The Multidimensional Workaholism Scale: Linking the Conceptualization and Measurement of Workaholism

Article *in* Journal of Applied Psychology · February 2020

DOI: 10.1037/apl0000484

CITATIONS
106

READS
13,562

3 authors:

Malissa A. Clark
University of Georgia
66 PUBLICATIONS **4,702** CITATIONS
SEE PROFILE

Rachel Williamson Smith
Georgia Southern University
36 PUBLICATIONS **1,035** CITATIONS
SEE PROFILE

Nicholas Haynes
University of Georgia
14 PUBLICATIONS **219** CITATIONS
SEE PROFILE

The Multidimensional Workaholism Scale: Linking the Conceptualization and Measurement of Workaholism

Malissa A. Clark
Department of Psychology
University of Georgia
Athens, GA 30602
Phone: 706 542-1457
Fax: 706 542-3275
E-Mail: clarkm@uga.edu

Rachel Williamson Smith
Department of Psychology
Louisiana State University
236 Audubon Hall
Baton Rouge, LA 70803
E-Mail: rachelwilliamson2493@gmail.com

Nicholas J. Haynes
Department of Psychology
University of Georgia
Athens, GA 30602
Fax: 706 542-3275
E-Mail: njhaynes@uga.edu

This manuscript has been accepted for publication at *Journal of Applied Psychology*

DOI: 10.1037/apl0000484

Author Note: Portions of this manuscript were presented at the 2018 Society for Industrial and Organizational Psychology Annual Conference (Chicago, IL) and the 2018 American Psychological Association Convention (San Francisco, CA). We thank Kristen Shockley for her helpful feedback on an earlier version of this manuscript, and Angela May and Lauren Rice for their assistance with item development.

Abstract

Scholarly interest in workaholism has increased dramatically in recent years. This research has underscored the detrimental effects of workaholism for employees, their families, and the organizations that employ them. Despite drastic improvements in the quality of studies examining workaholism over the past several decades, researchers continue to almost exclusively rely on older measures of workaholism or new measures derived from these original measures. In the present study, we outline why a new measure is needed and propose a multidimensional conceptualization of workaholism that encompasses motivational, cognitive, emotional, and behavioral dimensions. We then develop and validate a new multidimensional measure of workaholism: the Multidimensional Workaholism Scale (MWS). Evidence from 5 samples representing individuals working in a wide variety of occupations and industries throughout the United States (total $N = 1{,}252$) provides support that (a) our proposed 4-factor structure replicates and fits better than alternative models; (b) the measure demonstrates high reliability and content validity; (c) the measure demonstrates evidence for convergent and discriminant validity with constructs in workaholism's nomological network; (d) the measure demonstrates incremental validity in the prediction of important outcomes over and above prior measures of workaholism; and (e) the different dimensions demonstrate incremental validity in the prediction of specific outcomes over and above other dimensions of the MWS. Overall, results from the present study suggest that the MWS is a reliable and valid measure that can advance a more nuanced approach to research and practice relating to workaholism.

Keywords: workaholism; scale development; measurement; validation

The Multidimensional Workaholism Scale: Linking the Conceptualization and Measurement of Workaholism

"There is such a thing as work being play, and many people can take their work or leave it, without having to have it in order to be happy or to survive as a person, or without being driven to it like a quarry slave in the bondage of a compulsion to work."

Wayne E. Oates (1971, p. 9)

The term workaholism was coined almost a half century ago to describe employees who experience an uncontrollable need or compulsion to work (Oates, 1971). Since then, workaholism has been empirically linked to a wide variety of negative outcomes, such as an increased risk for metabolic syndrome (ten Brummelhuis, Rothbard, & Uhrich, 2017), elevated systolic blood pressure (Balducci, Avanzi, & Fraccaroli, 2018), sleeping difficulties (Gillet, Morin, Sandrin, & Houle, 2018), work–family conflict (WFC; Aziz & Zickar, 2006), and lower relationship satisfaction (Bakker, Demerouti, & Burke, 2009). The popular press has also highlighted many of these detrimental outcomes (Guillory, 2016; Griffith, 2019; ten Brummelhuis & Rothbard, 2018). Researchers and practitioners alike have begun to take notice of the detrimental impacts of workaholism on the company's bottom line (e.g., decreased business growth; Gorgievski, Moriano, & Bakker, 2014; Wilkie, 2014). In line with these trends, there has been a dramatic increase in empirical studies of workaholism in the last decade.

Despite growing interest, the organizational literature lacks consensus on how workaholism should be conceptualized and measured. Existing theoretical models and reviews offer conflicting ideas regarding key aspects of the workaholism construct, such as whether to include work engagement and/or work enjoyment in the conceptualization and definition, and whether workaholism is an *addiction* to work (e.g., Griffiths, Demetrovics, & Atroszko, 2018; Loscalzo & Giannini, 2017; Ng, Sorensen, & Feldman, 2007; Schaufeli, Taris, & Bakker, 2008). Because of these disagreements on what exactly workaholism is and is not, it is not surprising

that current measures of workaholism vary widely from one another. We argue that in addition to measuring workaholism in different ways, current workaholism measures also suffer from varying degrees of construct contamination and deficiency. Cumulatively, these issues leave many questions regarding workaholism's place within the broader nomological network of related variables (e.g., work addiction, work engagement) and the degree to which (and how) workaholism impacts health and well-being outcomes.

A construct-valid, multidimensional measure of workaholism would advance both theory and research by allowing for the examination of how various *dimensions* of workaholism relate to correlates and outcomes. Across different situations and over time, certain dimensions of workaholism may be more or less predictive of various individual, organizational, and relationship outcomes. For example, behavioral aspects of workaholism may be more strongly related to a lack of family involvement. On the other hand, emotional or cognitive dimensions of workaholism may be more strongly related to partner interpersonal conflict. These types of examinations are not currently possible with existing workaholism measures that do not cleanly differentiate amongst the dimensions or that confound workaholism with other related constructs.

As such, the aims of this paper are to: 1) provide a comprehensive overview of prior conceptualizations and measures of workaholism in order to identify key attributes of the construct and strengths and weaknesses of existing measures; 2) provide a multidimensional conceptualization that encompasses these key attributes but does not overlap with other related phenomena; and 3) develop and validate a new multidimensional measure of workaholism. The proposed four-factor structure of the Multidimensional Workaholism Scale (MWS) provides a necessary and critical tool to advance a more nuanced understanding of the nomological network of workaholism, as well as better understanding of how workaholism dimensions relate to other

multidimensional constructs, such as work engagement. Before turning to the scale development process, we start by reviewing the existing conceptualizations and measurements of workaholism that led to our proposed four-facture structure.

Clarifying the Conceptualization and Measurement of Workaholism

In order to develop a comprehensive and clear conceptualization to inform the measurement of workaholism, we compiled representative construct definitions from quantitative and conceptual reviews of workaholism (e.g., Clark, Michel, Zhdanova, Pui, & Baltes, 2016; Loscalzo & Giannini, 2017; Ng et al., 2007). We also examined all prior known workaholism scale development articles in order to understand how workaholism has been measured to date. Following the recommendations of Podsakoff, MacKenzie, Lee, and Podsakoff (2016), we carefully examined each of these conceptualizations in order to identify key attributes as well as areas in need of refinement or construct clarity.

Table 1 outlines the various definitions of workaholism. Overall, there are several consistently mentioned attributes. One key attribute is that workaholism involves *internal, rather than external, motivation*. Many conceptualizations emphasize that individuals do not work excessively because of external factors (e.g., financial reasons or a demanding boss); rather, they are compelled or driven to work because of an inner pressure. This inner pressure is mostly (although not universally) conceptualized as a *negative, rather than positive pressure*. This pressure involves feeling negative emotions when not working or when prevented from working (Ng et al., 2007; ten Brummelhuis et al., 2017) and feeling "pushed to work because they have to obey their obsession" (Taris, Schaufeli, & Shimazu, 2010, p. 42). Additionally, many conceptualizations describe a *preoccupation with work* and an inability to "turn off" work-related thoughts. Finally, workaholism is either explicitly or implicitly described in all definitions as

involving *excessive time and energy spent working*.

In clarifying the conceptualization of workaholism, it is also critical to determine the boundaries of the domain. As Podsakoff et al. (2016) noted, "One reason why a measure/ manipulation may be contaminated is because the definition of the theoretical concept is ambiguous, too broadly defined, or lacks adequate precision" (p. 167). Some definitions of workaholism were broad and included attributes that may better reflect *other constructs*. For example, we identified several definitions of workaholism that included negative outcomes of workaholism, such as poor health and well-being, deteriorating relationships, or conflict between work and non-work domains (e.g., Aziz, Uhrich, Wuensch, & Swords, 2013; McMillan & O'Driscoll, 2006). Some definitions confound the constructs of workaholism and work engagement by including characteristics associated with joy in work (described in more detail below). Even more problematic is some definitions of workaholism emphasize *low* work enjoyment/engagement (e.g., Loscalzo & Giannini, 2017; Spence & Robbins, 1992), while others emphasize *high* work enjoyment (e.g., McMillan & O'Driscoll, 2006; Ng et al., 2007). These discrepancies are problematic in that not only are they contributing to construct contamination by including aspects of another construct (i.e., work engagement), but they offer directly conflicting information.

Finally, some conceptualizations of workaholism discuss attributes that may be more reflective of constructs in the broader nomological network of workaholism, rather than workaholism, specifically. For example, McMillan and O'Driscoll (2006) state workaholism involves a general obsessive style and Mudrack and Naughton (2001) conceptualize workaholism as involving behavioral tendencies to perform non-required work (going above and beyond job requirements) and having a controlling work style. This again contributes to

construct contamination.

Overall, there does appear to be consensus in the literature regarding several key attributes of workaholism, which we incorporate into our multidimensional conceptualization of workaholism. There are some aspects of existing definitions that we intentionally do not include in our conceptualization, such as health or well-being impairments, work engagement, general obsessive style, and clinically-focused language (e.g., addiction, disorder). These were excluded in order to reduce "blurring" of boundaries between workaholism and related constructs. Second, we do not include language implying workaholism is a stable disposition or personality trait that someone inherently possess (e.g., "the workaholic is a person who..."). This decision is in line with theory and research suggesting situational and other contextual factors can change or modify levels of workaholism over time (Balducci et al., 2018; Ng et al., 2007).

A Multidimensional Workaholism Conceptualization

We now provide a more thorough discussion of each identified attribute of workaholism. In our view, each of these dimensions are *defining characteristics* of an overall workaholism construct and each is a *necessary, yet insufficient* indicator of workaholism. For example, while working long hours is certainly a characteristic of workaholism, spending excessive hours at work—by itself—does not adequately represent the construct domain.

Based on our review above, it is clear that workaholism is a multidimensional construct that must be clearly distinguished from related constructs in the broader nomological network. To guide the development of the MWS, we formally define workaholism as *a multidimensional construct comprised of 1) an inner pressure or compulsion to work (i.e., motivational dimension), 2) persistent, uncontrollable thoughts about work (i.e., cognitive dimension), 3) feeling negative emotions when not working or when prevented from working (i.e., emotional*

dimension), and 4) excessive working that goes beyond what is required and expected (i.e., behavioral dimension). Next, we elaborate on each of these dimensions.

Motivational: Inner compulsion to work. First, workaholism involves *an inner pressure or compulsion to work*. Virtually all definitions of workaholism shown in Table 1 reflect this idea, with scholars describing the construct as uncontrollable (Andreassen, Griffiths, Hetland, & Pallesen, 2012; Oates, 1971; Snir & Harpaz, 2012), involving inner needs, pressures, or a compulsion to work (Aziz et al., 2013; Clark et al., 2016; Oates, 1971; Schaufeli, Taris, & van Rhenen, 2008; Spence & Robbins, 1992), and involving self-imposed or internal demands rather than external demands (Oates, 1971; Robinson, 1998; Schaufeli, Taris, & van Rhenen, 2008; Snir & Harpaz, 2012). This inner compulsion has also been referred to as a "push" to work (Taris et al., 2010), and as a feeling one "ought to be" or "should be" working (Graves, Ruderman, Ohlott, & Weber, 2012; van Beek, Hu, Schaufeli, Taris, & Schreurs, 2012). After conducting 50 interviews of workaholics, Machlowitz (1978) mused, "It is interesting to wonder what function work really fulfills for workaholics. Perhaps it is not, as has been thought, the pleasure of working that propels them but, rather, the pain of not working" (p. 76).

The motivational dimension of workaholism is rooted in self-determination theory (SDT; Ryan & Deci, 2000). According to SDT, individuals are motivated to engage in goal-directed behavior to fulfil basic psychological needs. SDT further distinguishes between types of motivation that vary in their level of autonomy. Autonomous motivation involves pursuing and engaging in an activity with complete willingness, volition, and choice (Deci, Olafsen, & Ryan, 2017; Gagné & Deci, 2005). On the other end of the continuum is pursuing an activity due to controlled, extrinsic motivation. In general, the less autonomous one's motivation (i.e., more controlled), the less likely basic psychological needs are to be met.

The inner compulsion to work represents a particular type of controlled motivation—introjected regulation—that occurs when external contingencies have been partially internalized, but behavior is largely controlled (Gagné & Deci, 2005). When individuals are driven to work by partially internalized goals and values, their actions are not fully driven by their own volition, but instead are driven by self-worth contingencies and ego involvement—"I work because it makes me feel like a worthy person" (Gagné & Deci, 2005, p. 334). In support of these ideas, scholars have shown positive relationships between workaholism and introjected regulation, but null or negative relationships with intrinsic motivation (van Beek et al., 2012; van Beek, Taris, & Schaufeli, 2011; van Beek, Taris, Schaufeli, & Brenninkmeijer, 2013).

Cognitive: Thoughts about work. Second, workaholism involves *persistent, uncontrollable thoughts about work*. This cognitive element to workaholism has been described by scholars as a cognitive preoccupation with work (Clark et al., 2016; Mudrack & Naughton, 2001; Smith & Seymour, 2004), being overly concerned about work (Andreassen et al., 2012), or as an obsession with work (Ng et al., 2007; Schaufeli, Taris, & Bakker, 2008; Scott, Moore, & Miceli, 1997; Smith & Seymour, 2004) that cannot be controlled (Smith & Seymour, 2004) and that continues or persists even when one is not working (Clark et al., 2016; Schaufeli, Taris, & Bakker, 2008; Scott et al., 1997). Machlowitz (1978) described this as being "psychologically present at work even when they are physically absent from work" (p. 6).

Although the cognitive dimension is prominent in most conceptualizations of workaholism, relatively few studies have specifically examined it. These limited studies, however, support the idea of persistent thoughts about work. For example, between-person studies have shown links between workaholism and cognitive rumination about work (e.g., de Bloom, Radstaak, & Geurts; 2014). Additionally, using a random interval experience sampling

design across a week, Snir and Zohar (2008) found that workaholics (defined as those working more than 11.5 hours per workday) were more likely than non-workaholics to think about their work when signaled, and were also more likely to think about work during a leisure activity.

Emotional: Negative emotions when not working. Third, workaholism involves *feeling negative emotions when not working or when prevented from working*. This dimension of workaholism is often discussed as highly related to the motivational dimension—the inner pressure that one "ought to be" working is accompanied by high intensity negative emotions, such as guilt, anxiety, frustration, and anger (Morris & Charney, 1983; Ng et al., 2007). Porter and Kakabadse (2006) further note that individuals work for relief and may feel general discomfort or unease when they stop. Anecdotal evidence supports this idea. Isaac Asimov—prolific author and self-admitted workaholic—confessed, "if he spends three hours away from his typewriter, he has an anxiety attack" (Darrach, 1976, p. 18). Empirical research is consistent with this anecdotal evidence; those higher in workaholism report greater guilt, anxiety, anger, and disappointment felt at home (Clark, Michel, Stevens, Howell, & Scruggs, 2014). In sum, it appears that multiple discrete emotional states comprise the emotional dimension.

Behavioral: Excessive work behaviors. Finally, workaholism involves *excessive working that goes beyond what is required and expected.* Each definition of workaholism in Table 1 reflects some aspect of working excessively, including being highly work involved (Spence & Robbins, 1992), having intense work drive (Aziz et al., 2013), working many hours (Ng et al., 2007; Snir & Harpaz, 2012), working incessantly and/or overindulging in work (Oates, 1971; Robinson, 1998; Schaufeli, Taris, & Bakker, 2008), spending discretionary and/or personal time in work activities (McMillan & O'Driscoll, 2006; Mudrack & Naughton, 2001; Ng et al., 2007; Scott et al., 1997), and working beyond what is reasonably expected based on job

requirements (Clark et al., 2016; Schaufeli, Taris, & Bakker, 2008; Scott et al., 1997).

Differentiation from Related Constructs

It is also important to conceptually distinguish workaholism from constructs that may share conceptual overlap (Hinkin, 1998). Our review of the literature revealed two constructs that have the greatest conceptual overlap (and confusion with) the construct of workaholism: work engagement and work addiction.

Work engagement. Workaholism and work engagement can be distinguished based on several factors. First, workaholism and work engagement differ regarding motivation for working (Deci & Ryan, 1985; Ryan & Deci, 2000). While workaholism is associated with introjected motivation (van Beek et al., 2012), work engagement has been linked to intrinsic motivation—working because the activity is interesting and enjoyable in itself (Ryan & Deci, 2000; van Beek et al., 2012). Workaholism and work engagement can also be differentiated by the types of emotions felt when not working. While workaholism has been linked to the experience of negative emotions when not working (Clark et al., 2014), work engagement has been linked to the experience of positive emotions and moods when at home (Clark et al., 2014; Culbertson, Mills, & Fullagar, 2012). Additionally, research has indicated that while workaholism is related to ruminative work-related thoughts when not working (Snir & Zohar, 2008), studies of work engagement have not found similar problems in the inability to psychologically detach from work (Sonnentag, Mojza, Binnewies, & Scholl, 2008). Finally, workaholism and work engagement have consistently shown opposite patterns with health, well-being, and organizational outcomes. For example, workaholism is related to higher burnout and is not significantly related to job performance (Balducci et al., 2018, Clark et al., 2016), while work engagement is related to lower burnout and higher job performance (Crawford, LePine, &

Rich, 2010; Christian, Garza, & Slaughter, 2011). Overall, workaholism and work engagement can be distinguished both conceptually and empirically.

