The effects of workaholism on psychological well-being: The mediating role of rumination

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Resumen

Introducción: El presente estudio examinó los efectos de la adicción al trabajo en el bienestar psicológico y el papel mediador de la rumiación. Estudios han estimado la prevalencia de la adicción al trabajo en un 14.1%, donde uno de cada siete personas empleadas pudiera padecer de esta condición. Más allá, una gran cantidad de investigaciones sugieren que la adicción al trabajo tiene un impacto negativo en la salud de las personas empleadas; sin embargo, no se ha examinado el papel mediador de la rumiación en estas relaciones. **Método:** Un total de 803 personas empleadas en diferentes organizaciones en Puerto Rico participaron en el presente estudio que tuvo un diseño transversal-correlacional. Se probaron las hipótesis utilizando el modelamiento de ecuaciones estructurales. **Resultados:** La adicción al trabajo se relacionó significativamente con ansiedad, *burnout*, *engagement* con el trabajo, rumiación afectiva y resolución de problemas. Ambas formas de rumiación mediaron la relación entre la adicción al trabajo y el bienestar psicológico. **Discusión:** Los resultados obtenidos en relación con los efectos directos de la adicción al trabajo en el bienestar psicológico son cónsonos con resultados de la literatura en los cuales se apoya que esta condición tiene un efecto nefasto en la salud de las personas empleadas. Además, los resultados sugieren que el efecto mediador de la rumiación, especialmente la rumiación afectiva, pudiera ser un mecanismo importante a través del cual la adicción al trabajo ejerce un efecto perjudicial en la salud de los trabajadores. Se discuten las implicaciones teóricas y prácticas.

Palabras clave: Adicción al Trabajo, Ansiedad, Burnout, Engagement con el Trabajo, Rumiación, Mediación

Abstract

Introduction: The present study examined the effects of workaholism on psychological well-being and the mediating role of rumination. Studies have estimated the prevalence of work addiction at 14.1%, where one in seven employees could suffer from this condition. Furthermore, a large body of research suggests that workaholism has a negative impact on the health of employees; however, the mediating role of rumination in these relationships has not been examined. **Method:** A total of 803 employees from different organizations in Puerto Rico participated in the present cross-sectional design study. Hypotheses were tested using structural equation modeling. **Results:** Workaholism was significantly related to anxiety, burnout, work engagement, affective rumination, and problem-solving pondering. Both forms of rumination mediated the relationship between workaholism and psychological well-being. **Discussion:** The results obtained in relation to the direct effects of workaholism on psychological well-being are consistent with results from the literature which support that this condition has a harmful effect on employees' health. Furthermore, the results suggest that the mediating effect of rumination, especially affective rumination, could be an important mechanism through which workaholism exerts a detrimental effect on workers' health. Theoretical and practical implications are discussed.

Keywords: Workaholism, Anxiety, Burnout, Work Engagement, Rumination, Mediation

Work plays a crucial role in adult life because it fulfills basic human needs including survival, interpersonal relationships, and self-determination (Blustein, 2008). Certain individuals put in more hours than is expected when it comes to their work. These people are frequently thought of as workaholics. Consequently, there is a meta-analysis that has indicated that there is an overall workaholism prevalence of 14.1% of those studies included and this estimated prevalence suggests that roughly one in seven of employees might be affected with workaholism (Andersen et al., 2023). This suggests that workaholism is a widespread problem, which is concerning because it is widely recognized to have a negative impact on the health and well-being of employees (Andreassen et al., 2016, 2018; Bakker et al., 2013; Balducci et al., 2020; Chang et al., 2023; Chen & Gu, 2022; Clark et al., 2016; Galdino et al., 2021; Haar & Roche, 2013; Matsudaira et al., 2013; Ng et al., 2007; Robinson et al., 2006; Salanova et al., 2016; Sarfaraz et al., 2022; Schaufeli et al., 2008; Shimazu et al., 2015; Snir et al., 2023; Yang et al., 2020).

However, there is a paucity of studies exploring whether workaholism relates to psychological well-being through the mechanism of rumination since there is just one study that has considered other mechanism to study this relationship but using coping strategies as mediator (Shimazu et al., 2010). Therefore, the purpose of this cross-sectional study design was to examine the effect of workaholism on psychological well-being and the mediating role of rumination using Job Demands-Resources (JD-R) model as a theoretical framework with a sample of employees in Puerto Rico.

Theoretical Framework

The JD-R model (Bakker & Demerouti, 2007) provides an overall model appropriate for a variety of working settings by classifying each work environment's distinct features into two categories: job demands and job resources. Work demands are aspects of the job that are organizational, social, psychological, or physical that require an employee to exert physical or psychological energy and are therefore linked to psychological or physiological costs; demands that are too great for an employee to handle may cause strain (Demerouti & Bakker, 2007). Job resources are defined as organizational, psychological, social, or physical components of a job that may be useful in accomplishing goals linked to the job; lowering demands and expenses related to the job; or promoting personal development (Demerouti et al., 2001).

