could induce or reinforce workaholic behaviors scholars have indicated: incentive systems for higher productivity (Burke, 2001), a work culture strongly oriented to loyalty and results (Piotrowski & Vodanovich, 2006), high levels of organizational identification (Avanzi, van Dick, Fraccaroli, & Sarchielli, 2012), and the example of managers and supervisors who work hard as well as their reward for working excessively (van Wijhe et al., 2010).

JD-R model, workaholism and other outcomes

According to the JD-R model (Bakker & Demerouti, 2007), every work environment has its own unique characteristics that can be classified in two general categories, job demands and job resources, providing an overarching model suitable for various working contexts. Job demands represent physical, psychological, social or organizational characteristics of the job that require physical and/or psychological effort and are therefore associated with physiological and/or psychological costs; demands will potentially evoke strain if they exceed the employee's adaptive capability (Bakker & Demerouti, 2007). Job resources refer to physical, psychological, social or organizational job aspects that may be functional in achieving work-related goals; reduce job demands and the associated costs;

stimulate personal growth and development (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001).

The main assumption of the JD-R model is that the risk of job strain is highest in working environments where job demands are high and job resources are limited (Bakker & Demerouti, 2007; Demerouti et al., 2001). Complementary to this effect, the buffer hypothesis states that high job resources may offset the negative impact of job demands on employee well-being, including burnout (Xanthopoulou et al., 2007). In this study, we investigate whether job demands may have a positive relationship with workaholism and whether certain specific job resources can buffer this relationship. Thus, the present study extends the buffer hypothesis of the JD-R model already introduced for job strain and burnout (Bakker, Demerouti, & Euwema, 2005; Xanthopoulou et al., 2007) to workaholism, adopting a different approach compared with previous studies which considered workaholism within the JD-R model as a demand and not as a mediator (e.g., Guglielmi, Simbula, Schaufeli, & Depolo, 2012; Molino et al., 2014).

According to the literature on the interaction effects between job demands and job resources (for a review, see Schaufeli & Taris, 2014), in this study the hypothesized interactions will be tested combining four job demands (workload, cognitive demands, emotional demands, and customer related social stressors), with two job resources (opportunities for professional development and job security). Opportunities for professional development may satisfy workers' basic need for competence and contribute to their intrinsic motivation to achieve results (Ryan & Deci, 2000). Adequate opportunities for professional development (e.g., training, learning experiences, career advancement) ensure that workers are capable of dealing with their job demands without feeling compelled to create more challenges at work or take over tasks to improve their skills (Tims & Bakker, 2010). Likewise, job security may balance the external requests, as evidenced by research on the

effort-reward imbalance theory (Siegrist, 1996). In the current working world characterized by competitiveness and job-related uncertainty, perceived economic insecurity could contribute to the occurrence of workaholic behaviors (Matuska, 2010), especially for those individuals with person characteristics that make them prone to workaholism (Mazzetti, Schaufeli, & Guglielmi, 2014).

Hypothesis 1a: Job demands (workload, cognitive demands, emotional demands and customer related social stressors) are positively related to workaholism.

Hypothesis 1b: Job resources (opportunities for professional development and job security) moderate the positive relationship between job demands and workaholism. Specifically, the relationship between job demands and workaholism will be more positive for employees who have low (vs. high) job resources.

This study also aims at improving our knowledge about the consequences of workaholism. Regarding consequences for individuals, several studies have found a positive relationship between workaholism and burnout, a state of exhaustion and depletion of mental resources (Andreassen, Ursin, & Eriksen, 2007; Guglielmi et al., 2012; Taris, Schaufeli, & Verhoeven, 2005). When workaholics spend excessive amounts of energy and effort at work, they might exhaust their energy back up and burn out (Bakker, Demerouti, Oerlemans, & Sonnentag, 2012; Sonnentag & Zijlstra, 2006).

Empirical research has shown that workaholism adversely impacts also the non-work domain, increasing work-family conflict (WFC; Bakker, Demerouti, & Burke, 2009; Bonebright, Clay, & Ankenmann, 2000; Taris et al., 2005). Indeed, workaholics spend a lot of time and energy on their work, also in the evening and weekend, at the cost of other life activities and social relations. From a personal resources perspective supported by Conservation of Resources theory (Hobfoll, 2002), workaholics' tendency to devote more resources to work leaves them with fewer resources for their family.

Thus, on the basis of the previous hypothesis, namely that job demands have a positive relationship with workaholism, and on the basis of the abovementioned negative consequences of workaholism, the study investigates the relationship between workaholism and some of its outcomes and hypothesizes a mediational role of workaholism between job demands on the one hand, and both WFC and exhaustion on the other hand. The mediational effects hypothesized are partial in both of the cases, since we also assume a positive relation between job demands and both WFC (Demerouti, Geurts, & Kompier, 2004; Schaufeli et al., 2009a) and exhaustion (Demerouti et al., 2001; Xanthopoulou et al., 2007). Consistent with a previous study (Schaufeli et al., 2009a), also a mediational role of WFC between workaholism and exhaustion is hypothesized.

