

A Meta-Analysis of Workaholism

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Abstract

This meta-analysis examines the relationship between workaholism and numerous work behaviors and outcomes in an attempt to a) derive a consensus regarding the current state of our understanding of this construct, and b) clarify the impact that the compulsion to work may have on an individual's life. Overall, based on data from 44 studies, results indicate that there is a considerable amount of variability between workaholism and work-related outcomes. Specifically, the two most established and reputable measures of workaholism, the Work Addiction Risk Test (WART) and the Workaholism Battery (WorkBat), appear to focus on uniquely different aspects of workaholism and were subsequently found to be differentially related to various work criteria. These findings suggest that a consistent definition and operationalization of workaholism is explicitly needed before further progress can be made.

Keywords: addiction, meta-analysis, workaholism

1. Introduction

The term workaholism was originally coined to describe an individual's deleterious compulsion to work (Oates, 1971). This impulse was initially considered a form of addiction that was equally as destructive as alcoholism; hence, Oates suggested the term workaholism. Over time the definition has been expanded to include not only the symptoms of harmed mental, physical, and social health typically associated with alcoholism (Porter, 1996), but also the specific personality characteristics that comprise the workaholic profile (Harpaz & Snir, 2003; Scott, Moore, & Miceli, 1997). This broadened conceptualization of workaholism— along with its association with personality and mental health — is considered to have a serious impact on both the personal and work lives of countless individuals (c.f. Booth-Kewley & Friedman, 1987; Chamberlin & Zhang, 2009; Clark, McEwen, Collard, & Hickok, 1993).

Workaholism is problematic for everyone involved; negatively affecting not only workaholics, but also their employers, families, and society as a whole (Robinson, 2000, 2001; Salmela-Aro & Nurmi, 2004). Although naïve interpretation of its meaning may lead many to initially believe that a workaholic is an asset to their organization, research has discovered evidence to the contrary. For example, Salmela-Aro and Nurmi (2004) noted that individuals who tend to work excessively— a hallmark behavior of workaholics — are at a higher risk of burnout. Subsequently, workaholics often experience emotional exhaustion, cynicism about their job, and dissatisfaction with their work accomplishments (Maslach & Jackson, 1984), all of which decrease worker productivity (Liang & Chu, 2009). Aside from negatively affecting effectiveness on the job, workaholism has also been shown to negatively impact an individual's family life. For example, Robinson (2001) noted that workaholism takes a significant toll on individuals' relationships with their spouses and negatively influences the development of their children. This subsequently engenders unsatisfactory relationships with family members due to the emotional and mental strains placed not only on the workaholic but also on his or her family members. Moreover, within our society workaholics are frequently rewarded for their work-related behaviors, thus perpetuating the behavior of existing workaholics and encouraging others to become workaholics under the societal label of virtue (McMillan & Northern, 1995). Thus, workaholism is ultimately a societal predicament as much as an individual dilemma. The positive reception surrounding this disorder has created denial on the part of workaholics, and the lack of recognition of workaholism as an actual problem is fueling its perpetuation (Porter,

1996).

Research also suggests that workaholism is associated with numerous life-affecting variables such as an individual's level of happiness (Schaufeli, Bakker, Van der Heijden, & Prins, 2009), need for perfection (Burke & Fiksenbaum, 2009), supervisor support and co-worker cohesion (Johnstone & Johnston, 2005), mental and physical health (McMillan & O'Driscoll, 2004), and work-family conflict (Bakker, Demerouti, & Burke, 2009). However, the verity of these relationships is not easily estimated due to discrepancies across studies with respect to the criterion variables used. Thus, it is difficult to differentiate between true correlations and random error (c.f. Aziz & Zickar, 2006; Burke & Fiksenbaum, 2009; Schaufeli, Taris, & van Rhenen, 2008).

A more prominent issue is the lack of consistency regarding the operationalization of workaholism across studies. For example, when utilizing the Work Addiction Risk Test, Schaufeli and colleagues (2008) renamed the "need for control" factor to "working excessively." Similarly, when utilizing the Workaholism Battery, Burke and Fiksenbaum (2009) renamed the "work enjoyment" factor to "passion and drive to addiction." Subsequently, an overabundance of measures purportedly measure workaholism but utilize different operational definitions. Thus again, it is difficult to ascertain the current state of workaholism and determine whether it has consistent relationships with other variables. Hence, the primary purpose of the present study is to clarify the current state of the construct of workaholism, specifically elucidating its relationship with some of the more common aspects of work behaviors and outcomes. Clarification of the correlates of workaholism will provide a step forward in developing a commonly agreed-upon definition of this form of addiction. Additionally, this study seeks to determine which, if any, measure of workaholism constitute a superior predictor of the work related outcomes typically examined within this literature base.

1.1 Definitions of Workaholism

The original conceptualization of a workaholic is "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" (Oates, 1971). For over a decade after Oates' earliest description, the definition of workaholism did not evolve substantially. Nagy and Davis (1985) later redefined workaholism as "total devotion to an occupation or cause" (p. 1) and two years later, Booth-Kewley and Friedman (1987) utilized a simpler definition of a workaholic as a hurried, impatient individual. Similarly, Spruell (1987) additionally defined a workaholic simply as someone who works long hours regardless of the productivity engendered by the time spent. Although Spruell noted that endless hours of work are usually a manifestation of assorted motivators and result in different personal effects, she did not elaborate with regard to what those motivators and effects could be.