The JD-R model's primary premise is that working conditions with high job demands and few job resources are most likely to result in high levels of job strain (Bakker & Demerouti, 2007; Demerouti et al., 2001). On the other hand, high job resources may mitigate the detrimental effects of job demands on worker psychological well-being, including burnout (e.g., Xanthopoulou et al., 2007). As some other studies have done, we took workaholism into account as a demand in the JD-R model for the current study (e.g., Guglielmi et al., 2012; Molino et al., 2014). Employees that are workaholics put in excessive amounts of time at work, which may indicate that they don't have enough time to recover from their excessive efforts (Schaufeli et al., 2006). Furthermore, it has been found that rumination is a variable that prevents employees from fully recovering from job demands and can impair employees' health (e.g., Fritz et al., 2010; Kivimaki et al., 2006; Meijman & Mulder, 1998; Schwartz et al., 2003; Sonnentag, 2006; Zijlstra, 2006). Thus, the process of recovery appears to be influenced in the way in which people can disconnect from their work demands and those thoughts related to them (e.g., Cropley et al., 2006; Rook & Zijlstra, 2006; Sonnentag & Zijlstra, 2006; Sonnentag et al., 2008). Nevertheless, we assumed that workaholism may impact employees' psychological well-being depending on their rumination characteristics, such as affective rumination, which can be considered as a negative characteristic or problem-solving pondering, which can be considered as a positive characteristic.

Workaholism

Workaholism is a multifaceted concept that includes working above and beyond expectations, having a constant urge to work, and experiencing unpleasant emotions when not working (Clark et al., 2020). Oates (1971) was the first to coin the term "workaholism" and defined it as an addition to work, the compulsion or uncontrollable need to work incessantly. Since then, there have been many different descriptions of workaholism: it has been defined as a workaholic syndrome (Aziz & Zickar, 2006), a pathology (Fassel, 1990), an addition to work (Ng et al., 2007), a behavior pattern that continues across multiple organizational settings (Scott et al., 1997), and a syndrome characterized by high work involvement, high drive, and low work enjoyment (Aziz & Zyckar, 2006). Hence, even while there is broad consensus that this construct should be understood as more than just overworking (Aziz & Tronzo, 2011; Harpaz & Snir, 2003; Spence & Robbins, 1992; Sussman, 2012), there is still a lack of

clear definitions for it. While some reconceptualize workaholism as causing hard workers to experience severe stress and negative emotions, others contend that workaholism is associated with positive outcomes such as job satisfaction, experiencing a high level of eustress (pleasant stress), and high performance (Baruch, 2011). According to this perspective, workaholism is comparable in many areas but distinct in others, particularly in terms of work excitement (related to the enjoyment element of a strong work ethic). According to Bonebright et al. (2000), workaholics are not just hard workers; they also get emotional highs from working long hours and are driven by intrinsic desire. As a result, they usually have poor levels of work pleasure. Therefore, workaholism has been related to a vast array of negative health outcomes (e.g., Andreassen et al., 2007, 2016, 2018).

Workaholism, Psychological Well-Being and Rumination

While discussing the well-being of employees, workaholism should be taken into account (Matsudaira et al., 2013). An obsession with work combined with a compulsive work style characterized by an inclination to overwork might negatively impact mental health and raise the likelihood of taking sick leave (Matsudaira et al., 2013; Schaufeli et al., 2008). According to Andreassen et al. (2016), workaholics experience anxiety more often than depression. According to these authors, 33.8% of workaholics met the clinical threshold for anxiety, whilst 8.9% of workaholics had clinically significant levels of depression.

Addiction can therefore result from anxiety, and vice versa (e.g., Lieb, 2015) as some studies have found a significant and positive relationship between workaholism and anxiety (e.g., Spagnoli et al., 2018). Furthermore, it is well recognized that workaholism can often arise from an attempt to lessen uncomfortable anxiety-related symptoms. Since hard labor is valued and respected in today's culture, it is a valid strategy for overcoming or reducing negative emotions, improving self-esteem, and feeling better about oneself (e.g., Griffiths, 2005, 2011). For example, Serrano-Fernández et al. (2021) found that workaholism significantly predicted anxiety levels (b = .399) in a sample of 332 Spanish employees. In another study, Kasemi et al. (2020) found a significantly and positively relationship between the two dimensions of workaholism (work excessively & work compulsively) and anxiety (b = .160 & b = .200, respectively) in a sample of 1,080 Egyptian employees. Therefore, we propose the following hypothesis:

> H_{1a}: Workaholism is positively related to anxiety.

One of the effects of workaholism that has been researched the most in the scientific literature is burnout (van Beek et al., 2012). According to Maslach et al. (2001), the primary feature of this syndrome is emotional exhaustion, or the perception of having emotionally exhausted one's emotional reserves (Brouwers & Tomic, 2000). Many studies have shown that workaholism is positively related to emotional exhaustion (e.g., Schaufeli et al., 2009; Taris et al., 2008, 2010), as workaholics work excessively hard and well beyond what is reasonably expected of them by their organization or supervisor (e.g., Gorgievski et al., 2014; Kubota et al., 2014). In addition, they exaggerate the ramifications of their mistakes (Berglas, 2004) and are perfectionists (Spence &

Robbins, 1992; Stoeber et al., 2013). As a result, people frequently take on new responsibilities that require them to expend additional resources, such as energy time, that were previously allocated to their personal lives (Hakanen & Peeters, 2015).

