

Psychometric Properties of the Hebrew Version of the Dutch Work Addiction Scale (DUWAS-10)

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ABSTRACT. The present study examined the psychometric properties of the Hebrew version of the Dutch Work Addiction Scale (DUWAS-10), developed by Schaufeli, Shimazu, and Taris (2009). Three hundred fifty-one employees completed a questionnaire measuring workaholism; of these, 251 employees completed questionnaires measuring work engagement, job satisfaction, overcommitment, and burnout. The results confirmed the expected two-factor structure of workaholism: working excessively and working compulsively. Strong correlations were obtained between self-reports and peer-reports, and satisfactory correlations were obtained between the first and second administrations of the DUWAS-10. Furthermore, DUWAS-10 scores showed predictable relations with actual number of hours worked per week, work engagement, job satisfaction, overcommitment, and burnout. Interestingly, despite working fewer hours per week, women reported higher levels of workaholism in comparison to men, and managers reported higher levels of workaholism in comparison to nonmanagerial employees.

Keywords: compulsive work, excessive work, workaholism, work-related outcomes

IN RECENT YEARS OCCUPATIONAL HEALTH RESEARCHERS have devoted increasing attention to the phenomenon of workaholism (e.g., Porter, 1996, 2001), which was initially defined as an individual's compulsion or uncontrollable need to work incessantly (Oates, 1968). This interest may be attributed to the profoundly and rapidly changing world of work (Näswall, Hellgren, & Sverke, 2008), which forces workers to continuously adjust to new types of demands.

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For example, flexibility has replaced formality in many work environments, and the boundaries between work and other life spheres have become progressively blurred (Cunningham, De La Rosa, & Jex, 2008). In the context of the changing world of work, it is believed that the influence of personal characteristics on employee well-being will increase and possibly exceed that of situational (organizational) characteristics, which are losing much of their previous consistency (Cunningham et al., 2008). Workaholism is one of such personal characteristics (Burke, Matthiesen, & Pallesen, 2006).

Based on the original conceptualization of workaholism (Oates, 1968), Schaufeli, Taris, and Bakker (2008) distinguished two aspects of workaholism: *working excessively* and *working compulsively*. Working excessively is expressed in a behavioral tendency reflected in an exceptional amount of time devoted to work activities. Working compulsively is the cognitive (or mental) component of workaholism, which is expressed by an obsession for work (Schaufeli, Shimazu, & Taris, 2009).

The Dutch Work Addiction Scale (DUWAS) was developed by Schaufeli, Taris, and Bakker (2006), building on the work of Spence and Robbins (1992) and Robinson (1999). The initial version of the scale comprised 17 items. After further development to enhance its psychometric properties and simultaneously reduce its length as much as possible, the final 10-item version of the DUWAS (Schaufeli et al., 2009) assesses the two components of workaholism (Working Excessively, WE; and Working Compulsively, WC) using five items for each component. These scholars reported that the fit of the two-factor solution of workaholism was found to be adequate and superior to the one-factor solution, with the latent WE and WC factors correlating strongly (.50). Furthermore, internal consistencies of the two workaholism subscales were adequate (.78 in both cases). As expected, analysis of the nomological network of the DUWAS revealed that high levels of workaholism (particularly as revealed by WE) correlated positively with a two-item measure of overwork (e.g., "How often do you take work home?") and a measure of overtime (i.e., actual vs. contracted working time). Higher levels of workaholism were also associated with higher levels of burnout (especially emotional exhaustion) and lower levels of work engagement, which is considered the opposite construct of burnout. Recent research has generally supported a negative relationship between DUWAS workaholism scores and health and well-being measures (e.g., Avanzi, Van Dick, Fraccaroli, & Sarchielli, 2012; Balducci, Cecchin, Fraccaroli, & Schaufeli, 2012).

Further validation work on the DUWAS (Schaufeli, Taris, & Bakker, 2008) revealed several socio-demographic differences in workaholism. Specifically, men reported higher levels of workaholism in comparison to women, whereas no significant correlation emerged between workaholism and age. Workaholism levels also differed by occupational group, with managers, entrepreneurs, and executives reporting higher levels, whereas white- and blue-collar employees reported lower levels of workaholism.

Taken together, sufficient evidence supports the reliability and validity of DUWAS as a measure of workaholism, although it should also be noted that future research should extend the nomological network to strengthen the instrument's construct validity, for example by studying the relationships between DUWAS and measures of personality and psychopathology.