Work addiction. The terms workaholism and work addiction have often been used interchangeably (Andreassen, 2014), leading to a lack of conceptual and empirical clarity. While both workaholism and work addiction involve an inner compulsion to work and similar patterns of behavior, affect, and cognitions relating to work, work addiction can be distinguished (both conceptually and empirically) from workaholism in that its definitions and measures involve several clinically-relevant criteria (e.g., significant impact to the individual and/or relevant relationships, unsuccessful attempts to reduce the activity; Atroszko, Demetrovics, & Griffiths, 2019). For example, work addiction measures such as the Bergen Work Addiction Scale (BWAS; Andreassen et al., 2012) assess several core components of clinical addictions (see Griffiths, 2005): salience, conflict, mood modification, tolerance, withdrawal symptoms, and relapse. While these criteria have clinical importance (Loscalzo & Giannini, 2017), their inclusion into the measurement of workaholism may lead to construct contamination.

The Need for a New Workaholism Measure

Although there are several existing measures of workaholism, each of these measures suffers from one or more critical weaknesses, such as measurement issues, construct contamination, and/or construct deficiency (see Table 1). Despite general overlap among conceptualizations in terms of workaholism's core dimensions, and evidence of a more sophisticated and precise conceptualization of workaholism in scholarly work in recent years (e.g., Balducci et al., 2018; ten Brummelhuis et al., 2017), this sophistication and precision is not reflected in existing measures. For example, even though Schaufeli, Taris, and Bakker's (2008) conceptualization of workaholism incorporates the same core dimensions as we propose, their

corresponding measure (the Dutch Work Addiction Scale; DUWAS) is less precise. It blends multiple dimensions into the same subscale (e.g., working compulsively includes motivational and emotional items), and it also does not directly measure the cognitive aspect of their definition (i.e., "persistently and frequently thinks about work, even when not working," p. 204).

There are also several critical psychometric and construct validity issues that have been identified with existing multidimensional workaholism measures (Andreassen, 2014; Andreassen, Hetland, & Pallesen, 2014; Mudrack, 2006; Quinones & Griffiths, 2015). We focus our discussion on the three multidimensional workaholism measures most commonly used in the literature because there is more evidence from which to draw: the Work Addiction Risk Test (WART; Robinson, 1989, 1999), the Workaholism Battery (WorkBAT; Spence & Robbins, 1992), and the DUWAS (Schaufeli, Shimazu, & Taris, 2009). First turning to psychometric issues, low internal consistency has been repeatedly observed for the work involvement subscale of the WorkBAT (alphas in the .30s and .40s; Burke, Richardson, & Martinussen, 2004; Burke, Matthieson, & Pallesen, 2006). Although other workaholism subscales have generally shown adequate reliability, there are some instances of alphas in the .50s and .60s for both subscales of the DUWAS and the driven subscale of the WorkBAT (Kanai, Wakabayashi, & Fling, 1996; Schaufeli, Shimazu, & Taris, 2009; Schaufeli, Taris, & Bakker, 2008). Additionally, prior research has been generally unable to consistently support the purported factor structures of these measures (Andreassen et al., 2014; Ersoy-Kart, 2005; Kanai et al., 1996; Russo & Waters, 2006).

Existing workaholism measures have also been criticized for confounding workaholism with related constructs (e.g., Mudrack & Naughton, 2001). For instance, workaholism items "My job is more like fun than work" (WorkBAT), "I get angry when people don't meet my standards of perfection" (WART), and "I find myself doing two or three things at one time such as eating

lunch and writing a memo, while talking on the phone" (WART and DUWAS) closely resemble items in work engagement ("at my work, I feel bursting with energy"; Schaufeli, Bakker, & Salanova, 2006), perfectionism ("my performance rarely measures up to my standards"; Rice, Richardson, & Tueller, 2014), and polychronicity ("when doing a number of assignments, I like to switch back and forth between them rather than do one at a time"; Poposki & Oswald, 2010) measures. Existing items also sometimes conflate multiple workaholism dimensions, e.g., "I feel obligated to work hard even when it's not enjoyable" from the WorkBAT and DUWAS conflates an inner motivation to work and an emotional component tied to working. These inconsistencies across workaholism measures is likely why Andreassen (2014) concluded that "different workaholism measures correlate too low with one another to reflect the same construct" (p. 21).[1]

In sum, there are several critical psychometric and construct validity issues with extant workaholism measures that are quite concerning. Existing measures, while they may assess aspects of workaholism, appear to be contaminated in inconsistent ways. Cumulatively, all of these issues undermine our ability to draw definitive conclusions about the relevance of workaholism to organizational behavior and underscore the importance of a new multidimensional measure of workaholism, which we now address.

Validation Strategy

[1] To more fully understand the item content of commonly used workaholism measures, six advanced undergraduate students performed an item-sort task. Raters were provided the full list of items in random order from the WART, WorkBAT, and DUWAS, names/definitions specified by the developers, and an "other" option, which allowed free responses. Raters placed each item into the appropriate categories. Placements were marked "correct" when the item was placed into the dimension specified in the original scale development article. Results suggest items in existing measures do not consistently represent the intended dimensions of workaholism specified by the scale developers (39%, 53%, and 42% of items in the WART, WorkBat, and DUWAS, respectively, were correctly placed). Many scale items reflected other constructs in addition to or instead of its intended dimension (e.g., overcommitment, time management, procrastination, flow, Type A personality, perfectionism).

Construct validation of a measure is a multi-step process (Hinkin, 1998). This process involves demonstrating evidence that the items in the measure reflect the intended content domain (i.e., content validation), the scale demonstrates appropriate psychometric qualities (e.g., internal consistency, expected dimensionality), and that the measure demonstrates expected relationships with related and unrelated constructs in its nomological network (i.e., convergent and discriminant validity, criterion-related validity). We followed these steps to provide an abundance of evidence for the construct validity of the MWS. The content validity of the measure was established in Phase 1. Phase 2 examined the psychometric properties of the measure. We then turn to an examination of the construct validity of the measure in Phases 3 and 4. See Table 2 for a summary of analyses and samples used in each phase. Because each phase of our scale development process utilized several samples, we first present rationale for each of our hypotheses, followed by a description of all samples and measures used in each sample.

Development of Hypotheses

Psychometric properties. Because the MWS was developed to represent four distinct, yet related, dimensions, it was important to confirm and replicate the factor structure of the measure across a variety of samples. This is particularly important given prior measures of workaholism have not always yielded purported factor structures (Andreassen et al., 2014).

> *Hypothesis 1:* The MWS is multidimensional, such that a four-factor model representing an inner compulsion to work, persistent thinking about work, negative emotions when not working, and excessive work involvement dimensions provide good fit to the data across samples.

Nomological network validity. Convergent and discriminant validity were tested with comparisons of constructs in workaholism's nomological network. In line with recommendations

of Colquitt, Sabey, Rodell, and Hill (2019), we focused on relationships with orbiting constructs (i.e., correlates that have well-established definitions and commonly utilized scales). First, to test for convergent validity, we focused on constructs that have exhibited consistent theoretical and empirical support of positive relationships with workaholism. Two personality correlates were examined: Negative affectivity and perfectionism. Several outcomes were also examined, relating to the work domain (i.e., job satisfaction), family domain (i.e., WFC), and individual outcomes (i.e., emotional exhaustion and physical symptoms).

Personality correlates. Negative affectivity refers to the tendency to experience high arousal negative emotions, such as anxiety and anger (Watson, Clark, & Tellegen, 1988). Individuals high in negative affectivity tend to react more negatively to stressors in the environment (Bolger & Zuckerman, 1995), dwell on the negative side of themselves (Watson & Clark, 1984), and have a negative ruminative self-focus (Mor & Winquist, 2002). Individuals high in negative affectivity may also seek out more stressful and demanding jobs that promote workaholism, or may actually create job stressors for themselves (Brief, Burke, Robinson, George, & Webster, 1988). Thus, negative affectivity should be positively related to workaholism. Indeed, the relationship between workaholism and trait negative affectivity has been previously demonstrated in several primary studies and also meta-analytically (Clark et al., 2016; Gorgievski et al., 2014; van Wijhe, Peeters, & Schaufeli, 2013).

Perfectionism is defined as “striving for flawlessness, setting excessively high standards for performance, and evaluating one’s own behavior overly critically” (Harari, Swider, Steed, & Breidenthal, 2018, p. 1121), and can be divided into two core dimensions: Perfectionistic strivings (i.e., personal standards, or excellence-seeking perfectionism) and perfectionistic concerns (i.e., discrepancy, or failure-avoiding perfectionism; Harari et al., 2018; Rice, et al.,

2014). Perfectionism is linked to a desire to put great effort into goal-directed behavior, holding harsh self-evaluations involving a constant threat to one's self-worth, and striving to avoid failures (Harari et al., 2018; Hewitt & Flett, 1991). These characteristics are likely associated with compulsive feelings that one ought to be working, consistent thoughts about achieving work goals, negative emotions when not working, and excessive working behaviors (Harari et al., 2018). Based on this evidence, and meta-analytic support for a positive relationship between workaholism and both dimensions of perfectionism (Harari et al., 2018), we propose:

> *Hypothesis 2:* The MWS and its dimensions positively correlate with (a) negative affectivity, (b) perfectionistic strivings, and (c) perfectionistic concerns.

Work, family, and individual outcomes. It is also important to demonstrate evidence that the MWS relates to well-established outcomes in expected ways. Outcomes from a variety of domains were examined, again focusing on orbiting constructs with well-established measures. In the work domain, we focused on job satisfaction. Drawing from the theoretical foundation of SDT (Ryan & Deci, 2000) and evidence that introjected motivation is related to workaholism (e.g., van Beek et al., 2012), we would expect workaholism to be negatively related to job satisfaction because they are not freely pursuing goals that are aligned with their own deeply held values, goals, and interests—factors associated with true satisfaction with one's work (Graves et al., 2012). Here, an overall negative relationship between workaholism and job satisfaction is predicted, based on the theoretical tenants of SDT and meta-analytic evidence of a significant negative relationship between the two (Clark et al., 2016).

In the family domain, we examined the relationship between workaholism and WFC. Given that workaholism involves constant thoughts about and time spent working, it is not surprising that workaholism is generally thought to negatively influence a person's life outside of

work. Empirical research consistently supports this relationship, with primary and meta-analytic studies finding workaholism is associated with greater WFC as well as lower marital and family satisfaction (Bakker et al., 2009; Bakker, Shimazu, Demerouti, Shimada, & Kawakami, 2014; Clark et al., 2016). Thus, we expect that workaholism will be positively related to WFC.

Finally, we examined the relationship between workaholism and two well-being outcomes: emotional exhaustion and physical symptoms. Emotional exhaustion is a key component of burnout and refers to the draining of emotional resources and feelings of fatigue (Schaufeli, Salanova, González-Romá, & Bakker, 2002). Given that workaholism involves constantly think about work and work longer and harder than others, individuals higher in workaholism are faced with less time to psychologically and physically disengage from work. These periods of recovery are critical in that they provide opportunities for resource recovery (Sonnentag et al., 2008). Additionally, the negative emotions experienced when not working can lead to poorer health and well-being (Watson, 1988). Indeed, both meta-analytic and primary studies show workaholism is related to greater emotional exhaustion and physical symptoms (Clark et al., 2016; Schaufeli, Bakker, van der Heijden, & Prins, 2009; ten Brummelhuis et al., 2017).

> *Hypothesis 3:* The MWS and its dimensions negatively correlate with (a) job satisfaction, and positively correlate with (b) work–family conflict, (c) emotional exhaustion, and (d) physical symptoms.

Discriminant validity from related constructs and measures. Work engagement and workaholism are both forms of heavy work investment (Snir & Harpaz, 2012), but evidence suggests they are two unique constructs with different well-being outcomes (Schaufeli, Taris, & van Rhenen, 2008). Additionally, a recent meta-analysis found consistent positive relationships

between multiple dimensions of workaholism and multiple dimensions of work engagement, with the strongest overlap being with the absorption component of work engagement (Di Stefano & Gaudiino, 2019). Although these constructs are expected to show positive relationships with one another, they should not demonstrate correlations too high as would suggest they are essentially redundant (e.g., correlations of .80 or above; Kline, 2005).

Hypothesis 4: The MWS and its dimensions positively correlate, but do not show redundancy, with work engagement and its dimensions.

Hypothesis 5: The absorption dimension of work engagement correlates more strongly with the MWS and its dimensions than the vigor and dedication dimensions of work engagement.

We next turn to discriminant validity from related measures. Despite the aforementioned psychometric and construct validity issues with prior measures of workaholism, we expect the MWS to be positively related to existing measures because they share common variance representing the overall workaholism construct. Again, we would expect positive correlations between the MWS and prior workaholism measures, but not too high to suggest they are essentially redundant (e.g., correlations of .80 or above; Kline, 2005).

Hypothesis 6: The MWS and its dimensions positively correlate, but do not show redundancy, with the (a) DUWAS, (b) WART, and (c) WorkBAT and their dimensions.

Incremental validity relative to prior workaholism measures. We next turn to several incremental validity analyses. In addition to ensuring the MWS is not redundant with prior measures, we also examine whether the MWS adds unique variance to the prediction of important well-being outcomes over and above prior measures of workaholism. Emotional

exhaustion, negative work-related rumination, and depressive symptoms were chosen for these analyses because each can provide unique information about the relationship between workaholism and psychological health of employees. Emotional exhaustion is a dimension of burnout that involves feeling mentally and physically fatigued (Cropanzano, Rupp, & Byrne, 2003), negative work-related rumination involves preoccupation and repetitive thoughts focused on failure and negative work experiences (Frone, 2015; Wang et al., 2013), and depressive symptoms are indicative of broader psychological dysfunction. Although similar relationships are expected for the MWS compared to prior measures, we expect that through its thorough assessment of the motivational, emotional, cognitive, and behavioral dimensions of workaholism, the MWS will account for unique variance in the prediction of various psychological health outcomes above that accounted for by prior measures.

> *Hypothesis 7:* The MWS adds unique variance to the prediction of (a) emotional exhaustion, (b) negative work-related rumination, and (c) depressive symptoms, over and above prior measures of workaholism.

Incremental validity of certain MWS dimensions over others. One of the key advantages of the MWS is we are able to examine how different *dimensions* of workaholism relate to orbiting constructs in workaholism's nomological network. For this analysis, we focused on several constructs that may have particularly strong connections to one (or more) dimension(s) of the MWS over others. Although no one dimension of the MWS should be used to represent the construct of workaholism, it can be helpful to understand which dimensions are more or less related to specific outcomes to better inform theory, research, and practice.

Motivational dimension. The motivational dimension of workaholism involves an inner compulsion or pressure to work. Work engagement is also a motivational construct that involves

an inner (intrinsic) motivation to work and as such, we expect that the motivational dimension of workaholism will unique variance to the prediction of work engagement over and above other workaholism dimensions.

Hypothesis 8: The motivational dimension of the MWS adds unique variance to the prediction of work engagement over and above the other MWS dimensions.

Cognitive dimension. The cognitive dimension of workaholism encompasses the frequent and uncontrollable thoughts about work that persist over time and across situations. Thus, it is likely this dimension in particular will show incremental validity in the prediction of other cognitively-laden constructs, such as work-related rumination. In line with cognitive theories of rumination (Smith & Alloy, 2009) and recent research findings supporting the idea that rumination in general is a maladaptive form of coping (Wang et al., 2013), we expect that one's persistent and uncontrollable work-related thoughts are negative and focus on failures, insecurities, and unmet expectations. Thus, we anticipate the cognitive dimension of workaholism will add unique variance to the prediction of negative work-related rumination over and above other dimensions.

Hypothesis 9: The cognitive dimension of the MWS adds unique variance to the prediction of negative work-related rumination over and above the other MWS dimensions.

Emotional dimension. The emotional dimension of workaholism involves experiencing negative emotions when one is not working or prevented from working. Thus, we expect this dimension will add unique variance to the prediction of the emotionally-laden construct of negative affect above and beyond other workaholism dimensions.

Hypothesis 10: The emotional dimension of the MWS adds unique variance to the

prediction of negative affect over and above the other MWS dimensions.

Behavioral dimension. The behavioral dimension of workaholism encompasses the excessive behavioral involvement in work. Thus, it is likely this dimension of workaholism adds unique variance to the prediction of work hours over and above the other workaholism dimensions.

Hypothesis 11: The behavioral dimension of the MWS adds unique variance to the prediction of work hours over and above the other MWS dimensions.

Multiple dimensions. In addition to relationships at the overall level, we also expect a more nuanced relationship between workaholism dimensions and perfectionism dimensions. Individuals who have exceedingly high standards are particularly likely to spend excessive time working, which is supported by laboratory research assessing time spent on a self-paced task (Stoeber, Kobori, & Tanno, 2010). Additionally, a recent meta-analysis found perfectionistic strivings (but not perfectionistic concerns) are associated with higher conscientiousness, engagement, and a composite of internal and external motivation (Harari et al., 2018). Thus, we expect stronger relationships between perfectionistic strivings and the motivational and behavioral dimensions of workaholism, which involve feeling inner pressure or motivation to work and putting in longer hours than expected to achieve perfection in their work.

On the other hand, individuals high in perfectionistic concerns tend to be overly critical of their own performance and more concerned with others' expectations and criticisms of their performance. Studies have shown perfectionistic concerns are related to higher anxiety (Harari et al., 2018), negative appraisals and self-blame (Dunkley, Zuroff, & Blankstein, 2003), and the brooding component of rumination (Harris, Pepper, & Maack, 2008). This suggests stronger relationships between perfectionistic concerns and the emotional and cognitive workaholism

dimensions, which involve experiencing negative emotions relating to one's performance expectations and higher likelihood of thinking anxiously about unachieved standards. Therefore, we hypothesize the following:

Hypothesis 12: The motivational and behavioral dimensions of the MWS add unique variance to the prediction of perfectionistic strivings over and above the cognitive and emotional dimensions of the MWS.