Hypothesis 2a: Workaholism partially mediates the relationship between job demands on the one hand, and WFC and exhaustion on the other hand.

Hypothesis 2b: WFC partially mediates the relationship between workaholism and exhaustion.

Finally, the interest of the study is to highlight the potential relationship of workaholism also with intentions to change jobs. Few studies investigated the relationship between workaholism and intentions to leave the organization, finding contradictory results (Burke, 2001; Kravina, Falco, Girardi, & De Carlo, 2010). Otherwise, in literature there is wide evidence about the effect of exhaustion on intentions to leave (Bakker, Demerouti, & Schaufeli, 2003a; Hu, Schaufeli, & Taris, 2011).

Hypothesis 3: Exhaustion mediates the relationship between a) workaholism and b) WFC, and intentions to change jobs.

Method

Participants and Procedure

The research involved a convenience sample of 617 Italian workers who filled out a self-report on-line questionnaire. Data collection took place between 2012 and 2013. The participants in the present study were employed or self-employed in several different sectors. This heterogeneity increases the chances of finding meaningful variation in work-related experiences (Warr, 1990). In order to inform people about the research and collect voluntary subscriptions we involved some preferential contacts working in several sectors, asking them to contact and inform other colleagues. Then we contacted the potential participants via email explaining to them the research methods and purposes, and providing clear instructions for the compilation of the self-report on-line questionnaire. In the email the voluntary and not paid participation to the research, and the anonymity and confidentiality of the data were emphasized. We obtained informed consent by requesting the participants to validate it in the first page of the questionnaire. Overall, the study was conducted in conformance with the principles of both the Code of Conducts of Italian Psychologists issued by the National Council of Psychologists and the Code of Ethics for Research in Psychology issued by the Italian Association of Psychologists (AIP), insofar two of the authors are members of both the associations.

The sample consisted of 343 females (55% of the sample) and 274 males (45% of the sample). They were aged between 23 and 69 years old ($M = 39.95$; $SD = 9.56$). Among the participants, 58% were married or cohabited; 47% had children. In the sample, 75% had a bachelor's, master's degrees or a higher educational qualification. In total, 54% (331) were employees and 43% (266) were self-employed (missing cases = 3%). Participants were from

different occupational sectors: most of them (42%) were from the private service, 13% were from industry, 10% were from public health, 9% were from education and research, 8% were from public service, 6% were from commerce, 6% were from other sectors (missing cases = 6%). Weekly working hours were, on average, 42.05 ($SD = 10.84$). Mean seniority on the job was 12.25 years ($SD = 9.57$).

Measures

Job demands: *Workload* was measured by using the four-item scale taken from Bakker, Demerouti and Verbeke (2004). An example item is “Do you have too much work to do?” (1 = *never* to 5 = *always*); Cronbach’s alpha for this study was .81. *Cognitive demands* were evaluated with a four-item scale of Bakker, Demerouti, Taris, Schaufeli and Schreurs (2003b). A typical item of this scale is “Does your work demand enhanced care or precision?” (1 = *never* to 5 = *always*); Cronbach’s alpha was .78. *Emotional demands* were measured with three items (Bakker et al., 2003a), including “Do you face emotionally charged situations in your work?” (1 = *never* to 5 = *always*); Cronbach’s alpha was .88. *Customer related social stressors* were assessed with the nine-item scale developed by Dormann & Zapf (2004). Sample items are “Some customers think they are more important than others” and “Our customers’ demands are often exorbitant” (1 = *strongly disagree* to 6 = *strongly agree*); Cronbach’s alpha was .87.

Job resources: *Opportunities for professional development* were measured by the four-item scale of Bakker et al. (2003b), including “My work offers me the opportunity to learn new things” (1 = *totally disagree* to 5 = *totally agree*); Cronbach’s alpha was .88. *Job security* was assessed by three items taken from the study of Kraimer, Wayne, Liden and Sparrowe (2005). A typical item is “My job will be there as long as I want it” (1 = *totally disagree* to 7 = *totally agree*); Cronbach’s alpha was .91.

Workaholism was measured with the seven-item Bergen Work Addiction Scale (BWAS), which has high content validity in terms of the addiction nature of the construct (Andreassen et al., 2012). Sample items are “How often during last year ...have you thought of how you could free up more time to work?” and “...have you become stressed if you have been prohibited from working?” (1 = *never* to 5 = *always*); Cronbach’s alpha was .78.

Work-family conflict was assessed with the Italian version (Colombo & Ghislieri, 2008) of the five-item scale taken by Netemeyer, Boles and McMurrin (1996). Example items are “The demands of my work interfere with my home and family life” and “Things I want to do at home do not get done because of the demands my job puts on me” (1 = *never* to 6 = *always*); Cronbach’s alpha was .91.