More recently, as the study of workaholism has progressed, the definition has evolved to include specific types of workaholics. Spence and Robbins (1992) presented a two-factor approach to workaholism, categorizing workaholics as either work enthusiasts or non-enthusiastic workaholics. By their definition, *work enthusiasts* are individuals who are very involved in their work and thoroughly enjoy it, but are not particularly driven or compelled to work. For example, someone who would be considered a work enthusiast would work many long hours every week because they genuinely enjoy their work, not because they have an insatiable need to work. Thus, these individuals seemingly have no negative mental or physical health consequences due to their workaholic nature, but perhaps may be emotionally struggling with deteriorating social relationships outside of work. In contrast, *non-enthusiastic workaholics*, or customary workaholics, are those who are highly involved in their work and lack enjoyment, yet feel driven to work. For example, a non-enthusiastic workaholic would be someone that works many long hours every week because they feel compelled to do so, not because they take pleasure in their work. Thus, these individuals may display more mental and physical strain than work enthusiasts, and also will likely experience unsatisfactory social relationships with family and friends.

Scott, Moore, and Miceli (1997) criticized Spence and Robbins' definition, contending that a definition of workaholism should involve more stable behavioral patterns. Specifically, they distinguished among three types of workaholics: compulsive-dependent workaholics, perfectionist workaholics, and achievement-oriented workaholics. According to Scott and colleagues, a *compulsive dependent workaholic* is an individual who works more than they intend to and, although they realize they are overworking themselves, they cannot physically and mentally abstain from working excessively. Thus, these types of workaholics are like many other addicts of different persuasions in that they recognize their addictive behavior and the harm it is causing, yet are unable to overcome the addiction of their own will. *Perfectionist workaholics* are similar to compulsive dependent workaholics in that they also show signs of obsessive compulsive personality disorder; however, perfectionist workaholics experience an overbearing need for control and are very meticulous. These individuals find it very

difficult to share their work with team members and are compelled to be scrupulous over trivial details. Such behaviors can lead to discord with coworkers and inefficient use of time at work. Finally, *achievement-oriented workaholics* are described as competitive personalities who intensely desire success and a strong career identity. These individuals are driven to work excessively in order to achieve the goals they have established for themselves. It is likely that these individuals will not only physically and mentally exhaust themselves, but will probably also annihilate their relationships with their coworkers, friends, and family due to their insatiable competitive nature.

Robinson (2000) suggested a novel typology of workaholics that included relentless workaholics, bulimic workaholics, attention deficit workaholics, and savoring workaholics. He described *relentless workaholics* as the stereotypical workaholics who are high in both work initiation and work completion. These workaholics are probably most comparable to the achievement-oriented workaholics mentioned previously. They frequently invest long hours on the job and exceed what is asked of them due to an innate drive to work. Whereas relentless workaholics work compulsively and constantly, *bulimic workaholics* work more sporadically. Additionally, bulimic workaholics are known to be low in work initiation but high in work completion. These workaholics are unlikely to seek out work, but when presented with a new project, they are prone to adamantly work on it until it is completed. Their determination to finish their work tasks often leaves them mentally and physically exhausted, which is probably the cause of their low likelihood to initiate work. In contrast, *attention deficit workaholics* are high in work initiation but low in work completion because they are adrenaline-seeking and readily lose interest in work tasks. These individuals are addicted to the surge of energy and excitement engendered by new projects; thus, they may accumulate many different projects at once and ultimately experience burnout before any of the projects are completed. Finally, *savoring workaholics* are low in both work initiation and work completion; they are typically perfectionists who are so detail-oriented that they often miss deadlines. These individuals are prone to obsessive compulsive disorder and may find it difficult to work in teams as they need tasks to be completed according to their specific guidelines and standards.

Although these operational definitions have progressed from a simple description of workaholism as a compulsion to work to a more complex explanation of the different manifestations of workaholism, little empirical effort has specifically sought to identify the psychological, social, and physical effects of workaholism as an addiction. Alcoholism is known to have physical side effects such as liver failure and heart problems, along with psychological side effects such as depression and violent behavior. Unlike alcoholism and many other known addictions, workaholism has no openly agreed-upon physical, emotional, or mental effects. Therefore, this meta-analysis seeks to combine and analyze data from prior research measuring workaholism in an effort to increase our understanding of the overall impact of numerous operationalizations of workaholism.

1.2 Measures of Workaholism

There are numerous measures of workaholism including Clark's (1993) Schedule for Non adaptive and Adaptive Personality-Workaholism (SNAP-Work), Robinson and Carroll's (1999) Children of Workaholic Parents Screening Test (CWST), and Senholzi's (2008) Work Attitudes and Behaviors Inventory (WABI). However, of all of the workaholism measures, the two that have received the most empirical attention, and are subsequently the focus of this meta-analysis, are Spence and Robbins' (1992) Workaholism Battery (WorkBat) and Robinson's (1999) Work Addiction Risk Test (WART).

The WorkBat (1992) operationalizes workaholism as being comprised of three factors including (1) *work enjoyment*, (2) *work involvement*, and (3) *drive to work*. Specifically:

Work enjoyment is a measure of how much an individual likes doing his or her work, *work involvement* is an evaluation of how invested an individual is in his or her work, and *drive to work* is a measure of an individual's compulsion-like motivation to work. (p. 162)

The WorkBat is a self-report questionnaire consisting of 25 items divided between the three factors; work involvement (eight items), drive to work (seven items), and work enjoyment (10 items). All of the items utilize a five-point Likert scale ranging from 1 (*disagree*) to 5 (*agree*). Work enjoyment items are reverse-scored, after which high scores on all three factors are considered to be indicative of workaholism. Overall, the WorkBat has been used in approximately 482 studies, with each examining either individual factor scores or the aggregated score in relation to workaholism.