Hypothesis 13: The cognitive and emotional dimensions of the MWS add unique variance to the prediction of perfectionistic concerns over and above the motivational and behavioral dimensions of the MWS.

Method

Samples 1 and 2. The University of Georgia Institutional Review Board (Protocol #00001192; Project title: "Feelings Towards Work") approved samples 1-4 of this study. The first two samples consisted of undergraduate and graduate students who assisted with the initial item refinement and content validation. The use of students for this initial step in scale validation is appropriate and common (e.g., Colquitt et al., 2019; Eby, Durley, Evans, & Ragins, 2008). Sample 1 consisted of ten full-time industrial/organizational (I/O) psychology Ph.D. graduate students and twelve advanced undergraduates working in an I/O psychology research laboratory from a large U.S. university. Participants were primarily female (77.3%), Caucasian (68.2%), and on average were 22.4 years old (SD = 2.64). Sample 2 participants were recruited from an undergraduate psychology research pool at the same university. A total of 261 individuals completed the survey, but only data from 204 individuals were analyzed as 57 individuals failed

the instructional manipulation check ("How many dimensions will you rate each item on?").[2] Three attention checks were presented randomly throughout the survey (e.g., "Please select option 5 to show you are paying attention"); 13 individuals were removed for failing any of these attention checks. The final sample of 191 participants consisted primarily of women (74.3%) who were on average 19.61 (*SD* = 3.00) years old. Participants reported working 12.93 hours per week on average (*SD* = 9.50) and had worked in their current position for an average of 1.03 years (*SD* = 1.27).

Sample 3: Participants in Sample 3 were recruited from Amazon's Mechanical Turk survey panel. Individuals were eligible to participate if they worked full time (at least 35 hours per week) and resided in the U.S. A total of 938 individuals completed the surveys; however, 179 were removed because they reported working less than 35 hours per week,[3] and 98 were removed because they failed at least one of the attention check items. The final sample consisted of 661 individuals. On average, participants were 35.1 years of age (*SD* = 10.7). They were primarily male (54%), married or in a committed relationship (62%), and Caucasian (77%). Participants worked on average 41 hours per week (*M* = 40.6, *SD* = 7.5), and reported working in their current job for almost 7 years (*M* = 6.9, *SD* = 6.2). Participants were compensated $0.40 for participating in the study. The total sample was randomly divided into two datasets; half were used for exploratory factor analysis (Phase 1) and half were used for confirmatory factor analysis (Phase 2). Then, the entire dataset was combined for all other analyses.

---

[2] We attribute this failure rate to the use of an instructional manipulation check as opposed to a standard attention check (e.g., choose "strongly agree").

[3] 22 participants completed all portions of the survey except the demographics, which were presented at the end of the survey. Because all participants had indicated they worked full time in the informed consent process, responses were retained for analyses. All analyses in Phase 3a and 3b were run with and without these participants, and all findings remained the same.

Sample 4: Sample 4 was recruited using Qualtrics Panels. To reduce common method bias concerns (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) we used a time-lagged approach in which we measured predictors at Time 1 and outcomes one week later. A total of 599 participants completed the Time 1 survey, but 139 were removed for failing one or more attention checks. Of these participants, 318 also completed our survey at Time 2, and 245 correctly responded to all attention checks. We also removed 17 participants who did not work full-time. Thus, our final sample size was 228. The sample was 51% male and the majority were Caucasian (83%). On average, participants were 48.4 years old (*SD* = 11.3 years), had been in their current job for 9.6 years (*SD* = 8.2 years), and worked 43 hours per week (*SD* = 11.3 hours). Over half (54%) of participants had a four-year college degree or greater. About 70% of participants were married or in a committed relationship and living with their partner (average length of relationship = 17.3 years, *SD* = 12) and 62% had children. Over half (57%) of participants' partners were employed.

Sample 5: Participants for Sample 5 were recruited through snowball sampling, emails, and social media. Sample 5 was the first publication as part of a larger data collection effort and was approved by the Louisiana State University Institutional Review Board (Protocol #E11558; Project title: "Investment in Work Study"). To be eligible, participants had to be at least 18 years old, live in the U.S., and work at least 35 hours per week. To reduce common method bias concerns (Podsakoff et al., 2003), we again used a time-lagged approach in which predictors were measured at Time 1 and outcomes were measured at Time 2, two weeks later. A total of 296 participants qualified and completed our Time 1 survey, of which 217 completed Time 2. Participants were compensated $5 for completing the Time 1 survey, and $10 for completing the Time 2 survey. Of the 217 participants who completed both surveys, one participant was

removed for reporting they worked less than 35 hours a week. We only retained participants who correctly responded to all 5 attention checks, resulting in a final sample of 150. Participant were an average of 38.5 years old (*SD* = 11.6). The majority of the sample was Caucasian (85%), female (67%), and had a 4-year degree or greater (82%). The majority of the sample (67%) was married or cohabitating and about half (53%) reported having children. Participants reported working 45 hours per week on average (*SD* = 8.5) and worked for their current employer an average of 7.1 years (*SD* = 7.7).

Measures

Reliabilities for all measures are reported in Tables 5-7. Unless otherwise indicated, measures were rated on a 5- or 7-point scale ranging from *strongly disagree* to *strongly agree*.

Work hours. Participants reported the average number of hours worked per week.

MWS. The final version of the MWS used in all hypothesis tests is comprised of four subscales with four items each: motivational, cognitive, emotional, and behavioral. Participants were asked to report the degree to which each item describes them (1 = *never true*, 2 = *seldom true*, 3 = *sometimes true*, 4 = *often true*, 5 = *always true*).[4]

WART. The WART (Robinson, 1999) is composed of five subscales: compulsive tendencies, control, impaired communication/self-absorption, inability to delegate, and self-worth. Participants rated each of the 25 items on a 4-point scale (1 = *never true*, 4 = *always true*). Sample items include "I seem to be in a hurry and racing against the clock" and "I get irritated when I am interrupted while I am in the middle of something."

[4] In a separate pilot study, we examined the correlation between two forms of the measure: the frequency scale and a strongly disagree to strongly agree Likert-type response scale. Based on a sample of 231 working adults (average hours worked = 45.2 (*SD* = 7.4), average age = 35 (*SD* = 9.7), 37% women) we found the two forms of the measure correlated *r* = .94. Based on these data, either response scale may be appropriate.

WorkBAT. The WorkBAT (Spence & Robbins, 1992) is composed of driven, work involvement, and enjoyment of work subscales, and does not have a composite scale. Participants rated 25 items on a 5-point scale. Example items include "I spend my free time on projects and other activities" (work involvement); "I feel guilty when I take time off work" (drive); and "I lose track of time when I'm engaged in a project" (work enjoyment).

DUWAS. The DUWAS (Schaufeli, Shimazu, & Taris, 2009) is composed of working excessively and working compulsively subscales. Participants rated 10 items on a 5-point scale. Example items include "I stay busy and keep many irons in the fire" (working excessively); and "I feel guilty when I take time off work" (working compulsively).

Perfectionism. Perfectionism was measured using the short form of the revised almost perfect scale (APS-R; Rice et al., 2014). The APS-R is an 8-item, 7-point scale consisting of two subscales, personal standards (i.e., perfectionistic strivings) and discrepancy (i.e., perfectionistic concerns). Example items include "I have high expectations for myself" (perfectionistic strivings) and "doing my best never seems to be enough" (perfectionistic concerns).

Negative affect. Trait negative affect was assessed using the 10-item scale of negative affect from the Positive and Negative Affect Scale (PANAS; Watson et al., 1988). Participants rated their general tendency to experience negative affect (e.g., distressed, upset, hostile) on a 5-point scale (1 = *very slightly or not at all*, 5 = *extremely*).

Job satisfaction. Job satisfaction was measured with three items developed by Hackman and Oldham (1975) on a 5-point scale. Items included "Generally speaking, I am very satisfied with my job," "I frequently think of quitting this job" (reverse-scored), and "I am generally satisfied with the kind of work I do in this job."

Work–family conflict. WFC was measured using the 10-item, 7-point scale by

Netemeyer, Boles, and McMurrian (1996). The WFC scale consists of five items measuring work-to-family conflict (e.g., “the demands of my work interfere with my home and family life”) and five items measuring family-to-work conflict (e.g., “I have to put off doing things at work because of demands on my time at home”).

Emotional exhaustion. Emotional exhaustion was measured using the emotional exhaustion subscale of the Maslach Burnout Inventory (Maslach & Jackson, 1981). The emotional exhaustion subscale consists of nine items which were measured on a 7-point scale (0 = *never*, 6 = *every day*). Example items include “I feel emotionally drained from my work” and “I feel burned out from my work."

Physical symptoms. Physical symptoms were measured using the physical symptoms index (PSI; Spector & Jex, 1998). The PSI consists of 13 symptoms (e.g., headache, loss of appetite, trouble sleeping). Participants were asked how often they experienced each symptom over the past month on a 5-point scale (1 = *not at all*, 5 = *every day*).

Work engagement. Work engagement was measured with the 9-item Utrecht Work Engagement Scale (UWES; Schaufeli & Bakker, 2003). The UWES consists of three 3-item subscales: vigor, dedication, and absorption. Participants rated each item on a 7-point scale (1 = *never*, 7 = *always*). Example items include “When I get up in the morning, I feel like going to work” (vigor), “I am proud of the work I do” (dedication), and “I feel happy when I am working intensely” (absorption).

Work-related rumination. Work-related rumination was measured using the 4-item negative work-related rumination subscale from the Negative and Positive Work Rumination Scale (Frone, 2015). Participants rated items on a 4-point scale (0 = *never*, 3 = *often*). Sample items include “replay negative work events in your mind even after you leave work,” and “find

yourself preoccupied with the negative aspects of your job even after you leave work."

Depressive symptoms. Depressive symptoms were measured with the 9-item Brief Depression Severity Measure (Kroenke, Spitzer, & Williams, 2001). Items were measured on a 4-point scale (0 = *not at all*, 4 = *nearly every day*). Sample items include "little interest or pleasure in doing things" and "feeling tired or having little energy."

Phase 1: Item Generation, Content Validation, Item Reduction

We followed a multi-step content validation approach across several samples following best practices (e.g., Colquitt et al., 2019; Howard & Melloy, 2016). First, we subjected items to a Q-sort, followed by an ANOVA-based approach to content validation (Hinkin & Tracey, 1999). These two content validation approaches provide unique information about definitional correspondence and definitional distinctiveness that is useful for gauging the validity of inferences made with scale measures (Colquitt et al., 2019). Items were then examined using exploratory factor analysis to determine the final set of scale items. As a final check for content validity, we confirmed the extent to which items reflected their intended dimension and the degree to which they can be distinguished from other dimensions or constructs.

Item generation. Items were primarily generated using a deductive approach, in which the first two authors and two subject matter experts (advanced graduate students familiar with the topic) generated items based on the conceptual definitions outlined earlier. When writing items, items from existing measures were consulted but not used verbatim given the aforementioned construct validity and psychometric concerns with the existing measures. We followed best practices in writing items, including keeping statements simple, as short as possible, and without culturally-specific jargon. The initial item pool consisted of 83 items (20 motivational items, 21 cognitive items, 20 emotional items, and 22 behavioral items).

Content validation. Inadequate attention to content validation has been identified as a critical weakness of many scale development articles, even in top-tier outlets (Colquitt et al., 2019). Thus, multiple approaches (Q-sort task, ANOVAs, EFAs) and samples were used for the content validation and item reduction of the MWS.

Sample 1 was used for a Q-sort task (Anderson & Gerbing, 1991) in which respondents were provided conceptual definitions for each of the four workaholism dimensions and asked to place each item into the dimension that best represented that item. Substantive validity was assessed using the proportion of substantive agreement (p_{sa}) and the substantive-validity coefficient ($c_{sv;}$). Substantive validity can be defined as the degree to which the measure is judged to be reflective of a construct of interest (Anderson & Gerbing, 1991). The p_{sa} reflects the proportion of judges who allocated a specific item to its intended construct (ranging from 0 to 1, with 1 indicating that 100% of judges allocated an item to its intended construct). The c_{sv} is an index that captures how much judges assigned a specific item to its intended construct compared with the other constructs. The c_{sv} values can range from -1 to 1 where larger values equate to greater substantive validity. We removed items with a p_{sa} less than .75 and/or a c_{sv} less than .55, indicating that there were lower levels of substantive validity.[5] These criteria led us to eliminate 13 items (6 motivational items, 1 cognitive item, and 6 behavioral items).

Next, we utilized Sample 2 to perform Hinkin and Tracey's (1999) ANOVA-based approach, where participates rate the *extent to which* each item represents each of the four

[5] The p_{sa} cutoff was chosen using the recommended one minus the probability of randomly selecting the correct dimension (i.e., with four dimensions, 1 - .25 = .75). For c_{sv} cutoff, we calculated the critical value using Anderson and Gerbing's (1991) equation but used a more conservative $p < .01$ cutoff as recommended by Howard and Melloy (2016), resulting in a critical value of .55. All items met the "strong" or "very strong" benchmarks for p_{sa} and/or c_{sv} values (Colquitt et al., 2019). See supplemental materials for these results.

dimensions using a Likert-style rating scale. Similar to other studies using this approach (e.g., Eby et al., 2008), the list of 70 scale items was randomly divided into three lists to reduce participant fatigue and participants only viewed one list. Participants were provided with conceptual definitions of the four dimensions of workaholism followed by a manipulation check. Participants then rated the extent to which items reflected each of the four dimensions of workaholism on a scale of 1 (*item **does not** measure the dimension*) to 5 (*item **completely** measures the dimension*). Thus, each item was rated four times.

A total of 70 ANOVAs (one for each item) were conducted, and Duncan multiple-range tests were utilized when the item had a significant omnibus *F* statistic, indicating that mean ratings for each dimension were significantly different for a particular item. Items were evaluated based on a significant overall ANOVA and whether post-hoc tests indicated the mean for the "correct" dimension was significantly higher than the other dimension means. For all but the motivational dimension, there were more than ten items that met these criteria. In these cases, the authors examined all remaining items and retained the ten items that best reflected the content domain for each dimension. This resulted in an instrument comprised of 39 items (9 items for the motivational dimension and 10 items for the cognitive, emotional, and behavioral dimensions).

To determine the final set of items, we conducted an EFA in Mplus version 8 (Muthén & Muthén, 2017) using Sample 3a. We used maximum likelihood extraction with an oblique rotation. The break in our scree plot, extracted eigenvalues, and percentage of variance explained by the factors all suggested a four-factor solution. We selected 16 of these 39 items (4 items per factor) based on the factor loadings and cross-loadings. All factor loadings ranged from .44 to .92 on their primary factor, with no cross loadings above .23. Importantly, the four factors mirrored the four-dimensional structure of we initially proposed (see Table 3).

Results

Phase 2: Psychometric Properties

Next, we sought to confirm the four-factor structure established in Phase 1 across several samples with Mplus version 8 (Muthén & Muthén, 2017). Item-level results for the initial CFA are reported in Table 3 and all other item-level CFA results are available upon request. To test hypothesis 1, the hypothesized four-factor model was compared to three alternative models (see Table 4). Given the high correlation between the cognitive and emotional factors in Phase 1, we ran an alternative three-factor model that combined cognitive and emotional factors. We also ran an alternative three-factor model based on qualitative findings from McMillan and O'Driscoll (2006) that combined the cognitive and behavioral dimensions. Finally, we allowed all items to load onto one latent factor. Overall, the four-factor model was the best fitting model across all samples based on chi-square difference test for nested models and ΔCFI values, exceeding Meade, Johnson, and Brady's (2008) cutoffs ($\Delta \geq .002$). It was also the only model whose fit indices reached or exceeded Hu and Bentler's (1999) suggested cutoffs of .95 for the CFI and TLI, values close to .08 for the SRMR, and values close to .06 for RMSEA as criteria for relatively good model fit. Across all samples, the standardized factor loadings for the four-factor model were statistically significant (all p values $< .01$) and ranged between .58 and .94. Cumulatively, these results support the four-factor structure outlined in hypothesis 1.

Reliability information and intercorrelations among dimensions for all samples are reported in Tables 5-7. Composite reliabilities for each dimension were consistently high across all samples, with the lowest reliability being .82 for the behavioral dimension in Sample 4. Across all samples, the sample-weighted intercorrelation among dimensions was $\bar{r} = .58$ (CI = [.51, .65]). Together, these results provide support that the dimensions of workaholism are highly

correlated with one another, but assess different aspects of the construct domain.[6]

Phase 3: Nomological Network Validity

Bivariate correlations among all study variables used to test nomological network validity are reported in Tables 5-7. To account for sampling error, a bare-bones meta-analysis (Schmidt & Hunter, 2015) was conducted when possible to aggregate correlations across samples (see Table 8).[7] Significance for meta-analytic correlations was determined based on whether the 95% confidence intervals around sample-weighted mean correlation ($\bar{r}$) included zero.

Personality correlates. The MWS ($\bar{r}$ = .30, CI = [.24, .36]) and each MWS dimension were positively correlated with negative affect, supporting hypothesis 2a. Hypothesis 2b and 2c were examined in Sample 5 only; the MWS was positively correlated with perfectionistic strivings (r = .46, p < .01) and perfectionistic concerns (r = .45, p < .01). Each MWS dimension was significantly related to both perfectionism dimensions, fully supporting hypothesis 2.