Workaholism and burnout, a condition of weariness and mental resource depletion, have been demonstrated to positively correlate in several studies (e.g., Andreassen et al., 2007; Guglielmi et al., 2012; Taris et al., 2005). Workaholics risk burnout and energy exhaustion when they put in excessive amounts of effort and energy at work (Bakker et al., 2013; Sonnentag & Zijlstra, 2006). According to Bakker and Demerouti (2007), workaholism is viewed as a personal demand, which refers to the standards that people set for their own behavior and performance and which compel them to put effort into their work and are consequently linked to psychological and physical consequences (Barbier et al., 2013). Workaholism, according to the JD-R model (Schaufeli & Bakker, 2004), is therefore an individual risk factor that contributes to health-impairment processes (e.g., burnout) since it pushes people to put in more time and energy than they should in order to attain their goals. Many studies have connected workaholism and burnout, which is pertinent to the current research (e.g., Burke et al., 2004; Cheung et al., 2018; Kravina et al., 2010; Nonnis et al., 2018; Osmanovik et al., 2023; Sandrin et al., 2019). Thus, we propose the following hypothesis:

H_{1b}: Workaholism is positively related to burnout.

Work engagement is a positive work-related mental state. According to the most popular conceptualization (Schaufeli et al., 2002), is it characterized by (1) vigor ("high levels of energy and mental resilience while working, the willingness to invest effort in one's work, and persistence even in the face of difficulties"); (2) dedication ("experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge"); and (3) absorption ("being fully concentrated and deeply engrossed in one's work, whereby time passes quickly and one has difficulties with detaching oneself from work"). Thus, heavy investors include both engaged and workaholic employees (Cheung et al., 2018; Salanova et al., 2014). Prior studies have distinguished between the good form of heavy work investment (HWI) known as work engagement and the bad form of HWI known as workaholism. Studies in the past (Choi, 2013; Molino et al., 2016; Ng et al., 2007; Schaufeli et al., 2008; Upadyaya et al., 2016) have demonstrated a somewhat high correlation between work engagement and workaholism, but their conclusions differ significantly. High work engagement does not necessarily have negative impacts or expose employees to the risk of workaholism if they are able to manage their job resources and job demands (Yu & Davis, 2016). In addition to putting in a lot of effort, engaged workers also choose to spend their free time doing other activities rather than working, which sets them apart from individuals who exhibit signs of workaholism (Gorgievski et al., 2010). Furthermore, some authors argue that work engagement can be considered as an indicator of work-related well-being (e.g., Wolter et al., 2021). Thus, given that some recent studies (Bereznowski et al., 2021; 2023) have found an association between workaholism and work engagement, we propose the following hypothesis:

H_{1c}: Workaholism is positively related to work engagement.

Workaholism refers to a strong inner desire to work very hard and set aside a remarkable amount of time for work (Schaufeli et al., 2008). It is typified by a propensity to obsess over work or think about it excessively, persistently, and often, even when one is not working (Oates, 1971). While workaholism shares many dysfunctional traits with other addictive behaviors, some authors contend that it is stigmatized in society and may even be actively promoted by the incentive structure that prioritizes output quantity over quality (Clark et al., 2016). Workaholics are obsessed with work activities, work is the primary domain from which they derive pleasure and meaning (Machlowitz, 1980; Snir & Harpaz,2001). After a long day of labor, workaholics do get weary, but they are unable to separate themselves from their work and continue to think about it even when they are not working (Griffiths, 2011; Scott et al., 1997). According to Andreassen et al. (2016), workaholism hinders leisure activities; furthermore, Machlowitz (1980), who conducted interviews with workaholics, discovered that this is because workaholics tend to conflate work and pleasure. Since thinking about can be positive as well as negative, we propose the following hypotheses:

H_{1d}: Workaholism is positively related to affective rumination.

H_{1e}: Workaholism is negatively related to problem-solving pondering.

Work-Related Rumination and Psychological Well-Being

Many aspects of thinking about work during off-job time have been addressed in the research on occupational stress and recovery from work (Weigelt et al., 2019). One process that has been proposed to jeopardize the effectiveness of detaching and recuperating from work is rumination (Cropley et al., 2006; Roger & Jamieson, 1988). A substantial number of studies in the disciplines of occupational health psychology and other sciences indicates that it is critical to recover during one's off-job time in order to prevent negative impacts on one's health (Meurs & Perrewé, 2011). Numerous studies in the field of occupational stress research presuppose that rumination at work extends the duration of stress-induced affective and physiological activation, ultimately leading to a decline in physical and psychological well-being (Brosschot et al., 2006). For instance, Rosario-Hernández et al. (2013) found that affective rumination is related significantly and positively to depression ($b = .306$, $p < .05$) and anxiety ($b = .360$, $p < .05$) in a sample of 794 Puerto Rican employees; on the other hand, they found that affective rumination related significantly and negatively to work engagement ($b = -.481$, $p < .05$). Thus, we propose the following hypotheses:

H_{2a}: Affective rumination is positively related to anxiety.

H_{2b}: Affective rumination is positively related to burnout.

H_{2c}: Affective rumination is negatively related to work engagement.