Exhaustion was measured by eight items of the *Oldenburg Burnout Inventory (OLBI)*; Demerouti, Mostert, & Bakker, 2010). Typical items are “When I work, I usually feel energized” (reverse coded) and “There are days when I feel tired before I arrive at work” (1 = *strongly disagree* to 4 = *strongly agree*); Cronbach’s alpha was .76.

Intentions to change jobs were assessed with two items (Schaufeli & Bakker, 2004). An example item of the two is “I sometimes think about changing job” (1 = *totally disagree* to 5 = *totally agree*); Cronbach’s alpha was .77.

Analysis

The Mplus 6 software package (Muthén & Muthén, 1998-2012) was used to test the study hypotheses through structural equation modeling (SEM) and moderated structural equation modeling (MSEM). The method of estimation was maximum likelihood (ML). According to the literature (Bollen & Long, 1993) several goodness-of-fit criteria were considered: the χ^2 goodness-of-fit statistic; the Root Mean Square Error of Approximation (RMSEA); the Comparative Fit Index (CFI); the Tucker Lewis Index (TLI); the Standardized Root Mean Square Residual (SRMR); the Akaike's Information Criterion (AIC). Values of

both RMSEA and SRSM lower than .08, and CFI and TLI values greater than .90 indicate a good fit; smaller values of AIC indicate better models.

In the SEM analysis, the four job characteristics were modelled in a latent factor representing job demands, which was treated as exogenous variable in the model. For reasons of parsimony, item parceling for the endogenous variables was used, computing two parcels for each latent construct in the model. Finally, bootstrapping was used to test the significance of the mediation effects (Shrout & Bolger, 2002).

To address the common method variance issue, a confirmatory factor analysis was performed using the Harman's single-factor test (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Results indicated that one single factor could not account for the variance in the data [$\chi^2(860, N = 617) = 7550.05, p < .001, RMSEA = .11, CFI = .42, TLI = .40, SRMR = .12$]. This indicates that common method variance was not a major problem in the present study. In SEM analysis we controlled for gender, age, and mean seniority on the job.

To test the moderating effects (*Hypothesis 1b*), MSEM was used following the procedure described by Mathieu, Tanenbaum and Salas (1992; in Cortina, Chen, & Dunlap, 2001). For each hypothesized interaction effect we tested a model that included three exogenous variables (one job demand, one job resource and their interaction) and workaholism as endogenous variable. Each exogenous variable had only one indicator that was the standardized score of the variable. The indicator of the interaction factor was the multiplication of the indicators of the interacting variables. The path from each latent exogenous variable to its indicator was fixed at the square root of the scale reliability, whereas the error variance of each indicator was set equal to the product of its variance and one minus its reliability. The reliability of the interaction term was calculated by the formula reported in Cortina et al. (2001). Figure 2 represents the model that was used to test the interaction hypothesis.

Results

Descriptive statistics

Table 1 includes the means, standard deviations, and correlations between the study variables, as well as their internal consistencies.

SEM analyses

Table 2 presents the results of alternative SEM models estimated to test the study hypotheses. The hypothesized mediation model, in which workaholism was a partial mediator between job demands and WFC and between job demands and exhaustion; WFC was a partial mediator between workaholism and exhaustion; and exhaustion was a predictor of intentions to change jobs, showed a good fit to the data (M_1). Nevertheless, in this model, the path coefficient from job demands to exhaustion was non-significant. Therefore, we calculated a more parsimonious model without this path ($M_{1\text{-alternative}}$), where workaholism was a full—not partial—mediator between job demands and exhaustion. This model also showed a good fit to the data and the chi-square difference test showed that $M_{1\text{-alternative}}$ fits as well to the data as M_1 ($\Delta\chi^2 = 2.36; p = .124; n.s.$).

Moreover, results showed that $M_{1\text{-alternative}}$ was significantly better compared with the model in which all direct effects from job demands, workaholism, WFC and exhaustion to intentions to change jobs were calculated (M_2 ; no correlations between exogenous variables), confirming the presence of mediating effects within the model ($\Delta\chi^2 = 652.58; p < .001$).

Finally, we tested also the saturated model (M_3), where all direct and indirect effects were modelled. Model 3 showed an acceptable fit to the data, but it was not significantly better than $M_{1\text{-alternative}}$ ($\Delta\chi^2 = 7.83; p = .098; n.s.$). Moreover, in M_3 only the direct effect from exhaustion to intentions to change jobs was significant; the other direct effects added in this model (compared to $M_{1\text{-alternative}}$) were non-significant (job demands \rightarrow exhaustion; job demands \rightarrow intentions to change jobs; workaholism \rightarrow intentions to change jobs; WFC \rightarrow

intentions to change jobs). For this reason, we chose the more parsimonious $M_{1\text{-alternative}}$, which is graphically represented in Figure 3, as the best fitting model. In conclusion, the results support *Hypotheses 1b, 2a, 2b* and *3*.