Work, family, and individual outcomes. Next, we examined relationships with various outcomes. Contrary to our hypothesis, there was not a significant relationship between the MWS and job satisfaction ($\bar{r}$ = -.07, CI = [-.17, .04]). There was a significant negative relationship between the cognitive dimension and job satisfaction ($\bar{r}$ = -.20, CI = [-.29, -.10]), but overall, hypothesis 3a was not supported. The MWS was significantly related to WFC ($\bar{r}$ = .36, CI = [.28, .45]), WIF ($\bar{r}$ = .37, CI = [.29, .46]) and FIW ($\bar{r}$ = .25, CI = [.15, .34]). Meta-analytic correlations between dimensions of the MWS and WFC (overall and dimensions) were also significant. Thus, hypothesis 3b was fully supported. The overall MWS ($\bar{r}$ = .25, CI = [.16, .35]) and each

[6] Another aspect of psychometric quality is measurement equivalence. Because prior workaholism measures of workaholism have shown differential item functioning (DIF) for gender (Beiler-May, Williamson, Clark, and Carter, 2017), we tested for this and found no evidence for DIF based on participant gender. Full results are available from the first author.
[7] We thank an anonymous reviewer for this suggestion.

dimension were positively related to emotional exhaustion, fully supporting hypothesis 3c. Hypothesis 3d was also supported, as the MWS was positively related to physical symptoms at the overall level ($\bar{r}$ = .31, CI = [.21, .40]) and at the dimension level. Cumulatively, these results suggest the overall MWS demonstrates expected relationships with WFC, emotional exhaustion, and physical symptoms, but not job satisfaction.

Discriminant validity from related constructs and measures. We anticipated that the MWS and its dimensions would be related to, yet not redundant, with work engagement. As hypothesized, the MWS was positively correlated with overall work engagement ($\bar{r}$ = .44, CI = [.39, .49]) as well as each of the work engagement dimensions. All MWS dimensions were significantly related to overall work engagement and the dimensions of absorption, vigor, and dedication. Next, a series of CFAs were performed to test discriminant validity at the overall scale level (two-factors representing workaholism and work engagement overall) and at the dimension level (seven-factors representing the four workaholism dimensions and three work engagement dimensions). CFAs loading all items onto one factor fit the data significantly worse than the two-factor model (smallest $\Delta\chi^2$ (1) = 216.98 $p < .001$ for Sample 5) and the seven-factor model (smallest $\Delta\chi^2$ (21) = 1406.52, $p < .001$ for Sample 5). Full CFA results for these comparisons are available upon request. Cumulatively, these results provide strong support for hypothesis 4. Hypothesis 5 posited that the absorption dimension of work engagement would correlate more strongly with the MWS and its dimensions than the vigor and dedication dimensions of work engagement. This hypothesis was fully supported, as the correlations between absorption and workaholism (overall and dimensions) were significantly stronger (as indicated by non-overlapping 95% confidence intervals) than correlations for vigor and dedication.

Hypothesis 6 proposed the MWS and its dimensions would positively correlate, but not show redundancy, with the (a) DUWAS, (b) WART, and (c) WorkBAT and their dimensions. Due to the large number of items per dimension for the WART and WorkBAT, we used empirically based item parceling (Landis, Beal, & Tesluk, 2000) in measurement models containing these measures. This strategy reduces the probability of violations of non-normality for maximum likelihood estimation (Williams & O'Boyle, 2008) and has been shown to positively affect model fit without biasing parameter estimates (Alhija & Wisenbaker, 2006; Nasser & Wisenbaker, 2003). We first conducted separate EFAs for the compulsive tendencies, control, impaired communication/self-absorption dimensions of the WART and the dimensions of the WorkBAT. Based on these analyses, we created three parcels for each of these dimensions except impaired communication/self-absorption, which the EFA suggested two parcels. In Samples 3 and 5, correlations between the MWS and each of the prior workaholism scales were compared. Each of the meta-analytic correlations between the MWS and prior measures (at both the overall and dimension level) were positive and significant. Furthermore, none of the sample-weighted mean correlations crossed the .80 threshold for potential redundancy.[8] Overall, this suggests the MWS does not show redundancy with the DUWAS, WART, or WorkBAT.

Next, we examined the discriminant validity of our workaholism measure from other common workaholism measures through a series of CFAs. We conducted these tests at the overall scale level as well as at the dimension level (see supplemental materials). For both Samples 3 and 5, the CFAs loading all items onto one factor fit the data significantly worse than any of the CFAs comparing the measures at the overall scale level (smallest $\Delta\chi^2$ (1) = 3.30 $p <$

[8] In a few cases, the 95% confidence interval around the sample-weighted mean correlations included values of .80 and above.

.001 between the MWS and DUWAS overall in Sample 5) and at the dimension level (smallest $\Delta\chi^2$ (28) = 814.31, $p < .001$ between the MWS dimensions and WART dimensions in Sample 5). In sum, the MWS was highly related to, yet discriminant from, prior workaholism measures.

Phase 4: Incremental Validity

Incremental validity hypotheses were tested with Sample 5 using the approach outlined by LeBreton, Hargis, Griepentrog, Oswald, and Ployhart (2007). In the first step, incremental validity is tested using hierarchical multiple regression to examine whether a given predictor adds unique variance to the prediction of outcomes over and above the other predictors. However, this analysis is problematic when the predictors are highly correlated with one another (LeBreton et al., 2007; Tonidandel & LeBreton, 2015), as is the case here with multiple measures and dimensions of workaholism. Thus, step two of the approach is to examine the *relative* importance, which determines the unique variance each predictor contributes to the total variance explained (R^2). We accomplished this step by conducting relative weights analyses (RWAs), using 95% bias-corrected and accelerated confidence intervals with 10,000 replications to test the significance of the relative weights (Tonidandel & LeBreton, 2011). The third step involves rescaling the relative weights so they can be interpreted as the percentage of unique variance explained. All analyses were conducted in R using the lavaan (Rosseel, 2012) and QuantPsyc (Fletcher, 2008) packages.

Incremental validity relative to prior workaholism measures. Hierarchical multiple regression results for emotional exhaustion show full support for hypothesis 7a. As indicated by the change in R^2 values, the MWS accounted for additional variance over and above the DUWAS ($\Delta R^2 = .15$, $p < .001$), WART ($\Delta R^2 = .12$, $p < .001$), and WorkBAT ($\Delta R^2 = .16$, $p < .001$) in the prediction of emotional exhaustion (see Table 9). The cognitive dimension added

unique variance to the prediction of emotional exhaustion over and above all three prior workaholism scales and the motivational dimension added unique variance to the prediction of emotional exhaustion over and above the DUWAS and WART. RWA revealed a similar pattern; the MWS accounted for a larger proportion of the total predicted variance in emotional exhaustion (51%–69% of the total R^2) compared to each of the prior workaholism measures. The cognitive dimension of the MWS explained the largest proportion of the total predicted variance in emotional exhaustion (34%–48% of the total R^2).

Turning next to negative work-related rumination, the MWS added unique variance to the prediction of negative work-related rumination over and above the DUWAS ($\Delta R^2 = .06$, $p < .05$) and WART ($\Delta R^2 = .11$, $p < .01$), but not the WorkBAT ($\Delta R^2 = .05$, $p = .051$), partially supporting hypothesis 7b. Similarly, the RWA revealed the MWS accounted for a larger proportion of the total predicted variance in negative work-related rumination (54% and 65%, respectively, of the total R^2) compared to the DUWAS and WART, and 47% of the total predicted variance compared to the WorkBAT. The cognitive dimension of the MWS had the largest relative weight compared to the DUWAS and WART dimensions, and the second largest relative weight compared to the WorkBAT dimensions (rescaled relative weights ranging from 28% to 44%).

Hypothesis 7c was partially supported; the MWS added unique variance to the prediction of depressive symptoms over and above the DUWAS ($\Delta R^2 = .07$, $p < .05$) and WorkBAT ($\Delta R^2 = .07$, $p < .05$), but not the WART ($\Delta R^2 = .03$, $p = .18$). Additionally, the cognitive dimension added unique variance to the prediction of depressive symptoms compared to the DUWAS and the WorkBAT, but not the WART. The motivational dimension added unique variance to the prediction of depressive symptoms compared to the DUWAS dimensions. RWA revealed that the cognitive dimension of the MWS accounted for a larger proportion of the total predicted

variance in depressive symptoms compared to the DUWAS and WorkBAT dimensions. Notably, the emotional dimension of the MWS accounted for the second largest portion in depressive symptoms compared to the DUWAS and WorkBAT (19% and 17% of the total R^2) —though, only the cognitive dimension relative weights were statistically significant. The WART accounted for the majority of the variance in depressive symptoms compared to the MWS, explaining nearly 79% of the total predicted variance. However, this is less surprising given that the WART was designed for clinical use (Robinson, 1999).

Incremental validity of certain MWS dimensions over others. Hypotheses relating to incremental validity of certain MWS dimensions over others were again tested with hierarchical multiple regression analyses and RWAs utilizing Sample 5 (see Table 10). Supporting hypothesis 8, regression analyses demonstrated the motivational dimension added unique variance to the prediction of overall work engagement over and above the other MWS dimensions ($\Delta R^2 = .07$, $p < .001$). RWA revealed the motivational subscale had the largest weight (.10, $p < .05$) and accounted for 56% of the total R^2. The weight for the motivational dimension was also significantly higher than the weights for the cognitive and emotional dimensions, but not the behavioral dimension.

In support of hypothesis 9, regression analyses demonstrated the cognitive dimension added unique variance to the prediction of negative work rumination over and above the other MWS dimensions ($\Delta R^2 = .09$, $p < .001$). RWA findings indicated the cognitive dimension had the largest and only significant relative weight (.12, $p < .05$, 65% of total R^2). Hypothesis 10 predicted the emotional dimension of the MWS would add unique variance to the prediction of negative affect over and above the other MWS dimensions. This hypothesis was not supported, as there was no significant R^2 change after the emotional dimension was added to the regression

equation. Instead, only the cognitive dimension was related to negative affect ($\beta = .34$, $p < .001$). RWA confirmed the cognitive dimension had the largest and only significant relative weight (.09, $p < .05$, 60% of total R^2).

Turning to hypothesis 11, results from the regression analysis and RWA showed the behavioral dimension added unique variance to the prediction of work hours over and above the other dimensions ($\Delta R^2 = .03$, $p < .05$; relative weight = .09, $p < .05$, 26% of total R^2). While this provides support for hypothesis 11, contrary to expectations both the hierarchical multiple regression and RWA show the behavioral dimension did not account for the largest proportion of the total predicted variance in work hours. Rather, the cognitive dimension had the largest relative weight (.18, $p < .05$, 51% of total R^2).

Next, we focused on relationships between workaholism dimensions and perfectionism. First, we expected that the motivational and behavioral dimensions of the MWS would add unique variance to the prediction of perfectionistic strivings over and above the cognitive and emotional dimensions. Hierarchical multiple regression results provide support for hypothesis 12 ($\Delta R^2 = .17$, $p < .001$) and results from the RWA paint a similar picture. The motivational dimension had the largest relative weight (.14, $p < .05$, 52% of total R^2), followed by the behavioral dimension (.08, $p < .05$, 29% of total R^2). Relative weights for the other two dimensions of the MWS were not significant.

Finally, we predicted the cognitive and emotional dimensions of the MWS would add unique variance to the prediction of perfectionistic concerns over and above the motivational and behavioral dimensions. Results from the regression analysis revealed support for hypothesis 13 ($\Delta R^2 = .16$, $p < .001$). Results from the RWA corroborate these findings. The cognitive dimension had the largest relative weight (.13, $p < .05$, 47% of total R^2), followed by the

emotional dimension (.09, $p < .05$, 33% of total R^2). The behavioral dimension of the MWS also had a significant relative weight (.04, $p < .05$, 15% of total R^2).

Discussion

The objectives of this study were to 1) provide a comprehensive overview of prior conceptualizations and measures of workaholism to identify key attributes of the construct and strengths and weaknesses of existing measures, 2) provide a multidimensional conceptualization that encompasses these key attributes of the construct, but does not overlap with other related phenomena, and 3) develop and validate a new multidimensional measure of workaholism. Based on a thorough review of the literature and analysis of key attributes consistent across many workaholism definitions, we proposed a four-factor conceptualization of workaholism including motivational, cognitive, emotional, and behavioral components. Drawing from this conceptualization, we then created and validated a 16-item multidimensional scale. We utilized a rigorous scale development process that included four phases of data collection across five unique samples, and provided content, convergent, discriminant, criterion-related, and incremental validity evidence for our new measure, the MWS.

The key attributes of workaholism based on our review of prior conceptualizations and measures of workaholism include an uncontrollable inner compulsion to work (Andreassen et al., 2012; Aziz et al., 2013; Oates, 1971), persistent, uncontrollable thoughts about work (Ng et al., 2007; Schaufeli, Taris, & Bakker, 2008), negative emotions when not working (Morris & Charney, 1983; Ng et al., 2007; Porter & Kakabadse, 2006), and excessive work behaviors (McMillan & O'Driscoll, 2006; Schaufeli, Taris, & Bakker, 2008; Scott et al., 1997). Results from our scale development process confirmed and replicated this four-factor structure over several samples. Moreover, the MWS demonstrated excellent psychometric qualities, which

addresses critical measurement issues identified in existing workaholism measures (Andreassen et al., 2014; Beiler-May et al., 2017; Mudrack, 2006; Quinones & Griffiths, 2015).

In developing a psychometrically-sound multidimensional measure of workaholism that aligns with current conceptualizations of the construct, we provide the opportunity for researchers and practitioners to study workaholism in a more nuanced way than was previously possible. For example, we found that while workaholism at the overall level displayed similar relationships with perfectionistic strivings and concerns (correlations of .46 and .45, respectively), at the dimension level, clear differences among the MWS dimensions appear. Specifically, our results suggest the motivational and behavioral dimensions of workaholism are more strongly related to perfectionistic strivings, while the cognitive and emotional dimensions are more strongly related to perfectionistic concerns.

Our results also provide greater clarity on the relationship between workaholism and job satisfaction, which scholars have found mixed relationships (e.g., Schaufeli, Taris, & van Rhenen, 2008). In the present study, the cognitive dimension of workaholism and job satisfaction were significantly negatively related. On the other hand, the other workaholism dimensions had much more variable relationships with job satisfaction; while all were non-significant, these correlations were positive in Sample 4 and negative in Sample 5. This suggests that when considering the relationship between workaholism and job satisfaction, it may be useful to examine how certain moderators may play a role in the relationship between *dimensions* of workaholism and job satisfaction.

Our results also demonstrated that the MWS is related to, yet not redundant with, existing measures of workaholism. The overlap with existing measures is to be expected, given that they are assessing the same construct. It should also be noted that although there were correlations in

the .60s and .70s between our *overall* measure and other *overall* measures of workaholism, the relationships between the dimensions of the MWS and prior workaholism measures (and their subscales) are much more variable (e.g., $\bar{r}s$ ranging between .17 and .71). Additionally, we provide evidence that the MWS is distinct from prior workaholism measures based on confirmatory factor analyses across multiple samples and incremental validity analyses. With few exceptions, the MWS demonstrates incremental validity over the DUWAS, WART, and WorkBAT in the prediction of emotional exhaustion, negative work-related rumination, and depressive symptoms. RWA provides a rich understanding of which dimensions of the MWS provide unique predictive validity above and beyond prior measures of workaholism and other dimensions of the MWS in the prediction of these important outcomes. The results of these analyses highlight specifically how the MWS is distinct from prior measures of workaholism.

The present study also brings further clarity to the discussion of the similarities and differences between workaholism and work engagement. A recent meta-analysis found the absorption dimension of work engagement was more strongly related to workaholism than the vigor and dedication dimensions, but that absorption related similarly to the working excessively and compulsively dimensions of workaholism as assessed by the DUWAS (Di Stefano & Gaudiino, 2019). Our measure offers an opportunity to gain a more precise understanding of these dimension-level relationships. Our study replicates Di Stefano and Gaudiino's (2019) findings that absorption is more strongly correlated with workaholism than vigor and dedication. However, we found the behavioral ($\bar{r}$ = .52, CI = [.47, .56]) and motivational ($\bar{r}$ = .50, CI = [.46, .55]) dimensions of workaholism correlated more strongly with absorption than the emotional ($\bar{r}$ = .40, CI = [.35, .45]) and cognitive ($\bar{r}$ = .36, CI = [.30, .41]) dimensions of workaholism. This provides evidence that there *are* significant differences in relationships between absorption and

different workaholism dimensions, which may have been previously obscured by prior workaholism measures.

Limitations and Future Directions

As with all research, this study is not without limitations. One limitation is the use of self-reported data. Given that workaholism cannot simply be assessed by tracking employees' work hours, we view self-reports as appropriate for understanding the construct. However, some outcomes (e.g., health consequences) should be assessed in future studies using objective data. The field has begun to focus on the negative health implications of workaholism using objective health data (Balducci et al., 2018; Salanova et al., 2016; ten Brummelhuis et al., 2017) and the MWS can be used to better understand these linkages at a dimension level. Another limitation was that the data were cross-sectional; thus, longitudinal relationships could not be examined. Although a time-lagged methodology was used in Samples 4 and 5 to mitigate common method bias, this may be a concern for the other phases of the study.

In the present study, we did not examine the relationship between the MWS and the BWAS, which we view as an appropriate measure for the study of work addiction rather than workaholism. Given its clinical focus, we see the BWAS as particularly useful for clinicians seeking to diagnose work addiction. We also see opportunities for synergy between the two measures, such as the MWS supplementing the BWAS in a clinical setting to identify targeted interventions at the dimension level. For example, if an individual's sleep problems appear to be linked to their scores on the cognitive MWS subscale, specific treatment plans could focus on the individual's work-related thoughts. On the other hand, if the sleep problems appear to be linked to their scores on the behavioral MWS subscale, then a different treatment plan could be used to set limits on time spent working or work-related smart phone use, for example. Such a fine-

grained analysis would not be possible using the BWAS alone, given its unidimensional nature. These same techniques can also be implemented at a non-clinical level by practitioners and researchers to identify potential leverage points for future intervention work.

A final limitation is that all samples used in the present study were from the United States, so we do not yet know how the MWS will generalize cross-culturally. Currently, much of the research on workaholism has been conducted in Western Europe, ignoring the possibility of larger forces (e.g., cultural orientations, politics) influencing the etiology, perceptions of, and outcomes of workaholism. Given the dearth of empirical research comparing workaholism across multiple cultures, the workaholism literature would benefit from greater diversification of cultural samples and cross-cultural comparisons.