DUWAS has also been successfully validated in other countries, specifically in Japan (Schaufeli et al., 2009) and Spain (Del Líbano, Llorens, Salanova, & Schaufeli, 2010), which opens the door to potential cross-cultural comparisons of workaholism. Following this line of research, in the present study we conduct an analysis of the psychometric properties of the Hebrew version of DUWAS, for which data were not previously available. We first examine the factorial structure of DUWAS using Confirmatory Factor Analysis (CFA). We proceed to examine the internal consistency and test-retest reliabilities of the overall scale and the WE and WC subscales. We then examine relationships between DUWAS and selected work-related variables. We specifically hypothesize:

Hypothesis 1: A two-factor solution of the DUWAS, replicating the factorial composition that emerged from the Dutch data, will better fit the Hebrew data than a one-factor solution.

As there is evidence that workaholism is a relatively stable psychological characteristic (Burke et al., 2006), to the point that researchers consider workaholism to be a personal disposition, we also hypothesize:

Hypothesis 2: The DUWAS measure will demonstrate high test-retest reliability.

To the best of our knowledge, the stability of this measure has not been studied to date. Furthermore, as different aspects of workaholism are observable and thus may be evaluated by individuals close to the workaholic individual, we also expect our original hypothesis:

Hypothesis 3: A strong correlation is expected between self-reports and other-reports of workaholism.

To the best of our knowledge, agreement with other-reports of this measure has not been studied to date.

As far as the nomological network of DUWAS is concerned, we expect:

Hypothesis 4: DUWAS to show positive correlations with the number of hours worked and with a measure of overcommitment (Siegrist, 1996), both of which are indicators of high personal investment in work.

As far as overcommitment is specifically concerned, Siegrist (e.g., Siegrist et al., 2004, p. 1485) defined it as a motivational pattern of excessive work-related

commitment. Overcommitted individuals may expose themselves to excessive demands at work, or they may exaggerate their efforts beyond what is formally needed. It is clear from this definition that overcommitment and workaholism share some defining aspects (e.g., large investment in work-related activities), which suggests that they should be positively correlated. Furthermore, as workaholics devote most of their energy to work and they may even create their own job-demands (Schaufeli, Taris, & Bakker, 2008), it is highly likely that they are exposed to high job stress levels. Well-established models of job stress such as the Demand-Control model (Karasek & Theorell, 1990) and the Job Demands-Resources model (Schaufeli & Bakker, 2004) may explain the relationship between demands, as workaholics experience them, and lack of job resources, resulting from a lack of recovery time from their excessive efforts (Schaufeli, Taris, & Van Rhenen, 2008; Shimazu & Schaufeli, 2009). Those models postulate that excessive job demands in the longer run may lead to negative stress-related outcomes such as burnout, whereas the presence of job resources is considered to stimulate employees' work engagement. Previous research (Schaufeli, Taris, & Van Rhenen, 2008) has indeed found a positive relationship between workaholism and stress-related outcomes, such as burnout, a syndrome comprising three dimensions: exhaustion, cynicism, and professional efficacy (Maslach, Schaufeli, & Leiter, 2001). Thus, in light of these theoretical considerations and empirical findings, we also hypothesize:

Hypothesis 5: That DUWAS will show a positive correlation with two key components of burnout (emotional exhaustion and cynicism; a replication hypothesis).

Job resources are believed to stimulate employees' work engagement defined as a positive, fulfilling, work-related state of mind, characterized by vigor (energy and mental resilience), dedication (enthusiasm and sense of significance), and absorption (being fully engrossed in one's work) (Schaufeli, Bakker, & Salanova, 2006). Schaufeli, Taris, and Van Rhenen (2008) found that workaholism and work engagement are positively related yet conceptually and empirically distinct. They also found that it was mainly the absorption component of work engagement that significantly and positively correlated with workaholism. Schaufeli et al. (2008) attributed these results to the fact that workaholics are reluctant to disengage from work and have a compulsory indulgence in work activities, which is clearly close to the experience of being fully immersed (i.e., absorbed) in one's work. Thus, we hypothesize:

Hypothesis 6: DUWAS will be positively correlated with work engagement mainly through the absorption component of the engagement (replication hypothesis).

Finally, workaholism has also been found to be weakly and positively related to job satisfaction (e.g., Burke, Richardson, & Mortinussen, 2004); however,

Schaufeli, Taris, and Van Rhenen (2008) found that WE was positively related, and WC was negatively related, to job satisfaction. Given these inconsistent results, we examine the relationship between DUWAS and job satisfaction in the present study, without seeking evidence for a specific hypothesis.