Cropley and Zijlstra (2011) point out that most studies related to rumination have focused on the negative aspects of it, which implies that if people think about their jobs during their free time, it means that they continue with the “power button on” in relation to their jobs, which prevents them from recovering at night or on weekends. It is clear that this has a negative impact on the recovery process; however, when people think about their work problems, it does not

necessarily have negative implications, as it can also have a positive side. For example, there are studies that suggest that thinking about work could have an impact on innovation and creativity (e.g., Baas et al., 2008). Something particularly notable in the study by Baas et al. (2008) was a positive mood when the task being done was seen as pleasant and intrinsically profitable. So Cropley and Zijlstra point out that problem solving is a way of thinking that may be characterized by prolonged mental scrutiny of a particular problem or evaluation of a previous work problem in order to find a solution, but it does not involve the emotional process that incites affective rumination. For example, Rosario-Hernández et al. (2013) found that problem-solving pondering was not significantly relate to depression ($b = -.007^{NS}$) and anxiety ($b = -.013^{NS}$); on the other hand, problem-solving pondering was significantly and positively related to work engagement ($b = .436$, $p < .05$). Therefore, we propose the following hypotheses:

H_{3a}: Problem-solving pondering is negatively related to anxiety.

H_{3b}: Problem-solving pondering is negatively related to burnout.

H_{3c}: Problem-solving pondering is positively related to work engagement.

The Mediating Role of Work-Related Rumination

According to Cropley and Zijlstra (2011), work-related rumination is a series of repetitive thoughts focused on work-related issues. It really doesn't matter if people ruminate or think about work-related issues when they're not at work, in fact, a lot of people do so because they find it to be stimulating and rewarding. Rumination, according to Cropley and Zijlstra (2011), becomes problematic when it has an impact on one's health or well-being. Therefore, Cropley and Zijlstra recommend that people refrain from worrying or thinking unfavorably about their jobs during their free time. It's true that thinking about work interferes with shutting down, which makes it harder to unwind after work. However, reflecting and thinking through work-related challenges can also be helpful and lead to successful outcomes.

H_{4a}: Affective rumination mediates the relationship between workaholism and anxiety.

H_{4b}: Affective rumination mediates the relationship between workaholism and burnout.

H_{4c}: Affective rumination mediates the relationship between workaholism and work engagement.

H_{5a}: Problem-solving pondering mediates the relationship between workaholism and anxiety.

H_{5b}: Problem-solving pondering mediates the relationship between workaholism and burnout.

H_{5c}: Problem-solving pondering mediates the relationship between workaholism and work engagement.

Method

Participants

A convenience sample of 803 workers participated in this cross-sectional design study. Participants were enrolled from different private and public organizations in Puerto Rico. Data shows that a 39.9% (320) were males and 55.8% (41) were females. More than half of the participants (57.3%) were between 31 to 50 years of age. A total of 555 participants (69.1%) worked for a private organization

and 242 (30.1%) worked for a public organization (see Table 1).

Table 1

Sociodemographic characteristics of the sample

Variable	f	%
Gender		
Male	320	39.9
Female	448	55.8
Age		
21-30	166	20.7
31-50	460	57.3
≥ 51	177	22.0
Time Working (in years)		
1-5	152	18.9
6-10	100	12.5
11-15	158	19.7
16-20	129	16.1
21-25	104	13.0
26-30	87	10.8
≥ 31	71	8.8
Job Position		
Managerial	199	24.8
Non-Managerial	579	72.1
Employment Type		
Tenure	642	80.0
Temporary	145	18.1
Organization Type		
Public	242	30.1
Private	555	69.1
	Mean	**SD**
Education	15.93	2.16

Note. n = 803.

Materials

Socio-demographic questionnaire. We developed a background questionnaire to gather general demographic information about participants. The questionnaire included information about gender, age, tenure, job position, among others.

Workaholism. We used the Dutch Workaholism Scale (DUWAS) to measure workaholism. The DUWAS was originally developed by Schaufeli et al. (2009) and it is a 10 items scale with two subscales: working excessively (items 1, 2, 3, 4, 5) measures the behavioral dimension of workaholism and working compulsively (items 6, 7, 8, 9, 10) measures obsessive or cognitive dimension of workaholism. All items are scored on a 4-point rating scale, ranging from 1 "*never*" to 4 "*always*". Score ranges from 10 to 40 and is obtained by summing the scores on both the dimensions. Higher scores on the scale is the indication of greater level of workaholism. There is no reverse score item in the scale. We used the short Spanish version of the DUWAS (Del Líbano et al., 2010), an item example for the working excessively is 'I stay busy and keep my irons in the fire' and for working compulsively 'I feel that there's some-thing inside me that drives me to work hard'. Del Libano et al. reported that confirmatory factor analysis supports an internal structure of two factors and reliability using Cronbach's alpha of $\alpha = .71$ for the working excessively dimension and $\alpha = .86$ for the working compulsively dimension.

Rumination. To measure rumination, we used the Work-Related Rumination Scale (WRRS), which was originally developed by Cropley et al. (2012) and has 15 questions using a 5-point Likert scale (1 = very seldom or never, 2 = seldom, 3 = sometimes, 4 = often, and 5 = very often or always). According to Cropley et al., results using the factor analytic technique support a three-factor internal structure of the WRRS, which are affective rumination, problem-solving pondering, and detachment. Authors

reported the subscales' reliability via Cronbach's alpha of .90, .81, and .88, respectively. An item example is: "Do you become tense when you think about work-related issues during your free time?". In the current study, we used the WRRS-Spanish version (WRRS-SV; Rosario-Hernández et al., 2021) validated with a sample of Puerto Rican workers in which were retained 11 of the original 15 items; therefore, we used in our study items 1, 7, 9 and 15 of the affective rumination subscale and items 2, 4, 8, and 11 of the problem-solving pondering subscale. Rosario-Hernández et al. also found a three-factor internal structure of the WRRS-SV and reliability coefficients fluctuated between .74 and .87 using Cronbach's alpha and McDonald's omega techniques.