Conclusion

Workaholism involves an inner compulsion to work, having persistent thoughts about work, experiencing negative emotions when not working, and working beyond what is reasonably expected. In this paper, we propose and validate a new measure designed to assess each of these components. Workaholism is an important organizational construct with potentially dire psychological, physical, family, and work outcomes (Andreassen, 2014; Balducci et al., 2018; Clark et al., 2016), and this study provides a tool for researchers and practitioners to understand how each of these workaholism components relates to these critical outcomes. Results demonstrate the MWS is distinct from and offers psychometric and construct validity advantages over prior workaholism measures. Further, we demonstrate the efficacy of understanding these relationships at the dimension level, uncovering nuanced relationships with constructs such as perfectionism and work engagement that may have been previously obscured. In sum, we believe that this new measure provides researchers and practitioners with a useful

tool to refine our understanding of workaholism.

References

Alhija, F. N., & Wisenbaker, J. (2006). A Monte Carlo study investigating the impact of item parceling strategies on parameter estimate and their standard errors in CFA. *Structural Equation Modeling*, *13*, 204–228. http://dx.doi.org/10.1207/s15328007sem1302_3

Anderson, J. C., & Gerbing, D. W. (1991). Predicting the performance of measures in a confirmatory factor analysis with a pretest assessment of their substantive validities. *Journal of Applied Psychology, 76*, 732-740. doi: 10.1037/0021-9010.76.5.732

Andreassen, C. S. (2014). Workaholism: An overview and current status of the research. *Journal of Behavioral Addictions, 3,* 1-11. doi: 10.1556/JBA.2.2013.017

Andreassen, C. S., Hetland, J., & Pallesen, S. (2014). Psychometric assessment of workaholism measures. *Journal of Managerial Psychology, 29*, 7-24. doi: 10.1108/JMP-05-2013-0143

Andreassen, C. S., Griffiths, M. D., Hetland, J., & Pallesen, S. (2012). Development of a work addiction scale. *Personality and Social Psychology, 53*, 265-272. doi: 10.1111/j.1467-9450.2012.00947.x

Atroszko, P. A., Demetrovics, Z., & Griffiths, M. D. (2019). Beyond the myths about work addiction: Toward a consensus on definition and trajectories for future studies on problematic overworking. *Journal of Behavioral Addictions, 8,* 7-15.

Aziz, S., Uhrich, B., Wuensch, K. L., & Swords, B. (2013). The Workaholism Analysis Questionnaire: Emphasizing work-life imbalance and addiction in the measurement of workaholism. *Journal of Behavioral and Applied Management, 14,* 71-86.

Aziz, S., & Zickar, M. J. (2006). A cluster analysis investigation of workaholism as a syndrome. *Journal of Occupational Health Psychology, 11*, 52-62. doi: 10.1037/1076-8998.11.1.52

Bakker, A. B., Demerouti, E., & Burke, R. (2009). Workaholism and relationship quality: A spillover-crossover perspective. *Journal of Occupational Health Psychology, 14,* 23-33. doi: 10.1037/a0013290

Bakker, A. B., Shimazu, A., Demerouti, E., Shimada, K., & Kawakami, N. (2014). Work engagement versus workaholism: A test of the spillover-crossover model. *Journal of Managerial Psychology, 29*, 63-80. doi: 10.1108/JMP-05-2013-0148

Balducci, C., Avanzi, L., & Fraccaroli, F. (2018). The individual "costs" of workaholism: An analysis based on multisource and prospective data. *Journal of Management, 44*, 2961-2986. doi: 10.1177/0149206316658348

Beiler-May, A., Williamson, R. L., Clark, M. A., & Carter, N. T. (2017). Gender bias in the measurement of workaholism. *Journal of Personality Assessment, 99*, 104-110. doi: 10.1080/00223891.2016.1198795

Bolger, N., & Zuckerman, A. (1995). A framework for studying personality in the stress process. *Journal of Personality and Social Psychology, 69,* 890-902. doi: 10.1037/0022-3514.69.5.890

Brief, A. P., Burke, M. J., Robinson, B. S., George, J. M., & Webster, J. (1988). Should negative affectivity remain an unmeasured variable in the study of job stress? *Journal of Applied Psychology, 73,* 193-198. doi: 10.1037/0021-9010.73.2.193

Burke, R. J., Matthiesen, S. B., & Pallesen, S. (2006). Personality correlates of workaholism. *Personality and Individual Differences, 40,* 1223-1233. doi: 10.1016/j.paid.2005.10.017

Burke, R. J., Richardsen, A. M., & Martinussen, M. (2004). Workaholism among Norwegian senior managers: New research directions. *International Journal of Management, 21,* 415-426.

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. doi: 10.1111/j.1744-6570.2010.01203.x

Clark, M. A., Michel, J. S., Stevens, G. W., Howell, J. W., & Scruggs, R. S. (2014). Workaholism, work engagement, and work-home outcomes: Exploring the mediating role of positive and negative emotions. *Stress and Health, 30,* 287-300. doi: 10.1002/smi.2511

Clark, M. A., Michel, J. S., Zhdanova, L, Pui, S., & 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. doi: 10.1177/0149206314522301

Colquitt, J. A., Sabey, T. B., Rodell, J. B., & Hill, E. T. (2019). Content validation guidelines: Evaluation criteria for definitional correspondence and definitional distinctiveness. *Journal of Applied Psychology, 104*, 1243-1265. doi: 10.1037/apl0000406

Crawford, E. R., LePine, J. A., & Rich, B. L. (2010). Linking job demands and resources to employee engagement and burnout: A theoretical extension and meta-analytic test. *Journal of Applied Psychology, 95*, 834-848. doi: 10.1037/a0019364

Cropanzano, R., Rupp, D. E., & Byrne, Z. S. (2013). The relationship of emotional exhaustion to work attitudes, job performance, and organizational citizenship behavior. *Journal of Applied Psychology, 88,* 160-169.

Culbertson, S. S., Mills, M. J., & Fullagar, C. J. (2012). Work engagement and work–family facilitation: Making homes happier through positive affective spillover. *Human Relations, 65*, 1155-1177. doi: 10.1177/0018726712440295

Darrach, B. (1976, November). It's an Asimovalanch! The one-man book-a-month club has just

published his 179th. *People.*

de Bloom, J., Radstaak, M., & Geurts, S. (2014). Vacation effects on behaviour, cognition and emotions of compulsive and non-compulsive workers: Do obsessive workers go 'Cold Turkey'? *Stress & Health, 30,* 232-243. doi: 10.1002/smi.2600

Deci, E. L., Olafsen, A. H., & Ryan, R. M. (2017). Self-determination theory in work organizations: The state of a science. *The Annual Review of Organizational Psychology and Organizational Behavior, 4,* 19-43. doi: 10.1146/annurev-orgpsych-032516-113108

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior.* New York: Plenum.

Di Stefano, G., & Gaudiino, M. (2019). Workaholism and work engagement: How are they similar? How are they different? A systematic review and meta-analysis. *European Journal of Work and Organizational Psychology.* Advanced online publication. doi: 10.1080/1359432X.2019.1590337

Dunkley, D. M., Zuroff, D. C., & Blankstein, K. R. (2003). Self-critical perfectionism and daily affect: Dispositional and situational influences on stress and coping. *Journal of Personality and Social Psychology, 84,* 234-252. doi: 10.1037/0022-3514.84.1.234

Eby, L. T., Durley, J. R., Evans, S. C., & Ragins, B. R. (2008). Mentors' perceptions of negative mentoring experiences: Scale development and nomological validation. *Journal of Applied Psychology*, *93*, 358. doi: 10.1037/0021-9010.93.2.358

Ersoy-Kart, M. (2005). Reliability and validity of the Workaholism Battery (Work-BAT): Turkish form. *Social Behavior and Personality, 33,* 609-618. doi: 10.2224/sbp.2005.33.6.609

Fletcher, T. D. (2008). *QuantPsyc: Quantitative Psychology Tools.* R package version 1.5. Software available at https://cran.r-project.org/web/packages/QuantPsyc/index.html

Frone, M. R. (2015). Relations of negative and positive work experiences to employee alcohol use: Testing the intervening role of negative and positive work rumination. *Journal of Occupational Health Psychology, 20,* 148-160. doi: 10.1037/a0038375.

Gagné, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior, 26,* 331-362. doi: 10.1002/job.322

Gillet, N., Morin, A. J. 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. doi: 10.1016/j.jvb.2018.09.006

Gorgievski, M. J., Moriano, J. A., & Bakker, A. B. (2014). Relating work engagement and

workaholism to entrepreneurial performance. *Journal of Managerial Psychology, 29*, 106-121. doi: 10.1108/JMP-06-2012-0169

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. doi: 10.1177/0149206310363612

Griffith, E. (2019, February). Why are young people pretending to love work? *The New York Times.* Retrieved from www.nytimes.com/2019/01/26/business/against-hustle-culture-rise-and-grind-tgim.html

Griffiths, M. D. (2005). A 'components' model of addiction within a biopsychosocial framework. *Journal of Substance Use, 10,* 191-197.

Griffiths, M. D., Demetrovics, Z., & Atroszko, P. A. (2018). Ten myths about work addiction. *Journal of Behavioral Addictions, 7,* 845-857. doi: 10.1556/2006.7.2018.05

Guillory, S. (2016, December). Step away from your business: Why your workaholism is killing your company. *Forbes.* Retrieved from https://www.forbes.com

Hackman, J. R., & Oldham, G. R. (1975). Development of the job diagnostic survey. *Journal of Applied Psychology*, *60*, 159. doi: 10.1037/h0076546

Harari, D., Swider, B. W., Steed, L. B., & Breidenthal, A. P. (2018). Is perfect good? A meta-analysis of perfectionism in the workplace. *Journal of Applied Psychology, 103,* 1121-1144. doi: 10.1037/apl0000324

Harris, P. W., Pepper, C. M., & Maack, D. J. (2008). The relationship between maladaptive perfectionism and depressive symptoms: the mediating role of rumination. *Personality and Individual Differences, 44,* 150-160. doi: 10.1016/j.paid.2007.07.011

Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the self and social contexts: Conceptualization, assessment, and association with psychopathology. *Journal of Personality and Social Psychology, 60,* 456-470. doi: 10.1037/0022-3514.60.3.456

Hinkin, T. R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. *Organizational Research Methods, 1,* 104–121. doi: 10.1177/109442819800100106

Hinkin, T. R., & Tracey, J. B. (1999). An analysis of variance approach to content validation. *Organizational Research Methods, 2,* 175–186. doi: 10.1177/109442819922004

Howard, M. C., & Melloy, R. C. (2016). Evaluating item-sort task methods: The presentation of a new statistical significance formula and methodological best practices. *Journal of Business and Psychology, 31*, 173-186. doi: 10.1007/s10769-015-9404-y

Hu, L., & Bentler, P. (1999). Cutoff criteria for fit indexes in covariance structure analysis:

Conventional criteria versus new alternatives. *Structural Equation Modeling, 6,* 1-55. doi: 10.1080/10705519909540118

Kanai, A., Wakabayashi, M., & Fling, S. (1996). Workaholism among employees in Japanese corporations: An examination based on the Japanese version of the workaholism scales. *Japanese Psychological Research, 38,* 192-203. doi: 10.1111/j.1468-5884.1996.tb00024.x

Kline, T. J. B. (2005). *Psychological testing: A practical approach to design and evaluation*. Thousand Oaks, CA: Sage.

Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine, 16,* 606-613. doi: 10.1046/j.1525-1497.2001.016009606.x

Landis, R. S., Beal, D. J., & Tesluk, P. E. (2000). A comparison of approaches to forming composite measures in structural equation models. *Organizational Research Methods*, *3*, 186–207. http://dx.doi.org/10.1177/109442810032003

LeBreton, J. M., Hargis, M. B., Griepentrog, B., Oswald, F. L., & Ployhart, R. E. (2007). A multidimensional approach for evaluating variables in organizational research and practice. *Personnel Psychology, 60,* 475-498.

Loscalzo, Y., & Giannini, M. (2017). Clinical conceptualization of workaholism: A comprehensive model. *Organizational Psychology Review, 7,* 306-329. doi: 0.1177/2041386617734299

Machlowitz, M. (1978). Determining the effects of workaholism. (Doctoral dissertation). Available from ProQuest Dissertations and Theses database (UMI No. 7915855)

Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Organizational Behavior, 2*, 99-113. doi: 10.1002/job.4030020205

McMillan, L. H. W., & O'Driscoll, M. P. (2006). Exploring new frontiers to generate an integrated definition of workaholism. In R. Burke (Ed.), *Research companion to working time and work addiction* (pp. 89-107). Cheltenham: Edward Elgar.

Meade, A. W., Johnson, E. C., & Brady, P. W. (2008). Power and sensitivity of alternative fit indices in tests of measurement invariance. *Journal of Applied Psychology, 93*, 568-592. doi: 10.1037/0021-9010.93.3.568

Mor, N., & Winquist, J. (2002). Self-focused attention and negative affect: A meta-analysis. *Psychological Bulletin, 128,* 638-662. doi: 10.1037/0033-2909.128.4.638

Morris, S., & Charney, N. (1983). Workaholism: Thank god it's Monday. *Psychology Today, 17*, 88.

Mudrack, P. E. (2006). Understanding workaholism: The case for behavioral tendencies. In R. J. Burke (Ed.), *Research companion to working time and work addiction* (pp. 108-128). Northampton, MA: Edward Elgar.

Mudrack, P. E., & Naughton, T. J. (2001). The assessment of workaholism as behavioral tendencies: Scale development and preliminary empirical testing. *International Journal of Stress Management, 8,* 93-111. doi: 10.1023/A:1009525213213

Muthén, L. K., and B. O Muthén. (2017). *Mplus User's Guide* (8th ed.). Los Angeles, CA: Muthén & Muthén.

Nasser, F., & Wisenbaker, J. (2003). A monte carlo study investigating the impact of item parceling on measures of fit in confirmatory factor analysis. *Educational & Psychological Measurement, 63*, 729-757. doi: 10.1177/0013164403258228

Netemeyer, R. G., Boles, J. S., & McMurrian, R. (1996). Development and validation of work–family conflict and family–work conflict scales. *Journal of Applied Psychology, 81*, 400-410. doi: 10.1037/0021-9010.81.4.400

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. doi: 10.1002/job.424

Oates, W. E. (1971). *Confessions of a workaholic: The facts about work addiction*. New York: World Publishing.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behaviors research: A critical review of the literature and the recommended remedies. *Journal of Applied Psychology, 88*, 879–903. doi: 10.1037/0021-9010.88.5.879

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2016). Recommendations for creating better concept definitions in the organizational, behavioral, and social sciences. *Organizational Research Methods, 19,* 159-203. doi: 10.1177/1094428115624965

Poposki, E. M., & Oswald, F. L. (2010). The multitasking preference inventory: Toward an improved measure of individual differences in polychronicity. *Human Performance, 23*, 247-264.

Porter, G., & Kakabadse, N. K. (2006). HRM perspectives on addiction to technology and work. *Journal of Management Development, 25,* 535-596. doi: 10.1108/02621710610670119

Quinones, C., & Griffiths, M. D. (2015). Addiction to work: A critical review of the workaholism construct and recommendations for assessment. *Journal of Psychosocial Nursing, 53*, 48-59. doi:10.3928/02793695-20150923-04

Rice, K. G., Richardson, C. M. E., & Tueller, S. (2014). The short form of the revised almost perfect scale. *Journal of Personality Assessment, 96*, 368-379. doi: 10.1080/00223891.2013.838172

Robinson, B. E. (1998). *Chained to the Desk: A guidebook for workaholics, their partners and children, and the clinicians who treat them*. New York, NY: New York University Press.

Robinson, B. E. (1989). *Workaholism: Hidden legacies of adult children.* Deerfield Beach, FL: Health Communications.

Robinson, B. E. (1999). The Work Addiction Risk Test: Development of a tentative measure of workaholism. *Perceptual and Motor Skills, 88,* 199-210. doi: 10.2466/pms.1999.88.1.199

Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling and more. Version 0.5–12 (BETA). *Journal of Statistical Software, 48*, 1-36. doi: http://hdl.handle.net/10.18637/jss.v048.i02

Russo, J. A., & Waters, L. E. (2006). Workaholic worker type differences in work–family conflict: The moderating role of supervisor support and flexible work scheduling. *Career Development International, 11,* 418-439. doi: 10.1108/13620430610683052

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*, 68-78. doi: 10.1037110003-066X.55.1.68

Salanova, M., López-González, A. A., Llorens, S., del Líbano, M., Vicente-Herrero, M. T., & Tomás-Salvá, M. (2016). Your work may be killing you! Workaholism, sleep problems and cardiovascular risk. *Work and Stress, 30,* 228-242. doi: 10.1080/02678373.2016.1203373

Schaufeli, W. B., & Bakker, A. B. (2003). *Test manual for the Utrecht Work Engagement Scale.* Unpublished manuscript, Utrecht University, the Netherlands. Retrieved from http://www.schaufeli.com

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 and Stress, 23,* 155-172. doi: 10.1080/02678370902834021

Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two-sample confirmatory factor analytic approach. *Journal of Happiness Studies, 3,* 71-92. doi: 10.1023/A:1015630930326

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. doi: 10.1177/1069397109337239

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.

Schaufeli, W. B., Taris, T. W., & van Rhenen, W. (2008). Workaholism, burnout, and work engagement: Three of a kind or three different kinds of employee well-being? *Applied Psychology: An International Review, 57,* 173-203. doi: 10.1111/j.1464-0597.2007.00285.x

Schmidt, F. L., & Hunter, J. E. (2015). Methods of Meta-Analysis: Correcting Error and Bias in Research Findings, 3rd ed. Thousand Oaks, CA: Sage Publications, Inc.