Materials and Methods

Procedure

Data Collection

Data for the current study were collected from a community-based sample of employees in Israel. Potential respondents received a self-report questionnaire with a cover letter explaining that the purpose of the study was to survey working attitudes among people who had been in the workforce for at least six months. It was emphasized that the questionnaires were anonymous, and participants were requested to complete them in their entirety, with no time limitation.

In the interests of obtaining a sample that represented a range of organizations, industries, managerial positions, tenure periods, and occupations, randomly selected employees of several organizations were asked to participate in the study. The initial wave of 221 potential respondents was contacted either by an electronic letter containing a link to the electronic survey file, or were personally handed a print copy of the letter and the survey by the researchers. Of this group, 155 completed the questionnaire. To increase sample size, a snowball sampling strategy was used, and the initial wave of respondents were asked to forward the e-mail or help distribute the questionnaires to acquaintances who had been employed for at least six months, for their consideration. This strategy generated an additional 96 participants who completed questionnaire. After 20 weeks (the data for the current study were collected between January and May 2011), 251 usable surveys had been obtained from the respondents. Most participants who consented to take part in the study completed the survey on a dedicated website (Google docs) developed specifically for this study. Some questionnaires (about 5%) were completed manually. Participants did not receive any monetary compensation for their participation or for their cooperation in forwarding the questionnaire to potential respondents.

To increase sample size solely for the Confirmatory Factor Analysis (CFA) of the DUWAS-10 Hebrew version, an additional 100 participants completed the DUWAS-10 as part of another study. Thus, CFA was performed on the total sample of 351 participants.

Translation of the English DUWAS-10

In this study, the English inventory was independently translated into Hebrew by two bilingual Israeli researchers with good knowledge of both languages. The two translations were compared and differences between them were discussed

and resolved by consensus. The first “final” version was given to several bilingual individuals who also completed the original English questionnaire and provided feedback on differences between the original and the translated versions found in certain items. Based on their comments, a final translation was developed. Using a back-translation technique (also used in Littman-Ovadia & Lavy, 2012), this version was back-translated into English by two bilingual organizational-vocational psychologists. After comparing the back-translation to the original version, several minor revisions were made (consulting with the bilingual experts). Pilot data were collected from a small sample of graduate psychology students using this version of the questionnaire. Following feedback, several minor changes were made, and the final version was used to collect data from 351 participants in this study.

Research Participants

The CFA sample comprised 351 Israeli workers, of whom 176 (50.1%) were male. The CFA sample comprised the initial 251 participants who completed both the Hebrew DUWAS and validation measures, and an additional 100 participants who completed the Hebrew DUWAS questionnaire only as part of another study (see Data Collection section). In the CFA sample, all respondents held a full-time job (at least 40 hours a week) with tenure of at least six months in their current workplace. All respondents were white-collar employees who worked in a variety of organizations and jobs across Israel. Most (79.5%) were salaried employees, some of whom (8.5%) were self-employed, and the remainder (12%) was part-time salaried employees and self-employed individuals. Their average age was 34.9 years ($SD = 10.8$); ages ranged from 19 to 70 years. Close to one-fifth of the sample population (18.5%) held a graduate degree, 39.3% held an undergraduate degree, 23.7% had some academic or post-secondary education, and the remainder (18.5%) had complete or partial high school education. The sample showed an equal distribution of married (52%) and unmarried individuals (39% single, 9% divorced or separated).

Validation, reliability, and correlations between workaholism and work outcome variables were measured using data collected from the original sample of 251 participants who completed all the study questionnaires (“validation sample”). The validation sample of 251 participants was similar to the 351-participant CFA sample: 48.6% men, 80.5% salaried employees, 9.2% self-employed, and 9.6% worked as both salaried employees and self-employed; age range 19–70 ($M = 37.0$, $SD = 10.9$); 21.5% with an MA or PhD degree, 39.8% with a BA degree, 20.7% with some post-secondary education, and the remainder, 17.9%, with complete or partial high school education; 62% married, 29% single, and 9% divorced or separated. All 251 participants were asked to complete the DUWAS-10 again after two or three months, but only 83 (32.5% men) completed it a second time and sent it to the researchers by e-mail. All participants were also asked to send a peer-rated

version of DUWAS-10 to their spouse, romantic partner, or work-colleague and ask them to complete the survey and send it directly to the researchers by e-mail. The researchers received other-reports from 94 respondents (63.8% evaluated men).