Subsequently, the mediating paths in the $M_{1\text{-alternative}}$ were evaluated using a bootstrapping procedure, which extracted 2000 new samples from the original sample and calculated all direct and indirect parameters of the model (Preacher & Hayes, 2008). A significant mediation occurs when the confidence interval does not include zero. Results in Table 3 showed that all the mediated effects were statistically significant. Particularly, the bootstrapping procedure confirmed that both workaholism and WFC are fully mediators between job demands and exhaustion. Moreover, workaholism is a partial mediator between job demands and WFC. Finally, the relationship between both WFC and workaholism on the one hand, and intentions to change jobs on the other hand is fully mediated by exhaustion. These results offer additional evidence for *Hypothesis 2a* and *2b* and *Hypothesis 3*.

MSEM analysis

We used MSEM to test the hypothesis that job resources mitigate the positive relationship between job demands and workaholism (*Hypothesis 1b*). Table 4 shows the results. Five out of eight interaction effects of job demands and job resources were statistically significant, thus our hypothesis was supported for 63% of all cases. Both workload and cognitive demands interacted with both OPD and job security to predict workaholism; moreover, emotional demands interacted with OPD, but not with job security. Finally, the two job resources did not have an effect on the relationship between customer related social stressors and workaholism.

In cases where the MSEM analyses resulted in a significant interaction effect, the chi-square difference test showed that the fit of the models with the path from the latent interaction variable to the endogenous variables was significantly better than the models

without this path (Table 4), thus further supporting the interaction effects outlined in our hypothesis (Cortina et al., 2001). Dawson and Richter's (2006) software was used to plot the five significant moderation effects. Figure 4 confirms the direction of the moderation effects. In all five situations, job resources mitigated the positive relationship between job demands and workaholism; in other words, the positive relationship between job demands and workaholism is particularly high under conditions of low (vs. high) job resources. These findings offer support for *Hypothesis 1b*.

Discussion

The central aim of this study was to understand the role of workaholism in the JD-R model (Bakker & Demerouti, 2007). In contrast with other scholars that considered workaholism as a stable individual characteristic (Balducci, Cecchin, Fraccaroli, & Schaufeli, 2012; Scott, Moore, & Miceli, 1997), we assumed that workaholism may vary as a function of the working context (Fry & Cohen, 2009; van Wijhe et al., 2010).

Hypothesis 1a assumed that job demands are positively related to workaholism and the final model resulting from our analyses supports the existence of this positive relationship. Although results of this cross-sectional study cannot confirm causal relationships between variables, they can provide some evidence about the emerging idea that the work environment is linked with work addiction.

Based on the JD-R model, *Hypothesis 1b* took into consideration the buffer effect of some job resources to the positive relationship between job demands and workaholism. Some authors, indeed, demonstrated that job resources could reduce the negative impact of job demands on well-being (Xanthopoulou et al., 2007); this study considers the possibility to extend the buffer hypothesis of the JD-R model also to workaholism. Although results did not confirm the hypothesis in all the combinations between job demands and job resources included in this study, the percentage of interactions found, equal to 63%, may be considered

a substantial finding; moreover, all significant effects were in the expected direction. It follows that, under highly stressful working conditions, the risk of workaholism is lower if sufficient job resources are available. Specifically, opportunities for professional development probably plays a moderating effect as they offer workers knowledge and skills necessary to achieve job results and cope with stressful working situations (Molino, Ghislieri, & Cortese, 2013; Salanova, Agut, & Peiro, 2005) in an effective and not addictive way. Further, job security can buffer the relationship between job demands and work addiction as it reduces people's fear to lose their job (Kraimer et al., 2005; Matuska, 2010).

Furthermore, the study intended to investigate, in an overall model, consequences of workaholism on three important life domains: individual health, family, and work. *Hypothesis 2a* assumed that workaholism plays a mediational role within the relationships between job demands, and both WFC and exhaustion. On the one hand, results confirmed that the positive relationship between job demands and WFC is partially mediated by work addiction. This means that individuals' functioning in family domain is influenced by demands coming from work also via the reinforcement of those addictive behaviors which worsen the balance between work and family, in terms of time and energies dedicated to them (Bonebright et al., 2000). On the other hand, results found a total—not partial—mediation of workaholism between job demands and exhaustion, highlighting the role of workaholism in the well-studied health impairment process proposed by the JD-R model (Bakker & Demerouti, 2007).

Also *Hypothesis 2b*, which assumed a mediation of WFC between workaholism and exhaustion, found confirmation. In our study this mediation was partial, consistent with literature indicating a direct effect of workaholism on health impairment and burnout (Andreassen et al., 2007; Burke & Matthiesen, 2004; Ng et al., 2007; Porter, 1996).

The final hypothesis of the study took into account the relationship of workaholism with intentions to change jobs. Specifically, it hypothesized that the positive relationship of

workaholism and WFC with intentions to change jobs is mediated by exhaustion, and results confirmed this hypothesis. Leading to an exhaustion of energies, and thus to symptoms of burnout which decrease the quality of health and life, both workaholism and WFC were indirectly related to intentions to change job, probably as a strategy to avoid working stress situations.