Scott, K. S., Moore, K. S., & Miceli, M. P. (1997). An exploration of the meaning and consequences of workaholism. *Human Relations, 50*, 287-314. doi: 10.1177/001872679705000304

Smith, M. S., & Alloy, L. B. (2009). A roadmap to rumination: A review of the definition, assessment, and conceptualization of this multifaceted construct. *Clinical Psychology Review, 29,* 116-128. doi: 10.1016/j.cpr.2008.10.003

Smith, D. E., & Seymour, R. B. (2004). The nature of addiction. In R. H. Coombs (Ed.), *Handbook of addictive disorders: A practical guide to diagnosis and treatment* (pp. 3–30). New Jersey: John Wiley & Sons, Inc.

Snir, R., & Zohar, D. (2008). Workaholism as discretionary time investment at work: An experience sampling study. *Applied Psychology: An International Review, 57,* 109-127. doi: 10.1111/j.1464-0597.2006.00270.x

Snir, R., & Harpaz, I. (2012). Beyond workaholism: Towards a general model of heavy work investment. *Human Resource Management Review, 22,* 232-243. doi: 10.1016/j.hrmr.2011.11.011

Sonnentag, S., Mojza, E. J., Binnewies, C., & Scholl, A. (2008). Being engaged at work and detached at home: A week-level study on work engagement, psychological detachment, and affect. *Work & Stress*, *22*, 257-276. doi: 10.1080/02678370802379440

Spector, P. E., & Jex, S. M. (1998). Development of four self-report measures of job stressors and strain: interpersonal conflict at work scale, organizational constraints scale, quantitative workload inventory, and physical symptoms inventory. *Journal of Occupational Health Psychology*, *3*, 356-367. doi: 10.1037/1076-8998.3.4.356

Spence, J. T., & Robbins, A. S. (1992). Workaholics: Definition, measurement, and preliminary results. *Journal of Personality Assessment, 58*, 160-178. doi: 10.1207/s15327752jpa5801_15

Stoeber, J., Kobori, O., & Tanno, Y. (2010). The Multidimensional Perfectionism Cognitions Inventory-English (MPCI-E): Reliability, validity, and relationships with positive and negative affect. *Journal of Personality Assessment, 92,* 16-25. doi: 10.1080/00223890903379159

Taris, T. W., Schaufeli, W. B., & Shimazu, A. (2010). The push and pull of work: The differences between workaholism and work engagement. In A. B. Bakker & M. P. Leiter (Eds.), *Work engagement: A handbook of essential theory and research* (pp. 39-53). London: Psychology Press.

ten Brummelhuis, L., & Rothbard, N. P. (2018, March). How being a workaholic differs from working long hours—and why that matters for your health. *Harvard Business Review.* Retrieved from https://hbr.org/2018/03/how-being-a-workaholic-differs-from-working-long-hours-and-why-that-matters-for-your-health

ten Brummelhuis, L. L., Rothbard, N. P., & Uhrich, B. (2017). Beyond nine to five: Is working to excess bad for health? *Academy of Management Discoveries, 3,* 262-283. doi: 10.5465/amd.2015.0115

Tonidandel, S., & LeBreton, J. M. (2011). Relative importance analysis: A useful supplement to regression analysis. *Journal of Business and Psychology, 26,* 1-9. doi: 0.1 007/s 1 0869-0 1 0-9204-3

Tonidandel, S., & LeBreton, J. M. (2015). RWA web: A free, comprehensive, web-based, and user-friendly tool for relative weight analyses. *Journal of Business and Psychology, 30,* 207-216. doi: 10.1007/s10869-014-9351-z

van Beek, I., Hu, Q., Schaufeli, W. B., Taris, T. W., & Schreurs, B. H. (2012). For fun, love, or money: What drives workaholic, engaged, and burned-out employees at work? *Journal of Applied Psychology: An International Review*, *61*, 30-55. doi: 10.1111/j.1464-0597.2011.00454.x

Van Beek, I., Taris, T. W., & Schaufeli, W. B. (2011). Workaholic and work engaged employees: Dead ringers or worlds apart? *Journal of Occupational Health Psychology, 16,* 468-482. doi: 10.1037/a0024392

van Beek, I., Taris, T. W., Schaufeli, W. B., & Brenninkmeijer, V. (2013). Heavy work investment: its motivational make-ups and outcomes. *Journal of Managerial Psychology, 29,* 46-62. doi: 10.1108/JMP-06-2013-0166

van Wijhe, C., Peeters, M., & Schaufeli, W. (2013). Irrational beliefs at work and their implications for workaholism. *Journal of Occupational Rehabilitation, 23*, 336-346. doi: 10.1007/s10926-012-9416-7

Wang, M., Liu, S., Liao, H., Gong, Y., Kammeyer-Mueller, J., & Shi, J. (2013). Get it out of my

mind: Employee rumination after customer mistreatment and negative mood in the next morning. *Journal of Applied Psychology, 98,* 989-1004. doi: 10.1037/a0033656

Watson, D. (1988). Intraindividual and interindividual analyses of positive and negative affect: Their relation to health complaints, perceived stress, and daily activities. *Journal of Personality and Social Psychology, 54*, 1020-1030. doi: 10.1037/0022-3514.54.6.1020

Watson, D., & Clark, L. A. (1984). Negative affectivity: The disposition to experience aversive emotional states. *Psychological Bulletin, 96,* 465-490. doi: 10.1037/0033-2909.96.3.465

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology*, *54*, 1063-1070. doi: 10.1037//0022-3514.54.6.1063

Wilkie, D. (2014, July 17). Workaholics: Job 'addicts' can hurt selves, morale, company. *Society for Human Resource Management.* Retrieved from https://www.shrm.org/resourcesandtools/hr-topics/employeerelations/pages/workaholics.aspx

Williams, L. J., & O'Boyle, E. H., Jr. (2008). Measurement models for linking latent variables and indicators: A review of human resource management research using parcels. *Human Resource Management Review*, *18*, 233–242. doi: 10.1016/j.hrmr.2008.07.002

Table 1

Summary of Prior Workaholism Conceptualizations and Measures (in chronological order)

Study	Conceptualization of Workaholism and Theoretical Framework	Key Attributes	Primary critique(s) of conceptualization	Corresponding measure	Primary critique(s) of measure
Oates (1971)	"addiction to work, the compulsion or the uncontrollable need to work incessantly" (p. 3) "a person whose need for work has become so excessive that it creates noticeable disturbance or interference with his bodily health, personal happiness, and interpersonal relations, and with his smooth social functioning" (p. 6-7)	• Addiction to work • Uncontrollable need to work • Excessive work behaviors • Detrimental effect on health and well-being	• Confounds construct with outcomes • Confounds workaholism and work addiction	• No corresponding measure	• N/A- no measure
Spence & Robbins (1992)	"we define the workaholic as a person who exhibits three properties: In comparison to others, the workaholic is highly work involved, feels compelled or driven to work because of inner pressures, and is low in enjoyment of work" (p. 162)	• Highly work involved • Feeling compelled or driven to work • Internally motivated (i.e., not motivated by work requirements, economic needs, etc.) • Low work enjoyment	• Does not clearly differentiate between workaholism and work addiction • Choice of dimensions not explicitly linked to theory	• Workaholism Battery (WorkBat) • *Driven* • *Work involvement* • *(low) Work enjoyment*	• Contamination- some items reflect correlates (e.g., general busyness) or other constructs (e.g., work enjoyment) • Have been criticized for assessing attitudes rather than behaviors • Poor reliability • Inability to replicate factor structure
Scott, Moore, & Miceli (1997)	"Organization members engage in workaholic behavior patterns when: (a) they spend a good deal of time in work activities when given the discretion to do so, which results in their giving up important social, family, or recreational activities because of work; (b) they persistently thinks about work when they are not at work, and (c) they work beyond what is reasonably expected to meet the requirements of the job or to meet basic economic needs." (p. 292)	• Excessively working • Neglect of other life domains • Persistent thoughts about work • Working beyond requirements • Internally motivated (i.e., not motivated by work requirements, economic needs, etc.)	• Creation of "types" of workaholics adds further confusion to literature regarding construct clarity	• No corresponding measure	• N/A- no measure
Robinson (1998)	"Work addiction is defined in this book as an obsessive-compulsive disorder that manifests itself through self-imposed demands, an inability to regulate work habits, and an overindulgence in work to the exclusion of most other life activities" (p. 7)	• Obsessive-compulsive disorder • Internally motivated (i.e., not motivated by work requirements, economic needs, etc.) • Inability to stop working • Excessively working • Neglect of or domains	• Confounds workaholism and work addiction ("I use the terms work addiction and workaholism interchangeably throughout this book," p. 7)	• Work Addiction Risk Test (WART) • *Compulsive tendencies* • *Control* • *Impaired communication/self-absorption* • *Inability to delegate* • *Self-worth*	• Inability to replicate factor structure • Differential item functioning for compulsive tendencies subscale • Contamination- some items reflect correlates (e.g., perfectionism, Type A personality) • May be better suited for clinical diagnosis of work addiction than empirical investigation of workaholism

Mudrack & Naughton (2001)	Utilized Scott, Moore, & Miceli's (1997) definition	• Spending discretionary time working • Persistent thoughts about work • Working beyond requirements • Not economically driven	• Choice of dimensions not explicitly linked to theory	• Two-dimensional measure • *Non-required work* • *Control of others*	• Contamination- some items reflect correlates (e.g., perfectionism) • Operationalization- measure does not clearly align with definition • Deficiency- not all aspects of their conceptualization are measured
McMillan & O'Driscoll (2006)	"involving (a) reluctance to disengage [obsessive style] (b) a strong drive to work [driven by positive reasons] (c) enjoyment of work, (d) a tendency to work or think about work [time spent working and thinking about work] that (d) occurs any time and anywhere [work-leisure and work-relationships balance]" (p. 105)	• General obsessive style • Internal (positive) drive to work • Persistent thoughts about work • Lack of work-life balance	• Reflects a broad array of constructs in addition to workaholism • Confounds work engagement with workaholism • Confounds construct with outcomes (e.g., work–family imbalance)	• No corresponding measure	• N/A- no measure
Ng, Sorensen, & Feldman (2007)	"Workaholics are defined as those who enjoy the act of working, who are obsessed with working, and who devote long hours and personal time to work" (p. 114)	• Work enjoyment • Obsession with work • Excessive time working	• Confounds work engagement with workaholism	• No corresponding measure	• N/A- no measure
Schaufeli, Taris, & Bakker (2008)	"we define workaholism as the tendency to work excessively hard in a compulsive way" (p. 204) "The former—working excessively hard—points to the fact that workaholics tend to allocate exceptionally much time to work and that they work beyond what is reasonably expected to meet organizational or economic requirements. The latter—working compulsively—recognizes that workaholics are obsessed with their work and persistently and frequently think about work, even when not working." (p. 204)	• Excessive time working • Working beyond requirements • Working compulsively • Obsession with work • Persistent thoughts about work	• Does not clearly differentiate between workaholism and work addiction	• Dutch Workaholism Scale (DUWAS) • *Working excessively* • *Working compulsively*	• Poor reliability in some cases • Inability to replicate factor structure • Factor structure (to our knowledge) has not been tested and results published with an American sample • Contamination- some items reflect correlates (e.g., multi-tasking) • Deficiency- not all aspects of their conceptualization are measured • Some items assess multiple dimensions simultaneously
Snir & Harpaz (2012)	"we can outline our entire definition of workaholism as a subtype of heavy work investment [of both time and effort in work] that does not stem from external predictors or from a passion for work, but from an addiction to work [an internal, uncontrollable, and stable predictor]" (p. 236)	• Excessive time working • Excessive physical or mental energy towards work • Internally motivated • Addiction to work (internal, uncontrollable)	• Confounds workaholism and work addiction	• Sum of paid work hours (including overtime), controlling for financial needs	• Deficiency- work hours is a weak proxy for workaholism; measure does not address all aspects of their conceptualization • Deficiency- not all aspects of their conceptualization are measured
Andreassen, Griffiths, Hetland, & Pallesen (2012)	"From an addiction perspective, workaholism can be defined 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"	• Addiction to work (internal, uncontrollable) • Excessive physical or mental energy towards work • Detrimental effect on	• Confounds construct with outcomes • Confounds workaholism and work addiction	• Bergen Work Addiction Scale (BWAS) • *Salience* • *Tolerance* • *Mood modification*	• May be better suited for clinical diagnosis of work addiction than empirical investigation of workaholism • Does not allow researchers to examine dimensions separately

	(p. 265)	health and well-being		• *Relapse* • *Withdrawal* • *Conflict* • *Problems*	
Aziz, Uhrich, Wuensch, & Swords (2013)	"workaholism is conceptualized as an addiction characterized by an intense work drive that leads to neglect of other interests and negative consequences" (p. 71)	• Addiction to work • Intense work drive • Detrimental effect on health and well-being	• Confounds workaholism and work addiction • Confounds construct with correlates (e.g., perfectionism) and outcome (e.g., work-life imbalance)	• Workaholism Analysis Questionnaire (WAQ) • *Work-life conflict* • *Work perfectionism* • *Work addiction* • *Unpleasantness* • *Withdrawal symptoms*	• Contamination- some items reflect correlates (e.g., perfectionism, aggression) and outcomes (e.g., work-life conflict)
Clark, Michel, Zhdanova, Pui, & Baltes (2016)	"we define workaholism as an addiction to work that involves feeling compelled or driven to work because of internal pressures, having persistent and frequent thoughts about work when not working, and working beyond what is reasonably expected (as established by the requirements of the job or basic economic needs) despite potential negative consequences" (p. 1840)	• Addiction to work (internal, uncontrollable) • Persistent thoughts about work • Excessive physical or mental energy towards work • Detrimental effect on health and well-being	• Confounds workaholism and work addiction • Confounds construct with outcome	• No corresponding measure	• N/A- no measure
Loscalzo & Giannini (2017)	"it is a clinical condition characterized by both externalizing (i.e., addiction) and internalizing (i.e., obsessive-compulsive) symptoms, and by low levels of work engagement" (p. 311)	• Externalizing (addiction) symptoms • Internalizing (obsessive-compulsive) symptoms • Low work engagement	• Confounds workaholism and work addiction • Confounds workaholism and work engagement	• No corresponding measure	• N/A- no measure

Note. We have added clarification statements from each article in brackets where necessary.

Table 2

Overview of Study Phases and Samples

Phase description	Methods used	Samples used
Phase 1: Item generation, item reduction, and content validity	Q-sort, ANOVA, and EFA	1, 2, and 3a
Phase 2: Psychometric properties	CFA, item reliability	3b, 3c, 4, and 5
Phase 3: Nomological network validity	CFA and correlations	3c, 4, and 5
Phase 4: Incremental validity	Hierarchical multiple regression and RWA	3c, 4, and 5
Sample description		***N***
Sample 1: Graduate and advanced undergraduate students		22
Sample 2: Undergraduate psychology students		191
Sample 3a: MTurk (full-time employees, subset of 3c)		334
Sample 3b: MTurk (full-time employees, subset of 3c)		327
Sample 3c: MTurk (full-time employees representing primarily management (19%), office and administrative support (15%), computer (11%), sales (8%), business (7%), education (6%), arts (6%), and healthcare (5%) occupations)		661
Sample 4: Qualtrics panel (multiwave, full-time employees representing primarily management (28%), office and administrative support (17%), computer (13%), sales (8%), and production (6%) occupations)		228
Sample 5: Working sample (multiwave, full-time employees representing primarily education (18%), management (18%), life, physical, and social sciences (13%), office and administrative support (9%), community and social services (7%), sales (6%), healthcare (5%), and business (5%) occupations)		150

Note. ANOVA = analysis of variance. EFA = exploratory factor analysis. CFA = confirmatory factor analysis. Occupational categories with percentages under 5% are not reported.

Table 3

Factor Loadings from Exploratory and Confirmatory Factor Analyses of Phase 3a and 3b

Item	Motivational	Cognitive	Emotional	Behavioral
I always have an inner pressure inside of me that drives me to work.	.922 (.932)			
I work because there is a part inside of me that feels compelled to work.	.710 (.686)			
I have a strong inner desire to work all of the time.	.515 (.832)			
There is a pressure inside of me that drives me to work.	.893 (.935)			
I feel like I cannot stop myself from thinking about working.		.903 (.856)		
In general, I spend my free time thinking about work.		.877 (.896)		
At any given time, the majority of my thoughts are work related.		.853 (.911)		
It is difficult for me to stop thinking about work when I stop working.		.856 (.911)		
I feel upset if I have to miss a day of work for any reason.			.796 (.736)	
I am almost always frustrated when I am not able to work.			.898 (.898)	
I feel upset if I cannot continue to work.			.838 (.905)	
When something prevents me from working, I usually get agitated.			.694 (.792)	
When most of my coworkers will take breaks, I keep working.				.556 (.757)
I work more than what is expected of me.				.800 (.844)
I tend to work longer hours than most of my coworkers.				.440 (.804)
I tend to work beyond my job's requirements.				.913 (.827)

Note. Phase 3a $N = 334$; Phase 3b $N = 328$. Loadings included reflect values greater than .250. Values outside parentheses represent EFA results from Phase 3a and values inside parentheses represent CFA results from Phase 3b.