Measures

Workaholism

Workaholism was measured with a Hebrew version of the Dutch Work Addiction Scale (DUWAS-10 Schaufeli et al., 2009). The scale comprised two 5-item subscales measuring working excessively (e.g., “I seem to be in a hurry and racing against the clock”) and working compulsively (e.g., “I feel obliged to work hard, even when it’s not enjoyable”). Respondents rated their responses on a scale from 1 (*almost never*) to 4 (*almost always*) on a Likert-type scale.

DUWAS-10 Peer-Rated Version

To examine the convergent validity of the translated questionnaire, the items were converted to third-person (e.g., “He’s usually in a hurry and racing against the clock”). Participants were asked to ask one significant other (spouse, boyfriend, girlfriend, friend, or colleague) with whom they are in daily contact to complete the questionnaire with respect to the participant and his or her attitude to work.

Work Engagement

Work engagement was measured with a 9-item version of the Utrecht Work Engagement Scale (UWES-9; Schaufeli, Bakker, & Salanova, 2006). The scale was translated into Hebrew and validated in Israel by Littman-Ovadia and Balducci (2013). The scale comprised three three-item subscales measuring vigor, dedication, and absorption; the nine items were combined into a single composite measure. Three sample items are: “At my work, I feel bursting with energy” (Vigor), “I am enthusiastic about my job” (Dedication), and “I get carried away when I am working” (Absorption). Respondents rated their responses on a scale from 1 (*never*) to 7 (*always*). Schaufeli, Bakker, and Salanova (2006) demonstrated good factorial validity of the UWES-9. Satisfactory internal consistency was achieved (alpha values ranged from .85 to .92 across various countries). In the present study, reliabilities are .78 (vigor), .88 (dedication), .78 (absorption), and .91 (total scale).

Job Satisfaction

The Minnesota Job Satisfaction Questionnaire (MSQ; Weiss, Dawis, England, & Lofquist, 1967) is a 20-item, self-response questionnaire, with satisfaction rated on a 5-point scale ranging from 1 (*very dissatisfied*) to 5 (*very satisfied*). This short form assesses both intrinsic job satisfaction and extrinsic job satisfaction. The intrinsic subscale reflects ability, freedom of action, and achievement (e.g.,

“The feeling of accomplishment I get from the job”) and the extrinsic subscale concerns the quality of working conditions, company policies, promotion, and so forth (e.g., “The way my supervisor handles his/her workers”). In a previous study in Israel, alpha coefficients for the two scales were .87 and .76, respectively (Littman-Ovadia & Balducci, 2013). In the present study, alpha coefficients for the two scales were .84 and .81, respectively. The total scale reliability obtained was .89, very close to the value reported by the developers (.90).

Overcommitment

Overcommitment is a subscale of the Effort–Reward Imbalance (ERI) questionnaire (Siegrist, 1996). In this study, overcommitment was assessed with six items reflecting preoccupation with work and an inability to “switch off” (e.g., “As soon as I get up in the morning, I start thinking about work problems” and “People close to me say I sacrifice myself too much for my job”). Respondents rated their agreement with each item on a scale from 1 (*strongly disagree*) to 4 (*strongly agree*). The internal reliability of the scale reported by Siegrist et al. (2004) ranged from .74 to .88. In the present study, scale reliability was .75.

Burnout

Burnout was assessed using the Maslach Burnout Inventory–General Survey (MBI-GS; Schaufeli, Leiter, Maslach, & Jackson, 1996). The MBI-GS includes 16 items belonging to one of three subscales: Exhaustion (“I feel used up at the end of the workday”), Cynicism (“I have become less enthusiastic about my work”), and Professional Efficacy (“In my opinion, I am good at my job”). All items were scored on a 7-point frequency scale, ranging from 0 (*never*) to 6 (*always*). In the present study, reliabilities were .84 (Exhaustion), .73 (Cynicism), and .82 (Professional Efficacy). The reliability of the total scale was .85, very close to the reliability (.87) obtained by Schaufeli et al. (1996).