Robinson's (1999) Work Addiction Risk Test (WART) is growing in popularity as a measure of workaholism (c.f. Brady, Vodanovich, & Rotunda, 2008; Brough, O'Driscoll, Kalliath, Cooper, & Poelmans, 2009; Chamberlin & Zhang, 2009). The WART operationalizes workaholism as a five-factor model including (1)

compulsive tendencies, (2) *control*, (3) *impaired communication/self-absorption*, (4) *inability to delegate*, and (5) *self-worth*. Specifically:

Compulsive tendencies are characterized by one's need to hurry, stay busy, multitask, overly commit, feelings of guilt if not working, working long hours, placing self-imposed deadlines for oneself, difficulty relaxing, and lack of time spent socializing. *Control* is defined as a need for perfectionism that causes impatience, irritation, and anger towards others and oneself when work is not suitable to the workaholic's standards. *Impaired communication and self-absorption* is identified by lack of attentiveness to what others have to say, jumping into tasks before completing necessary prior steps, making decisions without factual support, and lack of interest in relationships with others and the milestones in their lives. *Inability to delegate* is the unwillingness to entrust others with work responsibilities and failure to ask others for help when it is needed. And finally, *self-worth* is described as feeling guilty when not working and being unforgiving towards one's minor mistakes and setbacks. (p. 202)

The WART is composed of 25 statements which participants are asked to rate on a scale of 1 (*never true*) to 4 (*always true*). Individuals scoring between 25 and 54 are usually considered not to be addicted to work, those between 55 and 69 are mildly work addicted, and those with scores of 70 to 100 are considered to be highly addicted. Overall, the WART has been used in approximately 138 studies that have examined individual factor scores and the aggregated score in relation to workaholism.

1.3 Current State of Workaholism

Despite the various conceptualizations of workaholism, consensus exists with regard to several expected outcomes. The majority of workaholism research hypothesized that one of the leading concerns of the disorder is its negative effect on one's personal relationships and social life (Bonebright & Clay, 2000; Burke, 2000; Robinson & Post, 1997). Research shows that workaholics' ratings of their condition are typically less severe than those provided by their significant others, and workaholics are more likely to experience greater disturbances in social relationships than non-workaholics (McMillan, O'Driscoll, & Brady, 2004). Ironically, as the quality of social relationships decreases, the onset of workaholism is usually hypothesized to be propelled by encouragement and praise from co-workers and supervisors (Johnstone & Johnston, 2005; Liang & Chu, 2009; Smith, 2007). Support may come in the form of positive work evaluations and feedback (Piotrowski & Vodanovich, 2006), competitive peers (Ng et al., 2007), and workaholic supervisors setting high standards (Ng et al., 2007).

Another common finding is that workaholism is correlated with long working hours. There is a general consensus among researchers that the longer the period of time one works beyond that which is necessary for their job, the more likely he or she is to become a workaholic (Burke & Fiksenbaum, 2009; Burke et al., 2008; Feeney & Bozeman, 2009; Robinson, Flowers, & Ng, 2006; Snir & Zohar, 2008;). These longer hours are usually not hypothesized to be motivated by monetary gain. Although income is just as compelling an incentive for workaholics as for non-workaholics, it has not been linked with the drive behind the disorder (Burke, 2004; Srivastava, Locke, & Bartol, 2001).

Workaholism has also been purported to be related to burnout and negative feelings about work and life. Workaholism-induced burnout has been shown to be related to negative emotions due to high levels of stress, as well as more physical health symptoms (Burke, Richardsen, & Mortinussen, 2004). Taris, Beckers, Verhoeven, Geurts, Kompier, and van der Linden (2006) hypothesized that work exhaustion and work-life interference caused by workaholism will result in negative feelings about oneself and life in general. Schaufeli and colleagues (2008) investigated the relationship between workaholism and burnout as a product of job demands. Schaufeli and colleagues (2009) also researched burnout as a result of work-life conflict due to workaholism.

1.4 The Present Study

Aside from the few commonalities discussed in the previous section, a lack of clarity remains regarding the consistent and specific relations workaholism has with one's personal life and overall wellbeing. This meta-analysis seeks to better understand the correlates of workaholism based on findings from previous research. Specifically, this study aims to identify the most common correlates of workaholism with hopes to develop a universally agreed-upon construct for the disorder. As previously noted, various definitions of workaholism exist that focus upon differing aspects of this form of addiction. Combining and analyzing the data from prior workaholism research will serve to increase our understanding of the overall impact of the numerous operationalizations of workaholism. Moreover, clarifying the construct of workaholism through its relationships

with its correlates will help to illuminate the implications workaholism has on one's life, which will provide a step forward in its prognosis and prevention.

2. Methods

2.1 Literature Search

Articles were collected through an Internet search using the PsycINFO database (American Psychological Association, 1887-2009). No date range was set in order to ensure the most comprehensive analysis of workaholism measures. Keywords used in the search were *workaholism*, *work addiction risk test*, *WART*, *workaholism battery*, *WorkBat*, and *workaholism measures*. In addition, articles were located by conducting a reverse citation search for the Robinson (1999) article presenting the development of the WART and the Spence and Robbins (1992) article presenting the WorkBat. As previously noted, the WART and the WorkBat measures served as focal points due to their prominence within the study of workaholism.

2.2 Inclusion Criteria

Once the initial list of studies was created using the results of the literature search, several inclusion criteria were applied. First, only peer-reviewed articles, not student dissertations, were included in the meta-analysis. The use of only peer-reviewed articles ensured that only studies utilizing quality research designs were included. Next, of the foreign studies, only those that provided an English translation were considered for analysis due to limitations regarding the researcher's fluency in languages other than English. Lastly, in order to be included in the final set of articles for the meta-analysis, each study must have reported (1) correlations between the predictor (i.e., the WART or WorkBat) and criterion variables, and (2) the sample size used, as such statistical data is necessary to calculate the mean correlation of workaholism with the criterion variables and the 95% confidence intervals about those means. Overall, 44 studies were included in the meta-analysis.