Limitations

Despite its findings, the present study has certain limitations. The first one is its cross-sectional nature, which excludes the possibility to draw any conclusions in terms of causal effects in the relationships tested. Future longitudinal research or diary studies are needed to replicate the present findings and verify their causality. Particularly, it is necessary to test the mediational role of workaholism in the JD-R model and its relationship with job demands and resources, considering reversed and reciprocal effects between study variables. A second limitation is that all the data were self-reported, which means that relationships among the variables could be inflated (Conway, 2002). Even though this study provided some evidence that common method variance did not represent a critical factor (Podsakoff et al., 2003), it would be interesting for future studies to consider also other- and objective ratings.

A third limitation of the study is that our convenience sample was heterogeneous as for the occupational sectors. Although this emphasizes the flexibility of the JD-R model and the possibility to apply it to different occupations and organizational contexts, the current study should be replicated in specific organizations and working places, also to identify more contextualized practical implications. Moreover, most of the participants had a bachelor's or master's degree or a higher educational qualification, therefore findings of the study cannot be generalized to the population at large but should be considered relevant for a specific segment of the population.

Regarding the interaction effects tested, we found evidence in 63% of the cases, thus we can draw only cautious conclusions regarding the buffer hypothesis. Nevertheless, these findings can be considered as a starting point to expand the JD-R model processes also to workaholism. Future research should try to replicate these findings considering different kind of job demands and, above all, job resources not only at the organizational level, but also at the interpersonal, organization of work, and task levels.

Moreover, the study considered a specific conceptualization and measure of workaholism, based on the seven core elements of the addiction (Andreassen et al., 2012; Griffiths, 2005); future studies should explore these relationships using different approach and measures of workaholism, for instance the working excessively and working compulsively conceptualization (Schaufeli, Taris, & Bakker, 2008) or the model of working-related craving (Wojdylo et al., 2013). Finally, our study did not take into account personality and dispositional variables, although they can play an important role in generating addictions (Eysenck, 1997; Mazzetti et al., 2014). Considering that our results indicated a partial role of work characteristics as antecedents of workaholism, future studies should integrate these findings taking into account also the effect of personal resources, such as self-esteem (Ng et al., 2007), achievement motivation and perfectionism (Mazzetti et al., 2014) or self-efficacy (Xanthopoulou et al., 2007). Generally, a multidisciplinary approach to study and understand the phenomenon is needed (Kravina, Falco, De Carlo, Andreassen, & Pallesen, 2013; McMillan & O'Driscoll, 2008).

Conclusion

Overall, this study adds to the literature since it improves our understanding of workaholism. Results support an-emerging point of view which considers workaholism not as an individual stable trait but an addiction that could, as any other addiction, be influenced and

reinforced by the context. Therefore, the study leads to consider how this underestimated phenomenon can be addressed at both personal and organizational levels.

Practical implications

At the organizational level, employers and managers play a crucial role, as they can set a good example to work in a healthy way (Fry & Cohen, 2009): programs for leadership development in the work context and attention to employer-recruitment selection represent important interventions. Moreover, employees should be exposed to challenging, but not exaggerated, job demands (Bakker et al., 2009) and the work environment should guarantee adequate resources. Above all, organizations should offer sufficient opportunities for professional development to support employees in facing job demands. Furthermore, in the current Italian context, the possibility to provide greater protection in terms of job security seems to be highly relevant (Molino et al., 2013), and National labor policies should consider this emergent issue.

Considering the individual level of intervention, firstly workers need education to become aware of the existence of workaholism, its causes and, above all, its potential consequences for their well-being and quality of personal and family life. The accessibility to formal psychological counseling (Ishiyama & Kitayama, 1994) and to training programs focused on time management, stress management and personal effectiveness (Schabracq, 2005) can be important instruments to prevent or dealing with workaholism.

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Table 1. Item means, item standard deviations and correlations among the study variables.

	<i>M</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>
1. Workload	3.55	.80	(.81)									
2. Cognitive demands	4.06	.70	.40**	(.78)								
3. Emotional demands	3.12	1.06	.10**	.29**	(.88)							
4. Cust. rel. soc. stres.	3.81	1.04	.30**	.16**	.15**	(.87)						
5. OPD	3.57	.99	.01	.29**	.18**	-.07	(.88)					
6. Job security	4.26	1.74	.07	.15**	.10*	.06	.34**	(.91)				
7. Workaholism	2.23	.73	.43**	.22**	.21**	.23**	-.02	-.01	(.78)			
8. WFC	3.36	1.24	.53**	.30**	.23**	.28**	.06	.05	.59**	(.91)		
9. Exhaustion	2.36	.55	.35**	.14**	.16**	.24**	-.36**	-.19**	.44**	.45**	(.76)	
10. Int. change jobs	2.48	1.13	.12**	-.18**	-.13**	.09*	-.48**	-.26**	.14**	.06	.36**	(.77)

Note. Cronbach's Alpha on the diagonal. * $p < .05$; ** $p < .01$. Cust. rel. soc. stres. = customer related social stressors; OPD = opportunities for professional development; WFC = work-family conflict; Int. change jobs = intentions to change jobs.