Results

Data Analysis

SPSS analytical tools were employed in the majority of the analyses. Confirmatory factor analysis of the DUWAS was performed using LISREL 8.71, comparing the fit of the one-factor solution to the fit of the two-factor (WE and WC) solution. CFA results were evaluated using the χ^2 statistic and a variety of other, more practical fit indices (Schweizer, 2010) including the root mean square error of approximation (RMSEA), the standardized root mean square residual (SRMR), and the comparative fit index (CFI). RMSEA values lower than .05 are usually considered good, while values lower than .08 are considered acceptable. SRMR values below .10 are considered acceptable. CFI values equal to or greater

than .90 are considered acceptable, while values equal to or greater than .95 are considered good.

Preliminary Analysis and Confirmatory Factor Analysis

For each DUWAS-10 item, participants' responses covered the entire range of the scale. The dimension experienced most frequently was Working Excessively ("I stay busy and keep many irons in the fire"; $M = 2.91$, $SD = 0.89$), while the dimension that was experienced least frequently was Working Compulsively ("It is hard for me to relax when I'm not working"; $M = 1.72$, $SD = 0.87$). As several DUWAS items exhibited a skewed distribution, CFA was performed using the robust maximum likelihood estimator. CFA results for the one-factor solution were: Satorra-Bentler (S-B) scaled $\chi^2(35) = 162.517$, $p < .01$; $SRMR = .073$; $CFI = .887$; $RMSEA = .104$. Results for the two-factor solution were: S-B scaled $\chi^2(34) = 139.099$, $p < .01$; $SRMR = .071$; $CFI = .907$; $RMSEA = .096$. While the fit of the two-factor solution was significantly better than the fit of the one-factor solution (S-B scaled $\Delta\chi^2 = 36.93$, $p < .05$), fit for the two-factor solution was not good, although both SRMR and CFI results suggest an acceptable degree of fit (Schweizer, 2010). RMSEA was slightly greater than the commonly accepted threshold of .08, with its value (.096) falling in the 'grey area' usually interpreted as mediocre fit. The normed χ^2 (χ^2/df) was slightly above the accepted threshold of 3 (Schweizer, 2010). Suboptimal fit was previously reported for the DUWAS with a comparable sample size (Del Libano et al., 2010). Del Libano et al. improved the model's fit by permitting two error covariances between items in the WC scale. We inspected model diagnostics of our two-factor solution and found that model fit could similarly be significantly improved (e.g., $RMSEA = 0.069$) by permitting two error covariances between items in the WC scale. However, as freeing error covariances is not good practice in scale validation studies (Schweizer, 2010), and considering that two of the three fit indices of our initial two-factor solution suggested acceptability, we retained this solution. Mean factor loadings for the accepted two-factor solution was .48 (range from .38 to .77), whereas the correlation between latent WE and WC factors was $\phi = .76$. On the whole, we believe that the results offer some support for Hypothesis 1, according to which we expected DUWAS 10 to show the same configuration as the original version of the scale. However, we also note the WE and WC factors were strongly related each other, to an extent that was significantly greater than previously reported ($\phi = .50$) for the original version of the scale (Schaufeli et al., 2009).

Additional Psychometric Analyses

Additional psychometric analyses revealed that the internal consistency reliability (alpha) was .78 for the DUWAS overall scale, and .70 and .61 for the WC and WE subscales, respectively. Thus, the WE subscale had quite low internal consistency. Test-retest reliability, computed for the 83 participants who provided

follow-up data, was $r = .79$ ($p < .001$) for the overall scale, and $r = .71$ ($p < .001$) and $r = .77$ ($p < .001$) for the WC and WE subscales, respectively, which indicates that this level of reliability was satisfactory in all the cases. The latter result supports Hypothesis 2. Notably, participants who provided follow up data did not differ from those who did not provide such data in terms of workaholism scores ($t(239) = -0.11$, n.s., for the DUWAS overall score; $t(245) = -0.48$, n.s., for WE; and $t(241) = 0.11$, n.s., for WC).

We also assessed correlations between self-reports and peer-reports of workaholism, for the 94 participants for whom these data were available, and found a significant and quite strong correlation in all cases: $r = .52$ ($p < .001$) for the overall measure, $r = .43$ ($p < .001$) for WC, and $r = .50$ ($p < .001$) for WE. Peer-reports were more strongly consistent with self-reports for the WE subscale than for the WC subscale. This is to be expected, as the WE subscale is based on observable indicators of workaholism. Overall, Hypothesis 3 was also supported. Notably, workaholism scores of participants who provided peer reports did not differ from the scores of participants who did not provide such data [$t(239) = 0.23$, n.s., for the DUWAS overall score; $t(245) = 0.78$, n.s., for WE; and $t(241) = -0.51$, n.s., for WC].