Anxiety. To measure anxiety, we used the GAD-7 (Spitzer et al., 2006). The GAD-7 is a seven-item questionnaire that measures general anxiety symptomatology and asked patients how often, during the last 2 weeks, they were bothered by each symptom. Response options were "not at all," "several days," "more than half the days," and "nearly every day," scored as 0, 1, 2, and 3, respectively. In addition, an item to assess duration of anxiety symptoms was included. Authors of the scale reported a Cronbach's alpha coefficient of .93. In terms of its construct validity, internal structure was supported by factor analysis technique and convergent validity with its association to similar measures such as the Beck Anxiety Inventory and the anxiety subscale of the Symptom Checklist-90. The GAD-7 Spanish version has been validated with Puerto Rican samples (e.g., Pagán-Torres et al., 2020; Merino-Soto et al., 2023) and obtained excellent reliability coefficients.

Burnout. To assess burnout, we utilized the Maslach Burnout Inventory - General Scale (MBI-GS; Maslach et al., 1996). The MBI uses a seven-point frequency scale (range from 0 ("Never") to 7 ("Daily") to indicate how frequently they encountered each item. Emotional exhaustion and cynicism each have five items, whereas professional efficacy has six. The psychometric properties of the MBI-GS have been examined with a sample of employees in Puerto Rico and the results support the internal three-factor structure. In terms of its reliability, it fluctuated between .71 and .88 using Cronbach's alpha and McDonald's omega (Rosario-Hernández et al., 2022). In the current study we used the items of the emotional exhaustion and cynicism subscales.

Work engagement. We used Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2002) to measure work engagement. The UWES is comprised of 17-items measured on a seven-point Likert scale anchored by the response options 0=never and 6=always. The UWES is composed of three dimensions, which are vigor, dedication, and absorption. For the current study, we used only items of vigor and dedication subscales, specifically those items of the nine-item version of the UWES (Schaufeli et al., 2006). An item example of the vigor subscale is 'At my work, I feel busting with energy' and item example of the dedication subscale is 'I find the work that I do full of meaning and purpose'. Reliability of the subscales and the complete scale has been reported to fluctuate within .82 to .93 (Schaufeli & Bakker, 2003). Using a sample of Puerto Rican employees, Rodriguez-Montalbán et al. (2011) investigated the psychometric properties and internal structure of the UWES. They discovered that the data supported a three-factor internal structure and that the reliability of the scale, and its subscales

varied between .81 and .93 using Cronbach's alpha.

Procedures

This cross-sectional study was approved by the Institutional Review Board (IRB; #160212-ER) of Ponce Health Sciences University. Participants were contacted from different organizations and were invited to participate in the study. All those who agreed to participate in the study were explained the purpose of the research. They were given the consent form, background data sheet, and the study questionnaires. The questionnaires were administered individually as well as in group by the researchers at the different organizations.

Data analysis

For data analysis, partial least squares structural equation modeling (PLS-SEM) was used following the two-step procedure suggested by Hair et al. (2017). First, confirmatory factor analysis aimed to assess the measuring model; and secondly, evaluation of the structural model. Following Chin's (2010) suggestion, it is important to mention the three reasons for its use in the present study. Firstly, PLS-SEM has a soft distributional assumption and given that the Shapiro-Wilks test was significant, it suggested that scores were not distributed normally. Secondly, the exploratory nature of the current study (Henseler & Sarstedt, 2013). Lastly, the high model complexity of the study justifies the use of PLS-SEM because the model tested has multiple mediator variables (Henseler & Sarstedt, 2013).

Results

The research model of figure 1 was analyzed using Smart-PLS version 4, a PLS-SEM tool (Ringle et al., 2015). It assesses the psychometric properties of the measurement model and estimates the parameters of the structural model. This tool enables the simultaneous analysis of up to 200 indicator variables, allowing the examination of multiple mediator variables simultaneously among latent predictor variables indicators.

The measurement model

The data indicates that the measures are robust in terms of their internal consistency reliability as indexed by Cronbach's alpha and composite reliability. All the Cronbach's alphas and the composite reliabilities of the different measures range from .816 to .925, which exceed the recommended threshold value of .70 (Hair et al., 2017). In terms of the validity, as seen in table 2, most outer loadings reached the threshold of .70, except items 2 and 8 of the DUWAS and item 4 of the UWES.