Table 4

Confirmatory Factor Analysis Model Fit Comparisons Across Samples

Model	χ^2	df	SRMR	RMSEA	CFI	TLI	$\Delta\chi^2$	ΔCFI
	Sample 3b (*N* = 327)							
Four-factor	315.44***	98	.057	.082	.952	.941		
Three-factor (cognitive and emotional combined)	673.18***	101	.070	.132	.873	.850	357.74***	.079
Three-factor (cognitive and behavioral combined)	668.14***	101	.095	.132	.872	.847	352.70***	.080
One-factor (all combined)	1410.14***	104	.091	.196	.711	.666	1094.70***	.241
	Sample 3c (*N = 661*)							
Four-factor	432.55***	98	.055	.072	.961	.952		
Three-factor (cognitive and emotional combined)	1168.86***	101	.071	.126	.876	.854	736.31***	.085
Three-factor (cognitive and behavioral combined)	1212.29***	101	.095	.129	.870	.846	779.74***	.091
One-factor (all combined)	2651.92***	104	.097	.193	.703	.657	2219.37***	.258
	Sample 4 (*N* = 228)							
Four-factor	182.93***	98	.041	.062	.967	.960		
Three-factor (cognitive and emotional combined)	571.07***	101	.082	.143	.820	.786	388.14***	.147
Three-factor (cognitive and behavioral combined)	362.50***	101	.071	.107	.900	.881	179.57***	.067
One-factor (all combined)	878.81***	104	.096	.181	.703	.657	695.88***	.264
	Sample 5 (*N* = 150)							
Four-factor	160.22***	98	.051	.065	.964	.956		
Three-factor (cognitive and emotional combined)	360.85***	101	.085	.131	.850	.822	200.63***	.114
Three-factor (cognitive and behavioral combined)	422.34***	101	.081	.146	.815	.780	262.12***	.149
One-factor (all combined)	731.34***	104	.110	.201	.638	.582	571.12***	.326

Note. χ^2 = chi-square statistic; SRMR = standardized root mean square residual; RMSEA = root mean square error of approximation; CFI = comparative fit index; TLI = Tucker-Lewis Index.
*** $p < .001$, two-tailed

Table 5

Correlations among Workaholism Measures, Positive and Negative Affect, and Work Engagement from Sample 3c

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1. MWS (overall)	2.50	0.87	.94																					
2. Motivational	2.71	1.06	.84	.89																				
3. Cognitive	2.09	1.06	.86	.62	.94																			
4. Emotional	2.26	1.06	.85	.61	.70	.91																		
5. Behavioral	2.91	0.98	.78	.58	.53	.52	.86																	
6. WART (overall)	2.21	0.57	.78	.61	.69	.72	.58	.94																
7. Compulsive Tendencies	2.21	0.66	.82	.66	.71	.73	.64	.94	.88															
8. Control	2.25	0.67	.56	.41	.50	.57	.38	.88	.73	.86														
9. IC/SA	1.87	0.66	.74	.56	.72	.67	.50	.83	.74	.60	.82													
10. Inability to Delegate	2.93	0.79	.25	.21	.14	.23	.25	.43	.37	.38	.19	—												
11. Self-Worth	2.57	0.70	.43	.37	.31	.37	.37	.63	.51	.51	.45	.35	.51											
12. DUWAS (overall)	2.97	0.85	.77	.67	.60	.67	.66	.76	.82	.57	.58	.34	.46	.88										
13. Working Excessively	2.99	0.93	.73	.60	.58	.59	.67	.73	.80	.54	.55	.32	.44	.92	.81									
14. Working Compulsively	2.95	0.91	.71	.63	.54	.65	.55	.67	.72	.51	.52	.31	.40	.92	.70	.80								
15. Driven	3.18	0.79	.59	.56	.40	.50	.50	.56	.61	.45	.37	.28	.33	.72	.61	.72	.82							
16. Work Involvement	2.92	0.59	.63	.59	.51	.51	.50	.53	.59	.35	.45	.25	.26	.61	.57	.56	.57	.64						
17. Enjoyment of Work	3.00	0.78	.46	.43	.34	.30	.47	.32	.39	.15	.30	.06	.19	.39	.38	.34	.50	.46	.88					
18. Negative Affect	1.78	0.77	.30	.19	.32	.34	.15	.41	.37	.41	.37	.07	.20	.38	.28	.23	.15	.07	-.02	.92				
19. Work Engagement	4.35	1.18	.46	.45	.30	.30	.50	.27	.34	.09	.26	.11	.23	.31	.41	.40	.41	.40	.70	-.07	.93			
20. Vigor	4.06	1.26	.41	.40	.26	.25	.45	.22	.27	.05	.24	.04	.20	.24	.35	.36	.36	.37	.73	-.08	.91	.86		
21. Dedication	4.62	1.41	.31	.31	.19	.17	.37	.12	.19	-.04	.12	.06	.16	.52	.28	.29	.29	.31	.66	-.09	.92	.77	.91	
23. Absorption	4.37	1.24	.55	.52	.37	.42	.55	.42	.48	.26	.35	.20	.29	12.00	.22	.22	.25	.26	.66	-.14	.88	.70	.72	.85

Note. N = 639-661. Reliability estimates are along the diagonal. MWS = Multidimensional Workaholism Scale. WART = Work Addiction Risk Test. IC/SA = Impaired Communication/Self-Absorption. DUWAS = Dutch Workaholism Scale. All correlations $|r| \geq .08$ are statistically significant with $p < .05$. All correlations $|r| \geq .10$ are statistically significant with $p < .01$.

Table 6

Descriptive Statistics, Correlations, and Reliabilities for Constructs in Sample 4

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. MWS	2.97	0.83	.94															
2. Motivational	3.05	1.03	.86	.89														
3. Cognitive	2.62	1.04	.85	.67	.93													
4 Emotional	2.66	1.13	.82	.63	.56	.90												
5 Behavioral	3.53	0.85	.74	.51	.56	.44	.82											
6. WE	4.77	1.17	.46	.44	.25	.40	.43	.94										
7. Vigor	4.52	1.26	.42	.39	.22	.37	.42	.91	.87									
8. Dedication	5.06	1.37	.33	.32	.14	.31	.32	.93	.80	.93								
9. Absorption	4.73	1.24	.50	.48	.32	.40	.44	.87	.67	.70	.85							
10. Work hours	42.96	5.72	.29	.21	.26	.21	.29	.12	.12	.09	.13	-						
11. WFC	2.77	1.47	.33	.28	.41	.22	.14	-.14	-.13	-.23	-.01	.12	.96					
12. WIF	3.05	1.63	.31	.27	.38	.19	.18	.18	-.15	-.28	-.04	.13	.93	.95				
13. FIW	2.48	1.53	.29	.26	.37	.23	.08	-.08	-.09	-.15	.03	.10	.93	.73	.94			
14. JS	3.77	0.94	.01	.07	-.13	.03	.08	.61	.54	.70	.41	.02	-.43	-.46	-.33	.83		
15. PS	1.85	0.65	.33	.25	.37	.28	.16	.04	-.05	-.08	.04	.06	.50	.51	.41	-.29	.88	
16. EE	1.97	1.53	.18	.10	.29	.10	.10	-.37	-.34	-.43	-.21	.07	.67	.67	.53	-.64	.58	.95

Note. $N = 228$. Reliability estimates are along the diagonal. MWS = Multidimensional Workaholism Scale. WE = work engagement. WFC = work–family conflict. WIF = work interfering with family. FIW = family interfering with work. JS = job satisfaction. PS = physical symptoms. EE = emotional exhaustion. All correlations $|r| \geq .13$ are statistically significant with $p < .05$. All correlations $|r| \geq .17$ are statistically significant with $p < .01$.

Table 7

Descriptive Statistics, Correlations, and Reliabilities for Constructs in Sample 5

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. MWS (overall)	3.04	0.73	.93															
2. Motivational	3.65	0.81	.80	.89														
3. Cognitive	2.72	0.94	.82	.53	.91													
4. Emotional	2.50	0.92	.78	.47	.54	.88												
5. Behavioral	3.19	0.89	.89	.65	.58	.63	.90											
6. WART (overall)	2.31	0.48	.67	.46	.63	.50	.61	.91										
7. CT	2.70	0.54	.62	.48	.54	.46	.55	.88	.84									
8. Control	2.16	0.52	.52	.33	.49	.40	.49	.88	.69	.73								
9. IC/SA	2.17	0.64	.67	.44	.66	.48	.61	.87	.65	.70	.76							
10. Inability to delegate	2.19	0.85	.29	.14	.30	.29	.23	.56	.38	.48	.48	—						
11. Self-worth	1.83	0.77	.40	.26	.38	.30	.36	.63	.41	.46	.56	.35	.63					
12. DUWAS (overall)	3.44	0.74	.78	.59	.66	.60	.71	.71	.74	.51	.66	.34	.40	.85				
13. Working excessively	3.58	0.87	.71	.57	.59	.46	.70	.69	.71	.51	.61	.31	.40	.92	.82			
14. Working compulsively	3.29	0.76	.70	.50	.60	.64	.58	.59	.62	.40	.57	.30	.31	.89	.63	.73		
15. Driven	3.37	0.70	.70	.49	.62	.58	.59	.57	.58	.37	.56	.31	.34	.88	.68	.93	.80	
16. Work involvement	2.85	0.64	.63	.55	.56	.44	.54	.59	.61	.45	.56	.18	.30	.66	.61	.59	.56	.75
17. Enjoyment of work	3.15	0.75	.29	.30	.14	.24	.28	.17	.14	.09	.25	.02	.14	.23	.27	.13	.14	.44
18. Perfectionist strivings	6.02	0.90	.46	.50	.33	.22	.43	.42	.43	.32	.39	.21	.20	.50	.49	.40	.42	.48
19. Perfectionist concerns	3.44	1.52	.45	.22	.48	.44	.36	.62	.49	.50	.56	.53	.45	.49	.45	.43	.42	.28
20. Work engagement	4.62	1.05	.32	.40	.14	.17	.34	.22	.24	.14	.27	.05	.09	.32	.37	.21	.22	.46
21. Vigor	4.17	1.25	.17	.29	.01	.07	.20	.11	.12	.05	.15	.06	.01	.17	.22	.08	.07	.39
22. Dedication	4.89	1.17	.21	.32	.03	.10	.23	.07	.11	.03	.13	-.06	.00	.21	.24	.13	.16	.35
23. Absorption	4.80	1.08	.51	.47	.37	.31	.50	.45	.44	.32	.46	.16	.25	.51	.55	.36	.38	.52
24. Job satisfaction	3.75	0.90	-.18	.00	-.30	-.15	-.12	-.19	-.14	-.18	-.17	-.15	-.13	-.17	-.14	-.17	-.20	.04
25. Work-family conflict	3.22	1.19	.42	.27	.48	.28	.34	.43	.40	.33	.40	.14	.29	.47	.42	.43	.45	.38
26. WIF	3.90	1.66	.47	.31	.54	.29	.38	.46	.40	.36	.45	.14	.33	.49	.47	.41	.43	.35
27. FIW	2.53	1.25	.18	.11	.20	.15	.14	.20	.22	.15	.15	.09	.10	.25	.18	.28	.27	.25
28. Physical symptoms	2.02	0.61	.27	.10	.28	.29	.23	.37	.33	.23	.36	.25	.34	.32	.27	.32	.35	.07
29. Negative rumination	2.00	0.67	.34	.16	.41	.25	.27	.27	.26	.20	.25	.24	.08	.39	.30	.41	.43	.14
30. Negative affect	2.09	0.73	.31	.15	.37	.26	.26	.48	.39	.38	.49	.36	.25	.35	.29	.34	.35	.14
31. Work hours	45.01	8.45	.53	.39	.55	.30	.46	.44	.42	.33	.43	.15	.28	.46	.45	.37	.42	.46
32. Emotional exhaustion	2.53	1.41	.36	.12	.49	.26	.29	.42	.37	.33	.39	.29	.28	.39	.38	.31	.37	.06
33. Depressive symptoms	0.74	0.60	.24	.06	.30	.25	.18	.40	.30	.27	.38	.37	.44	.27	.24	.25	.26	.01

(Continues)

Table 7 (Continued)

Variable	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
1. MWS (overall)																	
2. Motivational																	
3. Cognitive																	
4. Emotional																	
5. Behavioral																	
6. WART (overall)																	
7. CT																	
8. Control																	
9. IC/SA																	
10. Inability to delegate																	
11. Self-worth																	
12. DUWAS (overall)																	
13. Working excessively																	
14. Working compulsively																	
15. Driven																	
16. Work involvement																	
17. Enjoyment of work	.89																
18. Perfectionist strivings	.31	.93															
19. Perfectionist concerns	-.02	.07	.92														
20. Work engagement	.83	.43	-.06	.93													
21. Vigor	.77	.36	-.10	.91	.88												
22. Dedication	.75	.34	-.17	.91	.77	.88											
23. Absorption	.70	.46	.13	.86	.66	.67	.83										
24. Job satisfaction	.53	.01	-.23	.55	.57	.58	.30	.82									
25. Work-family conflict	-.04	.10	.51	-.09	-.19	-.14	.10	-.30	.90								
26. WIF	-.09	.19	.49	-.11	-.21	-.15	.08	-.39	.87	.95							
27. FIW	.04	-.06	.31	-.03	-.09	-.07	.09	-.05	.75	.32	.91						
28. Physical symptoms	-.15	.02	.44	-.17	-.27	-.22	.06	-.33	.35	.42	.12	.86					
29. Negative rumination	-.17	.05	.32	-.18	-.22	-.26	.01	-.45	.32	.35	.15	.28	.92				
30. Negative affect	-.22	.07	.52	-.18	-.23	-.26	.02	-.39	.37	.32	.27	.48	.46	.88			
31. Work hours	.13	.27	.30	.17	.03	.10	.35	-.11	.42	.47	.17	.15	.19	.14	—		
32. Emotional exhaustion	-.35	.06	.43	-.34	-.45	-.39	-.04	-.65	.52	.62	.15	.55	.51	.45	.23	.94	
33. Depressive symptoms	-.17	-.12	.59	-.24	-.29	-.33	.00	-.35	.37	.42	.15	.75	.39	.52	.11	.62	.88
34. Multitasking	.18	.04	.11	.13	.19	.09	.06	.02	.03	.07	-.03	.03	.13	.05	.03	-.04	.05

Note. N = 149-150. MWS = Multidimensional Workaholism Scale. WART = Work Addiction Risk Test. IC/SA = Impaired Communication/Self-Absorption. DUWAS = Dutch Work Addiction Scale. WIF = Work Interfering with Family; FIW = Family Interfering with Work. Reliability estimates are along the diagonal. All correlations $|r| \geq .16$ are statistically significant with $p < .05$. All correlations $|r| \geq .22$ are statistically significant with $p < .01$.

Table 8. Meta-Analytic Estimates of the Multidimensional Workaholism Scale across Samples

	Overall MWS					Motivational					Cognitive				
Variable	K	N	$\bar{r}$	SDr	95% CI	K	N	$\bar{r}$	SDr	95% CI	K	N	$\bar{r}$	SDr	95% CI
MWS (overall)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Motivational	3	1039	.84	.02	[.82, .86]	-	-	-	-	-	-	-	-	-	-
Cognitive	3	1039	.85	.01	[.84, .87]	3	1039	.62	.04	[.58, .66]	-	-	-	-	-
Emotional	3	1039	.83	.02	[.81, .85]	3	1039	.59	.05	[.55, .63]	3	1039	.65	.07	[.56, .73]
Behavioral	3	1039	.79	.04	[.73, .84]	3	1039	.57	.04	[.53, .62]	3	1039	.54	.02	[.50, .59]
WART (overall)	2	800	.76	.04	[.69, .82]	2	800	.58	.06	[.54, .63]	2	800	.68	.02	[.64, .72]
Compulsive tendencies	2	800	.78	.08	[.67, .89]	2	800	.63	.07	[.52, .73]	2	800	.68	.07	[.58, .78]
Control	2	800	.55	.02	[.50, .60]	2	800	.40	.03	[.34, .45]	2	800	.50	.00	[.67, .74]
IC/SA	2	800	.73	.03	[.69, .76]	2	800	.54	.05	[.49, .59]	2	800	.71	.02	[.28, .46]
Inability to delegate	2	800	.26	.02	[.19, .32]	2	800	.20	.03	[.13, .26]	2	800	.17	.06	[.10, .24]
Self-worth	2	800	.42	.01	[.37, .48]	2	800	.35	.04	[.29, .41]	2	800	.32	.03	[.26, .38]
DUWAS (overall)	2	811	.77	.00	[.74, .80]	2	811	.66	.03	[.62, .69]	2	811	.61	.02	[.57, .65]
Working excessively	2	811	.73	.01	[.69, .76]	2	811	.59	.01	[.55, .64]	2	811	.58	.00	[.54, .63]
Working compulsively	2	811	.71	.00	[.67, .74]	2	811	.60	.05	[.56, .65]	2	811	.55	.02	[.50, .60]
Workbat	-	-	-	-	-	-	-			-	-	-			-
Driven	2	789	.61	.04	[.57, .65]	2	789	.55	.03	[.50, .60]	2	789	.44	.09	[.31, .57]
Work involvement	2	789	.62	.00	[.58, .66]	2	789	.58	.02	[.54, .63]	2	789	.55	.02	[.50, .60]
Enjoyment of work	2	789	.43	.07	[.37, .48]	2	789	.40	.05	[.35, .46]	2	789	.30	.08	[.24, .37]

	Emotional					Behavioral				
Variable	K	N	$\bar{r}$	SDr	95% CI	K	N	$\bar{r}$	SDr	95% CI
MWS (overall)	-	-	-	-	-	-	-	-	-	-
Motivational	-	-	-	-	-	-	-	-	-	-
Cognitive	-	-	-	-	-	-	-	-	-	-
Emotional	-	-	-	-	-	-	-	-	-	-
Behavioral	3	1039	.52	.06	[.47, .56]	-	-	-	-	-
WART (overall)	2	800	.68	.08	[.55, .80]	2	800	.58	.01	[.54, .63]
Compulsive tendencies	2	800	.68	.10	[.53, .83]	2	800	.62	.04	[.58, .66]
Control	2	800	.54	.07	[.49, .59]	2	800	.40	.04	[.34, .46]
IC/SA	2	800	.63	.07	[.52, .74]	2	800	.52	.04	[.47, .57]
Inability to delegate	2	800	.24	.02	[.18, .31]	2	800	.25	.01	[.18, .31]
Self-worth	2	800	.36	.03	[.30, .42]	2	800	.37	.00	[.31, .43]
DUWAS (overall)	2	811	.66	.03	[.62, .70]	2	811	.67	.02	[.63, .71]
Working excessively	2	811	.56	.05	[.52, .61]	2	811	.68	.01	[.64, .71]
Working compulsively	2	811	.65	.00	[.61, .69]	2	811	.56	.01	[.51, .60]
Workbat	-	-				-	-			
Driven	2	789	.52	.03	[.46, .57]	2	789	.52	.04	[.46, .57]
Work involvement	2	789	.50	.03	[.44, .55]	2	789	.51	.02	[.46, .56]
Enjoyment of work	2	789	.29	.02	[.22, .35]	2	789	.43	.07	[.38, .49]