2.3 Data Coding

Data cited in the included studies were coded according to specific rules developed to maintain inter-rater reliability. Three raters coded the studies independently and the data were subsequently compared for consistency among the raters. The identification coding for each study consisted of the initials of the rater, the date of the coding, a citation for the article, the date of publication, and a unique article identification number that was assigned to each article prior to coding. As some articles included more than one study, a unique number corresponding to each individual study within an article was also recorded, in the order in which the studies were reported within the article. For example, if the first article included two studies, the article identification number was 1, and the study identification numbers were 1 and 2 for the first and second study, respectively. Each predictor-criterion correlation reported within every study was also recorded.

The predictor codes (i.e., workaholism) included the measure name, the dimension name, and the type of measure studied (behavioral, self-report, supervisor rating, or other type of measure). If reported, the predictors' internal consistency, test-retest reliability, and inter-rater reliability were also recorded. The same coding scheme was applied to the criterion variables, and additionally included the general category of the criterion studied.

The criterion variables were placed into general categories by three raters individually categorizing each criterion and then cross-referencing the individual categorizations for inter-rater reliability. This process resulted in a final list of 28 general criterion categories with 95% agreement among all three raters (see Table 1).

To test for moderators and assist with the analysis of the predictor-criterion correlations, demographic data of the samples were coded. Sample size, form of sampling conducted (online, in person, or via mail), participants' occupation (student, blue collar/manual labor, white collar/office position, upper level management, professional/doctoral, or other job type), and the country from which the sample was selected were all recorded. If provided by the studies, the percentage of each ethnicity and gender represented in the samples was noted, along with the average age, salary, and hours worked per week with their corresponding standard deviations. Finally, the overall quality of the studies was coded subjectively by listing any characteristics of the study that could potentially jeopardize the overall integrity of the analysis. After coding all of the above for each study, the raters indicated whether or not the study should be included in the final analysis.

Table 1. Criterion measure categorizations

<i>Achievement Motivation</i>	<i>Job Involvement</i>	<i>Negative Non-performance work Behaviors</i>
Achievement Needs	Absorption	Depersonalization
Drive	Involvement	Impaired Communication
Intrinsic Job Motivation	Job Involvement	Impaired Social Functioning
Perception of Feeling Driven	Parsimony	Intent to Quit
Perseverance	Perception of Work Involvement	Interpersonal Deviance
Type A Behavior Subscale	Superego	Low accomplishment
	Thinking about work	Negative Reactions
<i>Agreeableness</i>	Work Centrality	Non-delegation
Agreeableness	Work Involvement	Organizational Deviance
Trust others		Reduced Medical Accomplishment
	<i>Job Stress</i>	
<i>Commitment and Cohesion</i>	Communication Scale	<i>Perceived Control</i>
Commitment	Emotional Demands	Job Control
Co-worker Cohesion	Job Stress	Locus of Control
Co-worker Support	Leadership Scale	Perceived Job Control
Dedication	Mental Demands	
Organizational Commitment	Promotion Scale	<i>Perceived Job Demands</i>
Supervisor Support	Psychological Job Demands	Extra Hours Worked
	Role Ambiguity	Organizational Demands
<i>Conscientiousness</i>	Role Conflict	Overwork
Conscientiousness	Work Pressure	Supervisors work 50-hour+ weeks
Orderliness	Work Stress	Peers work 50-hour+ weeks
Self-Monitoring	Workload Scale	Perceived Job Demands
	Work-related Stress Complaints	Work Overload
<i>Extraversion</i>		Work Overload-Quality
Extraversion	<i>Mental Health</i>	Work Overload-Quantity
Expressive Orientation	Anxiety	
	Depression	<i>Perfectionism</i>
<i>Flexibility</i>	Distress	Other-Oriented Perfectionism
Obsessive-Compulsive	Emotional Exhaustion	Perfectionism
Obstinacy	Emotional Health	Self-Oriented Perfectionism
Openness to new experiences	Mental Health	Socially Prescribed Perfectionism
Rigidity	Neuroticism	
Tolerance of Ambiguity	Psychosomatic Complaints	<i>Physical Health</i>
		Gastrointestinal Scale
<i>Job Characteristic</i>	<i>Need for Affiliation</i>	Heart Attacks
Being at a work-related location	"All in this together"	Musculoskeletal Scale
Being with people from the work domain	Affiliation Needs	Perceived Health
Employment Sector	Value in all	Physical Health
Labor force sampling year		Pseudoneurology Scale
Managerial Status	<i>Need for Power</i>	Psychosomatic Symptoms
Non-profit organization	Control of Others	
Number of hours contract	Dominance Needs	
Occupation Type		
Organization Size	<i>Negative Affect Towards Non-work</i>	
Organizational Level	More likely to respond to mistakes	
Organizational Values		
Calculated risks are encouraged		
Work Itself		
Work Situation		

Table 1. (cont.)

<i>Positive Affect Towards Non-work</i>	<i>Self-efficacy</i>	<i>Uncategorized</i>
Average positive affect	Beliefs and Fears	Age
Community Satisfaction	Composite Measure of Beliefs and Fears	Antecedents
Emotional Satisfaction	General self-efficacy	Changed Job Since Graduation
Enjoyment	Professional Efficacy	Economic Orientation
Family Satisfaction		Education Level
Happiness	<i>Work Effort</i>	Experience
Life Satisfaction	Average of Perceived Time and Effort Score	Financial Needs
Mean of Five Life Satisfaction Measures	Hours worked per week	Gender
Physical Health Satisfaction	Perceived Effort	Marital Status
Physical Satisfaction	Perceived Time	Parental Status
Positive	Performing work-related activity	Personal Demographics
Positive Feeling	Time on Job	Physical Attraction
Relationship satisfaction	Vigor	Purpose in Life
Self-Esteem		Relationship Status
Self-Worth	<i>Work-life Balance</i>	Organization has a narrow view
	Balance	Years Employer
<i>Positive Affect Towards Work</i>	Balance and Imbalance Values	Years Job
Career Satisfaction	Balance of Rewards	Young children present
Enjoyment Conducting Psychotherapy	Balance Values	
Fun at Work	Life separate from work	
Job Satisfaction	Imbalance	
Preferring work-related activity	Imbalance Values	
Self and Co-worker Perception of Joy in Work	Inter-role Conflict	
	Nights Away from home per month	
<i>Positive Non-performance Work Behaviors</i>	Social support from partner	
Challenging Organizational Deviance	Strain-based Interference	
Delegation	Time-based Interference	
Flow	Work-family conflict	
Innovative Organizational Deviance	Work-Life Balance	
Interpersonal Constructive Deviance	Work-Life Conflict	
Interpersonal Relations	Work-Nonwork Conflict	
<i>Professional Success</i>		
Affluence		
Annual Income		
Career Prospects		
Future Career Prospects		
Personal Accomplishment		
Promotions		
Salary		
Salary Increase		
Tenure		