Table 2

Measurement model results

Latent Construct	Item	λ	Reliability		AVE	Latent Construct	Item	λ	Reliability		AVE
			α	CR					α	CR	
Workaholism	duwas1	.739	.816	.867	.521	Burnout	mbi1	.826	.916	.930	.599
	duwas2	.695					mbi2	.708			
	duwas7	.709					mbi3	.708			
	duwas8	.684					mbi4	.858			
	duwas9	.742					mbi6	.802			
	duwas10	.761					mbi8	.777			
Affective	wrr1	.825	.875	.914	.727		mbi9	.785			
Rumination	wrr7	.872					mbi14	.743			
	wrr9	.878					mbi15	.743			
	wrr15	.835				Work	we1	.765	.879	.908	.624
Problem	wrr2	.724	.768	.851	.589	Engagement	we4	.684			
Solving	wrr4	.791					we5	.879			
Pondering	wrr8	.824					we7	.868			
	wrr11	.728					we8	.802			
Anxiety	anx1	.885	.925	.940	.690		we10	.725			
	anx2	.866									
	anx3	.802									
	anx4	.865									
	anx5	.781									
	anx6	.785									
	anx7	.823									

Note. n = 803; λ = factor loading, α = Cronbach's alpha, CR = Composite Reliability, AVE = Average Variance Extracted.

In addition, the average variance extracted (AVE) for each measure exceeds .50, which is an indication of the convergent validity of the measures (Fornell and Larcker (1981). Moreover, the elements in the matrix diagonals, representing the square roots of the AVE, are greater in all cases than the off-diagonal elements in their corresponding row and column, supporting the discriminant validity of the scales (see table 3 above the matrix diagonals). In terms of establishing the discriminant validity of the measures in the model, we assessed the heterotrait-monotrait ratio (HTMT) of the latent construct's correlations (Henseler et al., 2015). The HTMT approach is an estimate of what the true correlation between two constructs would be if they were perfectly measure. A correlation between to constructs close to one indicates

a lack of discriminant validity. Therefore, a threshold value of .90 if the path model includes constructs that are conceptually very similar; nevertheless, all correlations were lower than .90 supporting the discriminant validity of the measurement model (see table 3 below the matrix diagonals).

Table 3
Correlation matrix of latent variables using the Fornell-Larcker criterion (above the diagonal) and the correlation proportion of heterotrait-monotrait (below the diagonal)

Latent Construct	Workaholism	AR	PSP	Anxiety	Burnout	WE
Workaholism	(.722)	.691	.538	.704	.647	-.076
AR	.808	(.853)	.561	.745	.765	-.257
PSP	.673	.675	(.768)	.464	.410	.054
Anxiety	.801	.826	.545	(.831)	.719	-.204
Burnout	.737	.851	.479	.778	(.774)	-.396
WE	.123	.288	.128	.225	.441	(.790)

Note. n = 803; elements in the correlation matrix diagonal withing parenthesis represent square root of the AVE.

The structural model

After the measurements were tested for validity, the structural model as provided in Figure 1, which represent the relations among the constructs assumed in the theoretical model or latent variables, was tested (see table 4). To examine the structural model, we first checked the for-collinearity issues by examining the variance inflation factor (VIF) value of all sets of predictor constructs in the structural model. They fluctuated between 1.000 and 1.912, all VIF values are clearly within the threshold range of 0.20 and 5.00; therefore, collinearity among predictor constructs is not a critical issue in the structural model (see table 4). Also, table 4 shows the R^2 values of rumination (.477), anxiety (.624), burnout (.613) and work engagement (.086), explaining 47.7%, 62.4%, 61.3% and 8.6% of the variance, respectively. Falk and Miller (1992) suggest a value of .10 for an R-squared as minimum satisfactory level, all endogenous latent variables possess the threshold level of R-squared values, except for work engagement. Also, all Q^2 values of rumination, anxiety, burnout, and work engagement are above zero (.475, .493, .418 & .003, respectively), providing support of the model's predictive relevance regarding the endogenous latent variables. The effects sizes for workaholism achieved f^2 values of .912, .407, .174, .080, and .008 on affective rumination, problem-solving pondering, anxiety, burnout, and work engagement, respectively, which exceeds the minimum threshold of .02 (Chin et al., 2003) in all except on work engagement. While effect sizes for affective rumination exceed the minimum threshold on all endogenous variables of anxiety (f^2 = .314), burnout (f^2 = .502), and work engagement (f^2 = .129), respectively (see table 4). Meanwhile, effect sizes of problem-solving pondering were below the threshold of f^2 = .020, except for work engagement, which was f^2 = .051.

Table 4
Structural model results

Latent Construct	R^2	R^2 Adj	Effect Size (f^2)					Q^2	VIF
			AR	PSP	Anx	Burnout	WE		
Workaholism			.912	.407	.174	.080	.008		2.041
AR	.477	.476			.314	.502	.129	.475	2.116
PSP	.289	.288			.000	.011	.051	.286	1.556
Anxiety	.624	.623						.494	
Burnout	.617	.615						.417	
WE	.131	.127						.003	

Note. n = 803; AR = Affective Rumination, PSP = Problem-Solving Pondering, Anx = Anxiety, WE = Work Engagement, VIF = Variation Inflation Factor.

Regarding results of the direct effects as seen in table 5, workaholism had positive and significant relationship with anxiety (b = .361), burnout (b = .251), work engagement (b = .119), affective rumination (b = .691), and problem-solving pondering (b = .538). Meanwhile, affective rumination had significance and positive relationship with anxiety (b = .500), burnout (b = .638) and a significant and negative relationship with work engagement (b = -.487). On the other hand, problem-solving pondering had significant relationship with burnout (b = -.082) and work engagement (b = .263).