Table 2. Results of SEM analysis.

	χ^2	<i>df</i>	<i>p</i>	CFI	TLI	RMSEA	SRMR	AIC	Comparison	$\Delta\chi^2$	<i>p</i>
M₁.	228.48	46	< .001	.93	.90	.08	.06	20554.22			
M_{1a}.	230.84	47	< .001	.93	.90	.08	.06	20554.58	M _{1a} -M ₁	2.36	.124
M₂.	883.42	49	< .001	.67	.56	.17	.22	21203.17	M ₂ -M _{1a}	652.58	< .001
M₃.	223.01	43	< .001	.93	.89	.08	.05	20554.76	M _{1a} -M ₃	7.83	.098

Note. JD = job demands; WS = workaholism; WFC = work-family conflict; EX = exhaustion; IC = intentions to change jobs.

M₁. Hypothesized model: JD → WS, WFC & EX; WS → WFC & EX; WFC → EX → IC

M_{1a}. Alternative, more parsimonious model: JD → WS & WFC; WS → WFC & EX; WFC → EX → IC

M₂. Direct effects model: JD, WS, WFC, EX → IC

M₃. Saturated model: JD → WS, WFC, EX & IC; WS → WFC, EX & IC; WFC → EX & IC; EX → IC

Table 3. Indirect effects using bootstrapping (2000 replications).

Indirect effects	Bootstrap			
	Est.	SE	<i>p</i>	CI 95%
JD → Workaholism → WFC	.29	.06	< .001	(.16, .43)
JD → Workaholism → Exhaustion	.27	.05	< .001	(.17, .37)
JD → WFC → Exhaustion	.10	.04	.018	(.02, .18)
JD → Workaholism → WFC → Exhaustion	.06	.02	.004	(.02, .10)
Workaholism → Exhaustion → Int. change	.20	.05	< .001	(.10, .30)
WFC → Exhaustion → Int. change	.10	.04	.004	(.03, .18)
Workaholism → WFC → Exhaustion → Int. change	.04	.02	.009	(.01, .08)

Note. All parameter estimates are presented as standardized coefficients. JD = job demands; WFC = work-family conflict; Int. change = Intentions to change jobs; Est. = estimation; SE = standard error; CI = confidence interval.

Table 4. Results of MSEM analysis: interactions of job demands and job resources (N = 617).

Predictor	Workaholism		Fit					$\Delta\chi^2$	p
	UPC (SE)	SPC	χ^2	CFI	TLI	RMSEA	SRMR		
Workload	.37 (.03)	.53***							
OPD	-.05 (.03)	-.07							
Workload x OPD	-.07 (.03)	-.12**							
R^2	30%		11.26	.99	.97	.05	.02	7.12	.007
Workload	.38 (.03)	.54***							
Job security	-.06 (.04)	-.08							
Workload x Job security	-.07 (.03)	-.13**							
R^2	31%		5.59	.99	.99	.03	.02	7.77	.005
Cognitive demands	.21 (.04)	.30***							
OPD	-.13 (.04)	-.18***							
Cogn. dem. x OPD	-.08 (.03)	-.14**							
R^2	10%		15.47	.98	.94	.07	.03	9.36	.002
Cognitive demands	.18 (.03)	.28***							
Job security	-.05 (.04)	-.07							
Cogn. dem. x Job sec.	-.07 (.03)	-.14**							
R^2	10%		5.45	.99	.99	.02	.02	7.59	.006
Emotional demands	.18 (.03)	.27***							
OPD	-.09 (.04)	-.13*							
Emot. dem. x OPD	-.09 (.03)	-.17**							
R^2	30%		20.89	.96	.91	.08	.04	9.94	.002
Emotional demands	.16 (.03)	.26***							
Job security	-.02 (.04)	-.03							
Emot. dem. x Job sec.	-.05 (.03)	-.09							
R^2	8%		4.52	1.00	1.00	.02	.01	3.04	.081
Cust. rel. soc. stress.	.18 (.03)	.27***							
OPD	-.02 (.04)	-.03							
Cust. soc. str. x OPD	-.03 (.03)	-.05							
R^2	9%		12.04	.98	.96	.06	.02	.09	.764
Cust. rel. soc. stress.	.18 (.03)	.28***							
Job security	-.03 (.04)	-.04							
Cust. soc. str. x Job sec.	.00 (.03)	.01							
R^2	30%		6.47	.99	.99	.03	.02	.01	.920

Note. The *df* of all models is 4. * $p < .05$; ** $p < .01$; *** $p < .001$. UPC = unstandardized path coefficient; SE = standard error; SPC = standardized path coefficient; OPD = opportunities for professional development; Cogn. dem. = cognitive demands; Emot. dem. = emotional demands; Cust. rel. soc. stress. / Cust. soc. str. = customer related social stressors. $\Delta\chi^2$ = comparison between models without the path from the latent interaction variable to the endogenous variable and models with this path.