3. Results

3.1 Work Addiction Risk Test

Table 2 presents a summary of the average correlations between the dimensions of the Work Addiction Risk Test (WART) and the criterion categories of possible workaholism correlates. The effect sizes of the correlation coefficients were rationalized using Cohen's (1988) suggestion that a large effect size is greater than or equal to .5; a moderate effect is between .5 and .3; and a correlation between .3 and .1 is small.

Table 2 also presents the 95% confidence intervals about the mean correlation coefficients using the Fisher *r*-to-*z* transformation and the sample population, *n*. As observed within Table 2, several mean correlation coefficients emerged for which the confidence interval included zero; thus, these scores are not significantly different from zero at the 95% confidence level.

3.1.1 Aggregated

Overall, scores on the aggregated WART displayed no significant correlation with job stress, perceived control, positive affect towards non-work, and self-efficacy. However, scores on the aggregated WART did demonstrate a weak but significant relationship with demographic, job characteristics, negative affect towards non-work, and work effort. Furthermore, scores on the aggregated WART displayed moderate significant correlations with negative affect towards work, perceived job demands, and work-life balance. Moreover, the aggregated WART scores yielded a highly significant correlation with mental health, suggesting that workaholism, as measured by the aggregated WART, is significantly related to mental health. However, it should be noted that this correlation is based on a relatively small sample size. Although the effect sizes of the correlations between the aggregated WART and negative affect towards work, perceived job demands, and work-life balance were not as large as the effect size for mental health, the strength of the correlations with these other criterion measures suggests that they are also related to workaholism. Thus, the relationship between the aggregated WART and these correlates is worthy of consideration.

3.1.2 Compulsive Tendencies

Overall, scores on the Compulsive Tendencies dimension of the WART displayed no significant correlation with demographics or perceived control. However, scores on the Compulsive Tendencies dimension did demonstrate weak significant correlations with job stress, negative affect towards non-work, positive affect towards non-work, professional success, and work effort. Scores on the Compulsive Tendencies dimension evidenced moderate correlations with negative affect towards work and negative non-performance work behaviors. Strong correlations emerged between scores on the Compulsive Tendencies dimension and need for power, perceived job demands, and work-life balance. Hence, need for power, perceived job demands, and work-life balance all displayed strong relationships with workaholism as measured by the Compulsive Tendencies dimension of the WART. Although the correlations between the scores on the Compulsive Tendencies dimension and negative affect towards work and negative non-performance work behaviors were less robust than the previously stated correlations, their relationship with workaholism should nevertheless be noted.

3.1.3 Control

The Control dimension of the WART demonstrated no significant correlations with mental health or self-efficacy. However, scores on the Control dimension did exhibit weak, yet significant, correlations with commitment and cohesion, negative affect towards work, negative non-performance work behaviors, perceived control, positive affect towards work, and work effort. Furthermore, scores on the Control dimension displayed moderate significant correlations with job involvement, negative affect towards non-work, perceived job demands, and positive affect towards non-work. Although these correlations are only moderate in strength, they represent an attention-worthy significant relationship with workaholism through the Control dimension of the WART. In addition, a strong significant correlation emerged between scores on the Control dimension and job stress, indicating that level of job stress and a workaholic's need for control are highly related.

3.1.4 Delegation

Scores on the Delegation dimension of the WART demonstrated no significant correlations with perceived control, positive affect towards non-work, or work effort. However, weak significant correlations were noted between scores on the Delegation dimension and both negative affect towards non-work and physical health. Scores on the Delegation dimension did not yield moderate or strong significant correlations with any of the criterion variables.

3.1.5 Impaired Communication

Scores on the Impaired Communication dimension of the WART did not evidence significant correlations with perceived control or work effort. However, scores on the Impaired Communication dimension did demonstrate moderate significant correlations with negative affect towards non-work and positive affect towards non-work. Although no strong significant correlations emerged between the Impaired Communication dimension scores and the criterion measures, the moderate correlations stated above indicate that these criteria are significantly related to workaholism as measured by the WART.