Table 5
Direct effects

	Hypotheses	beta	SD	t-value	p-value (One-Tail)	CIBC		Hypothesis Decision
						5.00%	95.00%	
	Hypothesis 1							
H_{1a}:	Workaholism→Anxiety	.366	.035	10.387	.001	.306	.421	Supported
H_{1b}:	Workaholism→Burnout	.251	.034	7.483	.001	.196	.305	Supported
H_{1c}:	Workaholism→WE	.119	.049	2.428	.008	.034	.196	Supported
H_{1d}:	Workaholism→AR	.691	.019	36.129	.001	.656	.719	Supported
H_{1e}:	Workaholism→PSP	.538	.027	20.018	.001	.492	.579	Supported
	Hypothesis 2				.001			
H_{2a}:	AR→Anxiety	.500	.034	14.642	.001	.444	.557	Supported
H_{2b}:	AR→Burnout	.638	.033	19.429	.001	.582	.690	Supported
H_{2c}:	AR→WE	-.487	.045	10.878	.001	-.557	-.410	Supported
	Hypothesis 3							
H_{3a}:	PSP→Anxiety	-.013	.026	0.501	.308	-.058	.029	Not Supported
H_{3b}:	PSP→Burnout	-.082	.027	2.996	.001	-.129	-.039	Supported
H_{3c}:	PSP→WE	.263	.042	6.257	.001	.194	.332	Supported

Note. SD = Standard Deviation, CIBC = Confidence Interval Bias Corrected, AR = Affective Rumination, PSP = Problem-Solving Pondering, Anx = Anxiety, WE = Work Engagement.

In terms of indirect effects, affective rumination and problem-solving pondering significantly mediated the relationship between workaholism, anxiety, burnout, and work engagement, except for problem-solving pondering between workaholism and anxiety (see table 6). In other words, affective rumination and problem-solving pondering partially mediated all these relationships, except for the path between workaholism and anxiety via problem-solving pondering.

Table 6

Indirect effects results

	Hypotheses	IE	TE	SD	t-value	p-value (Two-tail)	CBCI 2.50%	CBCI 97.50%	Hypothesis Decision	Type of Mediation
	Hypothesis 4									
H_{4a}:	Workaholism→AR→Anxiety	.345	.704	.027	12.963	.001	.294	.398	Supported	Complementary
H_{4b}:	Workaholism→AR→Burnout	.441	.647	.027	16.475	.001	.389	.493	Supported	Complementary
H_{4c}:	Workaholism→AR→WE	-.336	-.076	.033	10.306	.001	-.397	-.270	Supported	Competitive
	Hypothesis 5									
H_{5a}:	Workaholism→PSP→Anxiety	-.007	.704	.014	0.499	.618	-.036	.020	Not Supported	No Mediation
H_{5b}:	Workaholism→PSP→Burnout	-.044	.647	.015	2.951	.003	-.074	-.015	Supported	Competitive
H_{5c}:	Workaholism→PSP→WE	.142	-.076	.024	5.911	.001	.096	.191	Supported	Complementary

Note. IE = Indirect Effect, TE = Total Effect, DS = Standard Deviation, CIBC = Confidence Interval Bias Corrected, AR = Affective Rumination, PSP = Problem-Solving Pondering, Anx = Anxiety, WE = Work Engagement.

Discussion

The current study examined the effects of workaholism on the psychological well-being and how rumination mediated these relationships with a sample of workers in Puerto Rico. Our first hypotheses examined the effects of workaholism on the psychological well-being (anxiety, burnout, & work engagement). These findings are in line with earlier studies (e.g., Andreassen et al., 2016; Bereznowski et al., 2021; 2023; Burke et al., 2004; Cheung et al., 2018; Hartman & Mathieu, 2017; Kasemi et al., 2020; Kravina et al., 2010; Nonnis et al., 2018; Osmanovik et al., 2023; Serrano-Fernández et al., 2021; Sandrin et al., 2019), which had shown that workaholism has a detrimental effect on the psychological well-being of employees. Moreover, workaholism impacted both positive and negative types of rumination (problem-solving pondering & affective rumination, respectively) in such way that effect sizes can be considered as large, especially on affective rumination. Relevant to these findings, the primary characteristic that sets workaholism apart as a bad form of working hard is the motivational dynamics involved and the link to negative consequences (Mazzetti et al., 2018).

Our second and third hypotheses aimed to examine the direct effects of affective rumination and problem-solving pondering on psychological well-being. Our results suggest that affective rumination had the biggest effect on the three indicators of psychological well-being, especially on burnout and anxiety. These results are consonant with some of the literature (e.g., Cropley et al., 2006; Rosario-Hernández et al., 2013). Moreover, these results are consonant with those of Kinnunen et al. (2019) who found that only affective rumination, but not problem-solving pondering was detrimental to psychological well-being. This may be explained due to that affective rumination tends to hinder recovery from work pressures, such as workaholism, and this appears to have an impact on psychological well-being. Because it hinders an individual's ability to recuperate, thinking about work-related issues while not at work can worsen health (Fritz et al., 2010; Kivimaki et al., 2006; Meijman & Mulder, 1998; Schwartz et al., 2003; Zijlstra & Sonnentag, 2006). People's ability to disconnet from workaholism and its associated ideas appears to have a negative impact on the recovering process (Cropley et al., 2006; Sonnentag et al. 2008; Sonnentag & Zijlstra, 2006; Rook & Zijlstra, 2006). Meanwhile, the biggest effect of problem-solving pondering was on work engagement; however, this effect can be considered as a small one. These results support the argument of Cropley and Zijlstra (2011), who argue that it really does not matter if a person thinks and ruminates on job issues when not at work, and indeed many people do this because it is rewarding and stimulating. As well there may be benefits to think about work when people are not working. This authors add that rumination only becomes a problem when it affects the health and well-being; therefore, these findings support the idea of Cropley and Zijlstra that affective rumination negatively affects workers' psychological health, whereas problem-solving pondering does not have the detrimental effect on health due to the emotional burden that affective rumination carries.