Figure Captions

Figure 1. The theoretical model. WFC = work-family conflict.

Figure 2. The study model to test the interaction hypothesis. All constrained paths and error variances are marked with C. res. error = residual error.

Figure 3. The final SEM model (M1-alternative). Standardized solution; all paths are statistically significant at $p < .001$. Cust. rel. soc. stress. = customer related social stressors; WFC = work-family conflict.

Figure 4. A: The effect of opportunities for professional development on the relationship between workload and workaholism. B: The effect of job security on the relationship between workload and workaholism. C: The effect of opportunities for professional development on the relationship between cognitive demands and workaholism. D: The effect of job security on the relationship between cognitive demands and workaholism. E: The effect of opportunities for professional development on the relationship between emotional demands and workaholism. OPD = opportunities for professional development.

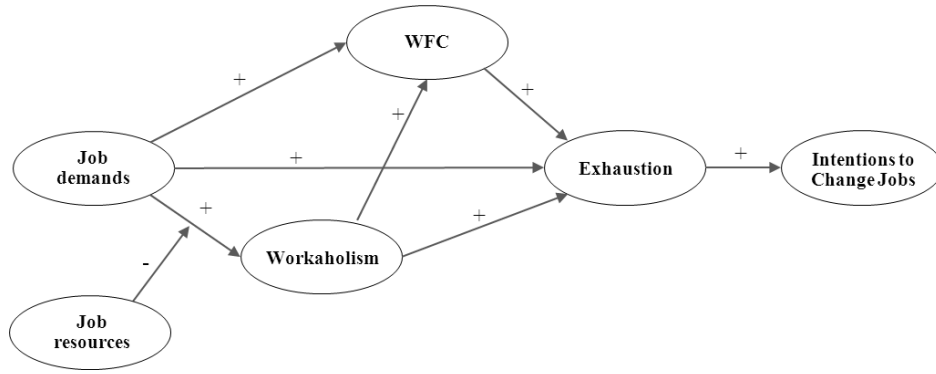


Figure 1

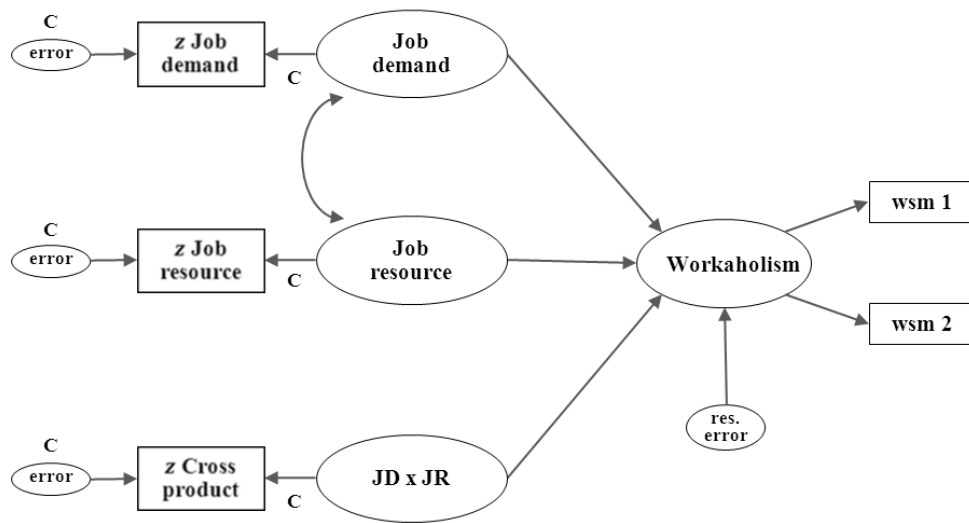


Figure 2

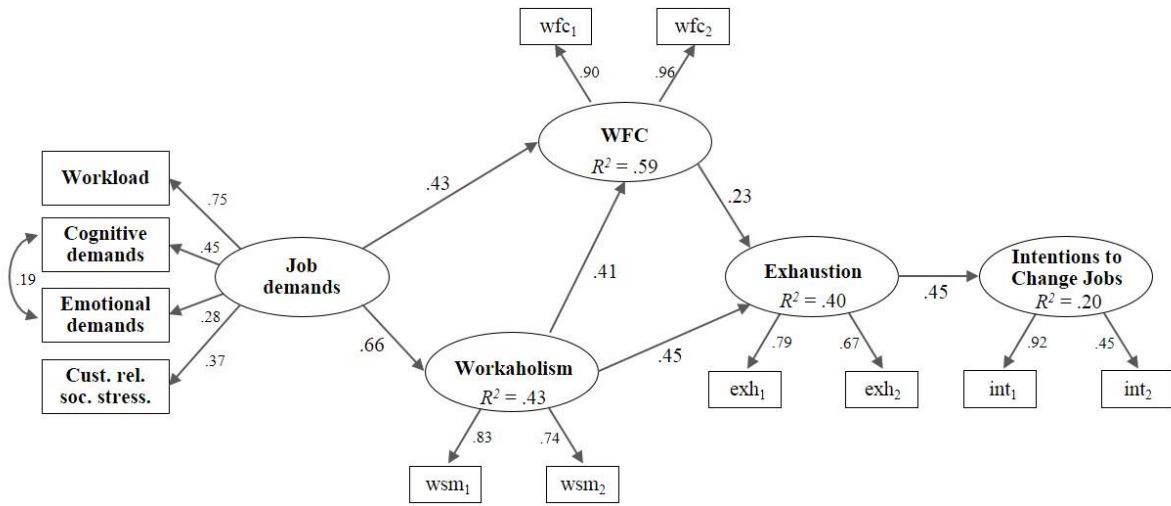


Figure 3

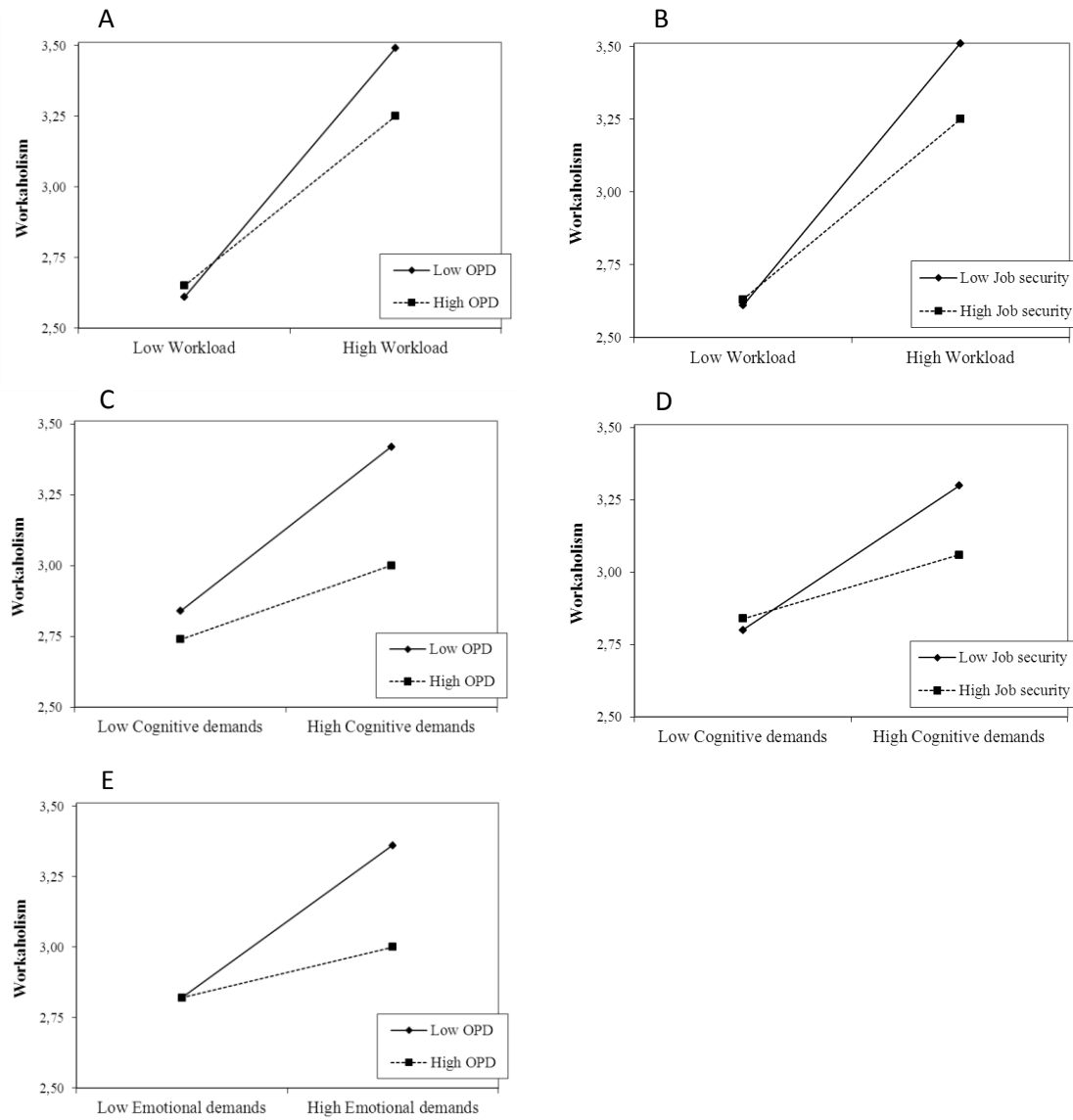


Figure 4