Table 2. Work addiction risk test

	Aggregated					Compulsive Tendencies					Control					Delegation					Impaired Communication					Self Worth				
	n	k	r	L	U	n	k	r	L	U	n	k	r	L	U	n	k	r	L	U	n	k	r	L	U	n	k	r	L	U
Achievement Motivation																														
Agreeableness																														
Commitment and Cohesion											2348	4	.09	.05	.13															
Conscientiousness																														
Demographic	464	4	.11	.02	.20	862	6	.07		.14																				
Extraversion																														
Flexibility																														
Job Characteristic	464	4	.17	.08	.26																									
Job Involvement											587	1	.37	.31	.44															
Job Stress	130	1	.17		.34	130	1	.20	.03	.37	587	1	.58	.53	.64															
Mental Health	102	1	.67	.55	.77						2348	4	.04		.08															
Need for Affiliation																														
Need for Power						326	1	.51	.43	.59																				
Negative Affect Towards Non-work	1450	8	.20	.15	.25	870	3	.16	.09	.23	870	3	.37	.31	.43	544	2	.10	.02	.18	870	3	.43	.38	.49	870	3	.18	.12	.25
Negative Affect Towards Work	464	4	.33	.25	.41	663	5	.37	.31	.43	1174	2	.20	.15	.26															
Negative Non-performance work Behaviors						326	1	.41	.32	.50	1500	3	.19	.14	.24															
Perceived Control	598	2	.01	-.07	.09	272	1	.09	-.03	.21	859	2	.15	.08	.22	272	1	.02	-.10	.14	272	1	.12		.24	272	1	.04	-.08	.16
Perceived Job Demands	232	2	.32	.20	.43	431	3	.50	.43	.57	587	1	.43	.37	.50															
Perfectionism																														
Physical Health																733	1	.10	.03	.17										
Positive Affect Towards Non-work	830	4	.05	-.02	.12	1492	7	.22	.17	.27	924	3	.37	.31	.43	272	1	.03	-.09	.15	924	3	.38	.33	.43	598	2	.20	.12	.28
Positive Affect Towards Work											587	1	.21	.13	.29															
Positive Non-performance Work Behaviors																														
Professional Success						398	2	.16	.06	.26																				
Self-efficacy	232	2	.05	-.08	.18						587	1	.06	-.02	.14															
Work Effort	272	1	.18	.06	.29	272	1	.23	.11	.34	859	2	.12	.05	.19	272	1	.09	-.03	.21	272	1	.06	-.06	.18	272	1	.13	.01	.25
Work-life Balance	594	5	.36	.29	.43	1001	6	.56	.52	.60																				

Note. n = total sample size; k = number of studies; r = average weighted correlation; L = lower limit of 95% confidence interval; U = upper limit of 95% confidence interval.

3.1.6 Self-Worth

No significant correlations resulted between scores on the Self-Worth dimension of the WART and perceived control. However, scores on the Self-Worth dimension did demonstrate weak significant correlations with negative affect towards non-work, positive affect towards non-work, and work effort. Self-Worth dimension scores did not display moderate or strong significant correlations with any of the workaholism criteria studied.

3.1.7 Summary

The absence of moderate or strong significant relationships between the WART dimensions of Self-Worth and Delegation with any of the criterion measures indicates that they may be measuring other aspects of workaholism that have yet to be studied, or that these dimensions may not be viable aspects of workaholism. The Compulsive Tendencies and the Control dimensions appear to account for the largest effects of workaholism according to the criteria employed in this meta-analysis. None of the criterion categories displayed a strong relationship with all five dimensions of the WART. The aggregated WART only had a strong relationship with the mental health criterion, but this criterion's relationship with the individual dimensions has not yet been examined (except for an insignificant correlation with the Control dimension).

3.2 Workaholism Battery

As with the previous analyses, Table 3 presents a summary of the average correlations linking the dimensions of the Workaholism Battery (WorkBat) to criterion categories of possible workaholism correlates. Additionally, Table 3 also presents the 95% confidence intervals about the mean correlation coefficients, using the Fisher r -to- z transformation and the sample population, n , with several mean correlation coefficients not being significantly different from zero at the 95% confidence level.

3.2.1 Aggregated

Overall, scores on the aggregated WorkBat dimension displayed weak significant correlations with perceived job demands and positive affect towards non-work. The aggregated WorkBat dimension scores also demonstrated moderate significant correlations with negative non-performance work behaviors, perfectionism, physical health, and positive affect towards work. Furthermore, the aggregated WorkBat cores yielded strong significant correlations with job characteristics, job involvement, job stress, mental health, professional success, and work effort. These moderate and strong correlations indicate that workaholism, as measured by the WorkBat, is significantly related to these criteria. In light of these correlations and the WorkBat's definition of workaholism,

it appears that the characteristics of one's job, involvement with this job, level of job stress, mental health status, and level of professional success may offer a viable method of identifying workaholic tendencies.

3.2.2 Drive

Scores on the Drive dimension of the WorkBat did not yield any significant correlations with conscientiousness, extraversion, professional success, or relationship status. However, Drive dimension scores did demonstrate weak significant correlations with agreeableness, commitment and cohesion, demographics, flexibility, job characteristics, job involvement, mental health, negative affect towards non-work, negative affect towards work, negative non-performance work behaviors, perceived control, physical health, positive affect towards non-work, positive affect towards work, positive non-performance work behaviors, self-efficacy, and work effort. Moreover, Drive dimension scores exhibited moderate correlations with achievement motivation, job stress, perceived job demands, perfectionism, and work-life balance. These moderate correlations indicate that workaholism, as defined through this dimension, is significantly related to one's motivation for achievement, level of job stress, job demands, need for perfectionism, and ability to balance work and life activities.

3.2.3 Work Enjoyment

Scores on the Work Enjoyment dimension of the WorkBat were not significantly correlated with conscientiousness. However, Work Enjoyment dimension scores demonstrated weak significant correlations with achievement motivation, agreeableness, demographics, extraversion, flexibility, job characteristics, job stress, mental health, need for affiliation, negative affect towards non-work, negative non-performance work behaviors, perceived control, perceived job demands, perfectionism, physical health, positive affect towards non-work, positive non-performance work behaviors, professional success, relationship status, self-efficacy, work effort, and work-life balance. Furthermore, Work Enjoyment dimension scores yielded moderate correlations with commitment and cohesion, job involvement, negative affect towards work, and positive affect towards work, suggesting that they are significantly related to workaholism as measured by the Work Enjoyment dimension of the WorkBat and should be acknowledged as integral to the disorder.