In terms of the mediating effects of rumination in the relationship between workaholism and psychological well-being, which includes hypotheses 4 and 5, affective rumination and problem-solving pondering,

partially mediated these relationships. However, when we analyzed the specific indirect impacts of affective rumination, it can be seen the detrimental impact of workaholism on psychological well-being worsen through the mechanism of affective rumination in comparison to problem-solving pondering. In addition to working longer hours than is reasonable for them, workaholics also put a lot of mental and physical effort into their work (Snir et al., 2012). Strain responses and sympathetic activation accompany this increased energy expenditure at labor. Since emotions are essential elements of the stress experience, such situations have affective correlates (Lazarus, 2006: Perrewé & Zellars, 1999). According to Ganster and Rosen (2013), negative emotions, such as affective rumination, which serve as the main mediators of the stress process and include tension, anger, anxiety, and despair, are how strain appears at the affective level. As a result, workaholics expend a lot of mental and physical energy, and they frequently describe negative emotional experiences because of work-related stress reactions. Therefore, a plausible explanation is due to the excessive physiological activation from affective rumination that interferes with health; therefore, it is important to remember that hypothalamus-pituitary-adrenal (HPA) axis is a crucial part of the neuroendocrine system that plays a central role in the body's stress response. Workaholics often experience chronic stress due to their relentless HWI and this continuous stress can dysregulate the HPA axis, leading to prolonged activation and an overproduction of cortisol. Over time, the dysregulation of the HPA axis due to chronic stress, workaholism, and rumination may contribute to mental health issues such as anxiety (e.g., Wolfram et al., 2013). Thus, we provided some evidence of a possible mechanism (affective rumination) through which workaholism could negatively impact employees' psychological well-being.

Theoretical and Practical Implications

The findings support and extend the JD-R model, highlighting workaholism as a key demand impacting psychological well-being. This suggests that workaholism could be considered as a crucial job demand within the JD-R framework. In addition, the positive relationship between workaholism and work engagement suggests that engagement is not solely driven by positive job resources. The study implies that individuals high in workaholism might engage in their work for different reasons, such as intrinsic motivation or a desire for accomplishment. In terms of mechanism within the JD-R model, the study adds nuance to the understanding of how workaholism affects psychological well-being by introducing affective rumination and problem-solving pondering as mediators. This enriches the JD-R model by exploring cognitive processes that link job demands to health outcomes. Thus, the mediating role of affective rumination and problem-solving pondering provides insights into both maladaptive and adaptive cognitive processes. This differentiation is essential for designing interventions that target specific cognitive patterns associated with workaholism. The study contributes to refining the JD-R model by identifying specific cognitive mechanisms through which workaholism influences psychological well-being. This may prompt scalars to consider expanding the model to incorporate cognitive factors, such as affective rumination and problem-solving pondering, as integral components.

In terms of practical implications, the study suggests that organizations should recognize workaholism as a potential threat to employees' psychological well-being. Therefore, interventions designed to mitigate workaholism could contribute to a healthier organization environment. Moreover, integrating interventions that target affective rumination and problem-solving pondering into occupational health programs may enhance their effectiveness. This aligns with the idea that addressing cognitive processes is crucial for comprehensive psychological well-being initiatives.

Limitations and Future Directions

There are several limitations to be considered. First, the cross-sectional design approach used in the study, which does not allow for conclusions of cause and effect to be reached.

Second, the selection by convenience of the participating employees does not allow the generalization of the results to the universe of employees in Puerto Rico. Third, our study was based on self-report measures and may be susceptible to common method bias (CMB), which may inflate the associations between variables (Podsakoff et al., 2003). However, we tested for CMB following Kock (2015) recommendations using collinearity variance inflation (VIF) criterion and all variables were less than the threshold of 3.3, suggesting than this was not a problem in the current study. Fourth, we only included items of the vigor and dedication dimensions of the short 9-item version of the UWES and did not include the items of the absorption dimension. This is important since absorption have shown substantial association with workaholism (Schaufeli et al., 2008) and this overlap reflects the theoretical notion that both workaholics and engaged workers are deeply immersed in their work and are reluctant to disengage from it, albeit that their motivation differs fundamentally (Mazzetti et al., 2016). Therefore, it will be interesting to include the three dimensions of the UWES in future studies to examine whether the association between workaholism and work engagement is higher.

Conclusions

The current study showed that the effects of workaholism can be detrimental to employees' psychological well-being. Moreover, the mediator role of rumination, especially, affective rumination can serve as a mechanism that might explain how workaholism impact negatively the psychological well-being of employees when compared to problem-solving pondering. It is necessary to continuing examine workaholism as a job demand and rumination as a mechanism within the JD-R model.

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