(continues)

	Overall MWS					Motivational					Cognitive				
Variable	K	N	$\bar{r}$	SDr	95% CI	K	N	$\bar{r}$	SDr	95% CI	K	N	$\bar{r}$	SDr	95% CI
Personality Correlates															
Negative affectivity	2	811	.30	.00	[.24, .36]	2	811	.18	.02	[.12, .25]	2	822	.33	.02	[.27, .39]
Perfectionistic strivings	1	150	.46	-	-	1	150	.50	--	--	1	150	.33	--	--
Perfectionistic concerns	1	150	.45	-	-	1	150	.22	--	--	1	150	.48	--	--
Work, Family, and Individual Outcomes															
Job satisfaction	2	378	-.07	.09	[-.17, .04]	2	378	.04	.03	[-.06, .14]	2	378	-.20	.08	[-.29, -.10]
Work–family conflict	2	378	.36	.04	[.28, .45]	2	378	.28	.00	[.18, .37]	2	378	.44	.03	[.36, .52]
WIF	2	378	.37	.08	[.29, .46]	2	378	.29	.02	[.19, .38]	2	378	.44	.08	[.36, .52]
FIW	2	378	.25	.05	[.15, .34]	2	378	.20	.07	[.10, .30]	2	378	.30	.08	[.21, .39]
Emotional exhaustion	2	378	.25	.09	[.16, .35]	2	378	.11	.01	[.01, .21]	2	378	.37	.10	[.28, .46]
Depressive symptoms	1	150	.24	-	-	1	150	.06	-	-	1	150	.30	-	-
Physical symptoms	2	378	.31	.03	[.21, .40]	2	378	.19	.07	[.09, .29]	2	378	.33	.04	[.24, .42]
Negative rumination	1	150	.34	-	-	1	150	.16	-	-	1	150	.41	-	-
Related Constructs															
Work engagement overall	3	1039	.44	.05	[.39, .49]	3	1039	.44	.02	[.39, .49]	3	1039	.26	.06	[.21, .32]
Vigor	3	1039	.38	.08	[.33, .43]	3	1039	.38	.04	[.33, .43]	3	1039	.22	.08	[.16, .27]
Dedication	3	1039	.30	.04	[.24, .36]	3	1039	.31	.00	[.26, .37]	3	1039	.16	.06	[.10, .22]
Absorption	3	1039	.53	.02	[.49, .58]	3	1039	.50	.02	[.46, .55]	3	1039	.36	.02	[.30, .41]
Work hours	3	1017	.34	.08	[.29, .40]	3	1017	.24	.06	[.18, .30]	3	1017	.32	.10	[.26, .37]

	Emotional					Behavioral				
Variable	K	N	$\bar{r}$	SDr	95% CI	K	N	$\bar{r}$	SDr	95% CI
Personality Correlates										
Negative affectivity	2	811	.32	.03	[.26, .39]	2	811	.17	.04	[.10, .24]
Perfectionistic strivings	1	150	.22	-	-	1	150	.43	-	-
Perfectionistic concerns	1	150	.44	-	-	1	150	.36	-	-
Work, Family, and Individual Outcomes										
Job satisfaction	2	378	-.04	.09	[-.14, .06]	2	378	.00	.10	[-.10, .10]
Work–family conflict	2	378	.24	.03	[.15, .34]	2	378	.22	.10	[.12, .32]
WIF	2	378	.23	.05	[.13, .32]	2	378	.26	.10	[.16, .35]
FIW	2	378	.20	.04	[.10, .30]	2	378	.10	.03	[.004, .20]
Emotional exhaustion	2	378	.16	.08	[.07, .26]	2	378	.18	.09	[.08, .37]
Depressive symptoms	1	150	.25	-	-	1	150	.18	-	-
Physical symptoms	2	378	.28	.00	[.19, .38]	2	378	.19	.03	[.09, .28]
Negative rumination	1	150	.25	-	-	1	150	.27	-	-
Related Constructs										
Work engagement overall	3	1039	.30	.07	[.25, .36]	3	1039	.46	.06	[.41, .51]
Vigor	3	1039	.25	.09	[.19, .31]	3	1039	.41	.09	[.36, .46]
Dedication	3	1039	.19	.07	[.13, .25]	3	1039	.34	.05	[.28, .39]
Absorption	3	1039	.40	.04	[.35, .45]	3	1039	.52	.04	[.47, .56]
Work Hours	3	1017	.23	.03	[.17, .29]	3	1017	.36	.05	[.31, .42]

Note. Pearson correlations are reported when K = 1.

Table 9

Incremental Validity and Relative Importance Analyses with Prior Workaholism Measures

Prior workaholism scale: DUWAS

Predictor	Raw importance estimates						Rescaled estimates	Incremental importance[a]
	r	B	*SE*	β	RW	[RW CI]	RS-RW (%)	ΔR^2
Criterion: Emotional exhaustion (R^2 = .30***)								
Intercept		.87	.53					
Working excessively	.38***	.39*	.18	.24	.06*	[.02–.11]	21.12	.02*
Working compulsively	.31***	– .00	.20	.00	.03	[.01–.06]	9.44	.00
Totals					**.09**		**30.56**	**.03**
Motivational	.12	– .51**	.17	– .29	.02	[.01–.04]	6.65	.04**
Cognitive	.49***	.73***	.15	.49	.15*	[.07–.24]	48.16	.12***
Emotional	.26**	.03	.16	.02	.02	[.01–.05]	6.47	.00
Behavioral	.29***	.02	.19	.01	.02	[.01–.05]	8.16	.00
Totals					**.21**		**69.44**	**.15*** **
Criterion: Negative work-related rumination (R^2 = .23***)								
Intercept		.98***	.26					
Working excessively	.30***	.02	.09	.02	.03*	[.01–.07]	11.62	.00
Working compulsively	.41***	.28**	.10	.32	.08*	[.03–.15]	33.95	.04**
Totals					**.11**		**45.57**	**.05***
Motivational	.16*	– .15	.08	– .18	.01	[.00–.02]	4.15	.02
Cognitive	.41***	.22**	.07	.31	.08*	[.02–.16]	35.23	.05**
Emotional	.25**	– .06	.08	– .08	.02	[.01–.04]	7.09	.00
Behavioral	.27**	.04	.10	.06	.02	[.01–.05]	7.96	.00
Totals					**.13**		**54.43**	**.06***
Criterion: Depressive symptoms (R^2 = .14**)								
Intercept		.25	.25					
Working excessively	.24**	.11	.09	.16	.02	[.00–.06]	16.89	.01
Working compulsively	.25**	.04	.09	.05	.02	[.00–.06]	14.96	.00
Totals					**.04**		**31.85**	**.01**
Motivational	.06	– .16*	.08	– .22	.01	[.00–.05]	8.30	.02*
Cognitive	.30***	.15*	.07	.24	.05*	[.01–.12]	33.84	.03*
Emotional	.25**	.10	.07	.15	.03	[.00–.08]	19.13	.01
Behavioral	.18*	– .04	.09	– .05	.01	[.00–.02]	6.88	.00
Totals					**.10**		**68.15**	**.07***

(continues)

Predictor	Raw importance estimates						Rescaled estimates	Incremental importance[a]
	r	B	*SE*	β	RW[a]	[RW CI]	RS-RW (%)	ΔR^2
Prior workaholism scale: WART								
Criterion: Emotional exhaustion (R^2 = .31***)								
Intercept		.45	.58					
Compulsive tendencies	.37***	.47	.28	.18	.04*	[.01–.08]	12.72	.01
Control	.33***	– .10	.31	– .04	.02	[.01–.05]	6.09	.00
IC/SA	.39***	– .07	.28	– .03	.03*	[.01–.06]	10.10	.00
Inability to delegate	.29***	.18	.14	.11	.03	[.00–.08]	8.42	.01
Self-worth	.28***	.12	.16	.06	.02	[.00–.07]	6.48	.00
Totals					**.14**		**43.81**	**.04**
Motivational	.12	– .48**	.17	– .28	.02	[.01–.04]	5.33	.04**
Cognitive	.49***	.72***	.16	.48	.12*	[.06–.21]	39.43	.10***
Emotional	.26**	– .05	.15	– .03	.02	[.01–.04]	4.84	.00
Behavioral	.29***	.15	.18	.10	.02	[.01–.05]	6.59	.00
Totals					**.18**		**56.19**	**.12*** **
Criterion: Negative work-related rumination (R^2 = .21***)								
Intercept		1.21***	.30					
Compulsive tendencies	.26**	.14	.14	.11	.02	[.00–.06]	8.95	.01
Control	.20*	– .10	.16	– .08	.01	[.00–.01]	3.46	.00
IC/SA	.25**	– .11	.14	– .11	.01	[.00–.03]	6.73	.00
Inability to delegate	.24**	.14*	.07	.18	.03	[.00–.08]	13.21	.02*
Self-worth	.08	– .09	.08	– .11	.00	[.00–.01]	2.17	.01
Totals					**.07**		**34.52**	**.04**
Motivational	.16*	– .13	.09	– .15	.01	[.00–.01]	3.71	.01
Cognitive	.41***	.31***	.08	.43	.09*	[.02–.18]	43.57	.08***
Emotional	.25**	.01	.07	.01	.02	[.00–.05]	7.84	.00
Behavioral	.27**	.11	.09	.15	.02	[.00–.06]	10.36	.01
Totals					**.14**		**65.48**	**.11****
Criterion: Depressive symptoms (R^2 = .29***)								
Intercept		– .02	.25					
Compulsive tendencies	.30***	.14	.12	.13	.02	[.01–.06]	7.87	.01
Control	.27**	– .17	.13	– .14	.01	[.00–.02]	4.28	.01
IC/SA	.38***	.11	.12	.12	.04	[.01–.08]	12.63	.00
Inability to delegate	.37***	.14*	.06	.20	.06	[.01–.13]	19.92	.03*
Self-worth	.44***	.24***	.07	.31	.10*	[.03–.19]	34.13	.06***
Totals					**.23**		**78.83**	**.17*****
Motivational	.06	– .14	.07	– .18	.01	[.00–.03]	3.39	.02
Cognitive	.30***	.08	.07	.13	.03	[.01–.07]	8.98	.01
Emotional	.25**	.07	.06	.10	.02	[.00–.06]	6.31	.01
Behavioral	.18*	– .04	.08	– .06	.01	[.00–.01]	2.49	.00
Totals					**.07**		**21.17**	**.03**

(continues)

Prior workaholism scale: WorkBAT								
Predictor	Raw importance estimates						Rescaled estimates	Incremental importance[a]
	r	B	*SE*	β	RW	[RW CI]	RS-RW (%)	ΔR^2
Criterion: Emotional exhaustion (R^2 = .47***)								
Intercept		2.58***	.55					
Driven	.37***	.37*	.18	.19	.06*	[.02–.11]	13.36	.02*
Work involvement	.06	– .38	.20	– .17	.02	[.01–.04]	5.17	.01
Enjoyment of work	– .35***	– .71***	.13	– .38	.14*	[.06–.23]	30.00	.11***
Totals					**.22**		**48.53**	**.19*** **
Motivational	.12	– .27	.15	– .16	.02	[.01–.02]	3.26	.01
Cognitive	.49***	.75***	.13	.50	.16*	[.09–.23]	33.50	.12***
Emotional	.26**	.02	.13	.01	.03	[.01–.06]	5.96	.00
Behavioral	.29***	.28	.15	.18	.04*	[.01–.08]	8.75	.01
Totals					**.25**		**51.47**	**.16*** **
Criterion: Negative work-related rumination (R^2 = .29***)								
Intercept		1.33***	.30					
Driven	.43***	.34***	.10	.36	.10*	[.04–.17]	34.25	.06***
Work involvement	.14	– .11	.11	– .11	.01	[.00–.02]	4.67	.01
Enjoyment of work	– .17*	– .18	.07	– .20	.04	[.01–.12]	14.50	.03*
Totals					**.15**		**53.42**	**.11*** **
Motivational	.16*	– .08	.08	– .09	.01	[.00–.01]	3.21	.00
Cognitive	.41***	.20**	.07	.29	.08*	[.02–.15]	27.97	.04**
Emotional	.25**	– .01	.07	– .02	.02	[.01–.05]	6.88	.00
Behavioral	.27**	.06	.08	.08	.02	[.01–.07]	8.52	.00
Totals					**.13**		**46.58**	**.05[b]**
Criterion: Depressive symptoms (R^2 = .19***)								
Intercept		.67*	.29					
Driven	.26**	.14	.10	.16	.03	[.01–.08]	18.00	.01
Work involvement	.01	– .19	.10	– .21	.02	[.01–.04]	8.45	.02
Enjoyment of work	– .17*	– .13	.07	– .16	.03	[.00–.10]	16.04	.02
Totals					**.08**		**42.49**	**.07** **
Motivational	.06	– .08	.08	– .11	.01	[.00–.01]	3.83	.01
Cognitive	.30***	.18*	.07	.28	.06*	[.01–.13]	29.01	.04*
Emotional	.25**	.10	.07	.15	.03	[.01–.09]	16.98	.01
Behavioral	.18*	.04	.08	.05	.01	[.01–.04]	7.69	.00
Totals					**.11**		**57.51**	**.07***

Note. N = 149–150. MWS = Multidimensional Workaholism Scale; DUWAS = Dutch Workaholism Scale; WART = Work Addiction Risk Test; IC/SA = Impaired Communication/Self-Absorption; WorkBAT = Workaholism Battery; RW = Raw relative weight (raw weights will sum to R^2); [RW CI] = 95% confidence interval of raw weight; RS-RW (%) = relative weight rescaled as a percentage of predicted variance attributable to each predictor.
[a]Discrepancies in totals are due to rounding.
[b] p = .051. * p < .05. ** p < .01. *** p < .001.

Table 10

Incremental Validity and Relative Importance of Workaholism Dimensions

Predictor	Raw importance estimates						Rescaled estimates	Incremental importance
	r	B	*SE*	β	RW	[RW CI]	RS-RW (%)	ΔR^2
Criterion: Work engagement (R^2 = .19***)								
Intercept		2.72***	.37					
Motivational	.40***	.46***	.13	.35	.10*[a]	[.03–.19]	55.72	.07***
Cognitive	.14	– .17	.11	– .15	.01[b]	[.00–.02]	5.58	.01
Emotional	.17*	– .07	.11	– .06	.01[b]	[.00–.02]	5.83	.00
Behavioral	.34***	.28*	.14	.24	.06*	[.02–.13]	32.86	.02*
Criterion: Negative work-related rumination (R^2 = .18***)								
Intercept		1.34***	.24					
Motivational	.16*	– .12	.08	– .14	.01[b]	[.00–.02]	5.53	.01
Cognitive	.41***	.29***	.07	.40	.12*[a]	[.02–.22]	65.01	.09***
Emotional	.25**	.03	.07	.04	.02	[.01–.06]	13.37	.00
Behavioral	.27**	.08	.09	.10	.03[b]	[.01–.08]	16.09	.00
Criterion: Negative affect (R^2 = .15**)								
Intercept		1.40***	.26					
Motivational	.15	– .12	.09	– .13	.01	[.00–.01]	5.53	.02*
Cognitive	.37***	.27***	.08	.34	.09*	[.02–.20]	59.94	.07***
Emotional	.26**	.05	.08	.07	.03[a]	[.01–.07]	17.03	.00
Behavioral	.26**	.08	.10	.11	.03	[.01–.07]	17.50	.00
Criterion: Work hours (R^2 = .34***)								
Intercept		27.59***	2.67					
Motivational	.39***	.50	.96	.05	.05	[.02–.10]	15.14	.00
Cognitive	.55***	3.96***	.79	.44	.18*	[.08–.30]	51.38	.11***
Emotional	.30***	– 1.08	.83	– .12	.03[b]	[.01–.05]	7.51	.01
Behavioral	.46***	2.36**	.99	.25	.09*[a]	[.04–.13]	25.96	.03*
Criterion: Perfectionistic strivings (R^2 = .28***)								
Intercept		3.92***	.30					
Motivational	.50***	.42***	.11	.38	.14*	[.07–.24]	51.58	.08***
Cognitive	.33***	.08	.09	.08	.04[c]	[.01–.10]	14.66	.00
Emotional	.22**	– .14	.09	– .14	.01[cd]	[.00–.02]	5.26	.01
Behavioral	.43***	.11	.22	– .05	.08*	[.03–.16]	28.50	.02*
Motivational & Behavioral Totals					**.12**		**80.08**	**.17*** **
Criterion: Perfectionistic concerns (R^2 = .29***)								
Intercept		1.35***	.50					
Motivational	.22**	– .28	.18	– .15	.01[ef]	[.01–.02]	5.11	.01
Cognitive	.48***	.61***	.15	.38	.13*	[.05–.25]	46.88	.08***
Emotional	.44***	.42***	.16	.26	.09*	[.03–.18]	32.71	.04**
Behavioral	.36***	.12	.18	.07	.04*	[.02–.09]	15.30	.00
Cognitive & Emotional Totals					**.22**		**79.59**	**.16*** **

Note. N = 150. RW = Raw relative weight (raw weights will sum to R^2); [RW CI] = 95% confidence interval of raw weight; RS-RW (%) = relative weight rescaled as a percentage of predicted variance attributable to each predictor.

[a] The reference predictor for test of significance.

[b] The raw relative weight differs significantly from the raw relative weight for the referent predictor.

[c] The raw relative weight for this predictor differs significantly from the raw relative weight for motivational.

[d] The raw relative weight for this predictor differs significantly from the raw relative weight for behavioral.

[e] The raw relative weight for this predictor differs significantly from the raw relative weight for cognitive.

[f] The raw relative weight for this predictor differs significantly from the raw relative weight for emotional.

* p < .05. ** p < .01. *** p < .001.