Table 3. Workaholism battery

	Aggregated					Drive					Work Enjoyment					Work Involvement				
	n	k	r	L	U	n	k	r	L	U	n	k	r	L	U	n	k	r	L	U
Achievement motivation						562	3	.34	.27	.42	495	2	.26	.18	.34	1060	2	.25	.20	.31
Agreeableness						496	1	.14	.05	.23	793	2	.23	.16	.29	46	1	.04	-.26	.33
Commitment and cohesion						2885	9	.11	.07	.15	748	6	.34	.28	.41					
Conscientiousness						496	1	.02	-.07	.11	496	1	.07	-.02	.16	496	1	.02	-.07	.11
Extraversion						496	1	.04	-.05	.13	496	1	.21	.12	.29	496	1	.00	-.09	.09
Flexibility						816	2	.29	.23	.36	816	2	.17	.10	.24	496	1	.08	-.01	.17
Job characteristic	171	1	.58	.47	.67	4042	11	.12	.09	.15	5154	16	.19	.17	.22	4298	12	.07	.04	.10
Job involvement	556	2	.66	.62	.71	2894	12	.27	.24	.31	3194	13	.40	.01	.07	1239	6	.27	.22	.32
Job stress	387	1	.54	.46	.61	3206	12	.37	.34	.40	3219	12	.24	.21	.28	704	2	.07		.14
Mental health	171	1	.58	.47	.67	3545	7	.28	.25	.31	2255	5	.21	.17	.25	1026	2	.04	-.02	.10
Need for affiliation											594	2	.20	.12	.28					
Need for power																				
Negative affect towards non-work						464	4	.21	.12	.29	675	5	.11	.03	.19	464	4	.28	.20	.37
Negative affect towards work						1644	4	.29	.25	.34	1388	6	.34	.29	.39					
Negative non-performance work behaviors	1120	4	.42	.38	.47	3078	8	.20	.17	.24	3413	10	.17	.14	.21	1344	4	.08	.03	.13
Perceived control						587	1	.18	.10	.26	199	1	.23	.09	.36					
Perceived job demands	389	1	.30	.21	.39	7160	12	.35	.33	.38	7366	14	.08	.06	.10					
Perfectionism	387	1	.46	.38	.54	1291	3	.38	.34	.43	2706	7	.28	.25	.32	590	2	.14	.06	.22
Physical health	557	2	.46	.39	.53	1765	5	.19	.15	.24	4052	10	.22	.19	.25	1060	2	.08	.02	.14
Positive affect towards non-work	1905	5	.26	.22	.31	3876	12	.16	.13	.19	5497	17	.16	.13	.19	3756	10	.06	.03	.09
Positive affect towards work	948	3	.39	.34	.45	2375	7	.12	.08	.16	4979	15	.31	.29	.34	1468	5	.10	.05	.15
Positive non-performance work behaviors						807	4	.15	.08	.22	1018	5	.13	.07	.19	807	4	.12	.05	.19
Professional success	171	1	.50	.38	.61	1650	4	.04	-.01	.09	1789	4	.15	.10	.20	1590	3	.04	-.01	.09
Self-efficacy						2438	6	.24	.21	.28	1791	4	.24	.20	.29	1556	3	.02	-.03	.07
Work effort	357	1	.71	.66	.77	2812	8	.25	.22	.29	3554	11	.24	.21	.28	1669	6	.22	.18	.27
Work-life balance						983	7	.36	.31	.42	2607	13	.13	.09	.17	1761	10	.18	.14	.23

Note. n = total sample size; k = number of studies; r = average weighted correlation; L = lower limit of 95% confidence interval; U = upper limit of 95% confidence interval.

3.2.4 Work Involvement

Scores on the Work Involvement dimension of the WorkBat did not yield any significant correlations with agreeableness, conscientiousness, extraversion, flexibility, mental health, professional success, or self-efficacy. However, scores on the Work Involvement dimension did demonstrate weak significant correlations with achievement motivation, demographics, job characteristics, job involvement, negative affect towards non-work, negative non-performance work behaviors, perfectionism, physical health, positive affect towards non-work, positive affect towards work, positive non-performance work behaviors, relationship status, work effort, and work-life balance. No moderate or strong significant correlations emerged between scores on the Work Involvement dimension and any of the criterion variables.

3.2.5 Summary

Despite the absence of strong significant correlations between any of the criterion categories and the individual dimensions of the WorkBat, several strong relationships nevertheless emerged between the aggregated WorkBat and the criterion measures. This pattern of results indicates that drive to work, work involvement, and work enjoyment must be combined in order to successfully correlate the WorkBat's definition of workaholism with the criterion measures that have been shown to identify with the aggregated WorkBat. When analyzed individually, these three dimensions appear to lack the power necessary to correlate with any particular workaholism criteria.

4. Discussion

The Work Addiction Risk Test (WART) and the Workaholism Battery (WorkBat) are the two most prominent measures of workaholism, yet the results of this meta-analysis indicate that few meaningful relationships with the criteria of interest are shared by both measures. In fact, only a few moderate to strong relationships with criterion variables are shared within the dimensions of each measure. Such discrepancies between and within two measures that purport to evaluate the same condition indicate that the definition of workaholism warrants further clarification.

With respect to the WART, of the 28 workaholism criterion categories, only five (negative affect towards non-work, negative affect towards work, perceived job demands, positive affect towards non-work, and work-life balance) shared significant correlations with two or more WART dimensions. The Control and the Impaired Communication dimensions both displayed moderate correlations with negative affect towards non-work and positive affect towards non-work. None of the WorkBat dimensions displayed correlations greater than .3 with these two categories.

The aggregated WART and the Compulsive Tendencies dimension both evidenced moderate to strong relationships with negative affect towards work, perceived job demands (which also had a significant relationship with the Control dimension), and work-life balance. These workaholism criterion categories also demonstrated moderate relationships with a few of the WorkBat dimensions. Negative affect towards work shared a moderate relationship with the WorkBat's Work Enjoyment dimension. The Drive dimension displayed moderate relationships with both perceived job demands and work-life balance. Although these significant relationships indicate that both the WART and the WorkBat seek to assess a few of the same correlates of workaholism, they also highlight the absence of strong relationships between these measures' dimensions and the criterion variables. For example, while a strong relationship emerged between the aggregated WorkBat dimension and work effort, all of the individual WorkBat dimensions and all of the WART dimensions displayed very weak or non-significant relationships with work effort. In addition, the Compulsive Tendencies dimension of the WART demonstrated a strong relationship with need for power, yet none of the other dimensions of either measure have been researched in relation to need for power.

The lack of consistency in the relationships between these two workaholism measures and the criterion variables of interest underscores the need for a standardized definition of workaholism. Although the individual WorkBat dimensions evidenced few meaningful relationships with the criterion variables, the aggregated WorkBat was strongly correlated with job characteristics, job involvement, job stress, mental health, professional success, and work effort. In contrast, each of the WART dimensions displayed at most one strong relationship with various criterion variables. The few moderate effects shared among the WART dimensions appeared to focus upon workaholic correlates such as positive and negative affect towards work and non-work, perceived job demands, and work-life balance. These discrepancies in the criteria with which each measure evidenced a strong relationship suggest that these measures assess qualitatively different traits that fit their varying definitions of workaholism. The WART and the WorkBat appear to use two different working definitions of workaholism, which has resulted in the measurement of uniquely different aspects of the disorder.

In order to achieve more consistent results across workaholism studies, it is critical for a universal definition to first be established. A potential premise for such a definition could be the few criterion categories across both the WART and WorkBat measures that have resulted in promising relationships between the measures' dimensions and the workaholism correlates. For example, the aggregated WART and the aggregated WorkBat both evidenced significant correlations with mental health ($r = .67$ and $.58$, respectively). Similarly, the aggregated WART and the Control dimension of the WorkBat both displayed strong correlations with job stress ($r = .54$ and $.58$, respectively). A proposed definition could examine these common relationships with workaholism correlates across workaholism measures and use this as the basis for a consistent characterization of workaholism.

As with any disease, condition, or disorder, the symptoms and their effects must first be determined in order to better understand its causes and treatment. Current research seems to have adopted a retrospective approach in that it has invented a condition, workaholism, and is now attempting to unearth symptoms that could possibly engender this condition. Workaholism should be treated no differently than any other medical condition in that the addictive behaviors must first be identified and agreed upon, and their influence on the lives of those affected must be examined before the causes of the addiction and the treatment of it may be determined. Presently, it has been well established that particular individuals are addicted to working in a way that negatively affects their psychological, physical, and social health. The current challenge for researchers is to identify and reach a consensus regarding what these psychological, physical, and social health issues are and how they manifest themselves in individuals as possible symptoms of workaholism. Only after the symptoms of the disorder are ascertained can researchers determine a single, coherent, and conclusive definition of workaholism for which they may develop measures to ease the process of making an accurate diagnosis.

4.1 Limitations

As with any research methodology, certain limitations and weaknesses pertained to this meta-analysis. Language barriers prevented the inclusion of international research that had not been transcribed into English. Also, only those studies that reported correlation coefficients and sample sizes were garnered in this meta-analysis, as those values were necessary in order to compare and analyze data across all studies. Furthermore, the demographics of the participants in the individual studies were collected but could not be used in the analysis due to the lack of consistency in the units of measurements across all studies. For example, some studies reported participants' job type by directly stating their occupation, whereas other studies classified occupations as 'blue collar' or 'white collar' without specifying the actual occupations. Variance in the method of providing demographics was too great to derive statistically meaningful results, and hence, was not included in the analysis. Other limitations included subjective coding of criterion measures into general categories. Although inter-rater reliability was confirmed, the categories were still subjectively determined for comparison purposes. Finally, as with all meta-analytical studies, the quality of the results is only as good as the original data from which they are drawn. Although precautions were taken by omitting studies that did not feature quality research designs, this too was a subjective task, and all such studies may not have been removed.

4.2 Future Research

Future research would benefit from focusing upon the personality traits and situational characteristics that influence the manifestation of problematic symptoms that may lead to work addiction. Rather than focus research upon one's own definition of workaholism and investigate criterion variables that fit this definition, it would be advantageous for researchers to first identify the specific behaviors that engender addictive work patterns and the way in which these addictive cycles influence individuals and the organizations for which they work. Only after examining the foundation of addictive work behaviors can a definition regarding the positive or negative effects of workaholism upon an individual's life and the organization employing them be meaningfully determined. It is imperative to the study of workaholism that a single collective definition is constructed in order to develop measures that can accurately and reliably identify the disorder. In an effort to develop a universally agreed-upon definition, researchers must first establish the ways in which individuals are physically, socially, and psychologically impacted by their excessive work habits. The condition of workaholism clearly exists, but future research must take a step back and first establish a foundation of symptoms and outcomes of the disorder before diagnostic measures, such as the WART and WorkBat, may be used to pursue the causes and treatment of workaholism.

5. Conclusions

The study of workaholism is still in its infancy and will require significant collaboration among researchers and modifications of current definitions in order to achieve a coherent conceptual description. Currently the WART

and the WorkBat constitute two reliable measures of workaholism, but their practical applicability and empirical utility will be hindered until an agreed-upon definition of workaholism is attained. As evidenced by the results, each of these measures correlate with fundamentally different workaholism components, suggesting the need for a consistent definition of workaholism. This meta-analysis has undertaken the first step in this process by identifying the shortcomings of current workaholism measures and addressing focal needs for future research.

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- Studies providing data included in the meta-analysis.