Table 1 reports the correlations between DUWAS and its scales and the variables used in the present study to explore its nomological network. In line with Hypothesis 4, workaholism scales showed positive and significant correlations with overcommitment and the actual number of hours worked per week. Correlations were higher between workaholism and overcommitment (r from .40 to .52) than between workaholism and number of hours worked (r from .18 to .28). As far as the relationships between DUWAS and burnout are concerned, the workaholism scales correlated positively with emotional exhaustion (r from .17 to .22, $p < .01$ in all the cases), the primary component of burnout. As expected, correlations between DUWAS and professional efficacy were negative (r from -.08 to -.15), although not always significant. Correlations between DUWAS and cynicism were not significant. These results only partially supported Hypothesis 5.

The DUWAS overall scale and its WE subscale showed positive and significant correlations with work engagement ($r = .18$, $p < .01$; and $r = .21$, $p < .01$, respectively), suggesting that workaholic individuals also tend to be engaged in their work, at least to a certain extent. However, a more fine-grained look at the dimensions of work engagement revealed that it was mainly absorption that influenced the engagement–workaholism relationship: Correlations between absorption and the DUWAS scales were positive, significant ($p < .001$ in all cases), and overall in the moderate range. This result provided support for Hypothesis 6 and replicated previous findings (Schaufeli, Taris, & Van Rhenen, 2008), indicating that a better separation between workaholism and work engagement (and a better refinement of the engagement construct in general) would entail the omission of the absorption component from the latter.

TABLE 1. Correlations Between the DUWAS and the Variables Used to Assess Its Nomological Network ($n = 251$)

	<i>M (SD)</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1- DUWAS-10	2.43 (0.54)	1														
2- Working excessively (WE)	2.63 (0.59)	.87**	1													
3- Working compulsively (WC)	2.23 (0.64)	.89**	.55**	1												
4- N. hours worked per week	49.98 (9.22)	.23**	.27**	.14**	1											
5- Over-commitment	2.29 (0.66)	.52**	.50**	.40**	.21**	1										
6- Exhaustion	3.41 (1.36)	.21**	.17**	.21**	.13*	.32**	1									
7- Cynicism	3.21 (1.29)	-.05	-.11	.03	.01	.01	.49**	1								
8- Professional efficacy	2.11 (0.91)	-.12	-.14*	-.07	.00	-.10	.26**	.41**	1							
9- Work engagement	5.35 (1.16)	.18**	.21**	.10	.02	.11	-.44**	-.57**	-.65	1						
10- Vigor	5.44 (1.14)	.08	.11	.03	-.01	.03	-.48**	-.51**	-.54**	.89**	1					
11- Dedication	5.34 (1.46)	.08	.15*	.00	-.01	.07	-.44**	-.61**	-.63**	.90**	.73**	1				
12- Absorption	5.29 (1.31)	.31**	.29**	.25**	.09	.19**	-.27	-.41**	-.55**	.88**	.69**	.66**	1			
13- Job satisfaction (overall)	3.63 (0.68)	.01	.03	-.01	-.08	-.10	-.38**	-.46**	.52**	.46**	.56**	.36**	.36**	1		
14- Intrinsic job satisfaction	3.87 (0.66)	.22**	.26**	.14*	-.04	.06	-.35**	-.58**	.67**	.57**	.57**	.68**	.52**	.76**	1	
15- Extrinsic job satisfaction	3.36 (0.89)	.00	.03	-.03	-.05	-.04	-.35**	-.44**	.46**	.40**	.40**	.50**	.32**	.89**	.60**	1

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

Correlations between DUWAS and job satisfaction were almost zero in the present study. However, when job satisfaction was examined at the dimension level, distinguishing satisfaction with the intrinsic versus extrinsic aspects of the job, several interesting results emerged. Correlations between the DUWAS scales and extrinsic job satisfaction were null, whereas the DUWAS scales (especially WE) correlated positively and significantly with satisfaction with the intrinsic aspects of the job (e.g., skill variety, autonomy, and performance feedback). Interestingly, Table 1 also shows that work engagement dimensions correlated much more strongly (r between .53 and .69) than workaholism dimensions with the intrinsic aspects of the job; work engagement dimensions, however, also correlated significantly (r between .33 and .50) with the extrinsic aspects of the job. This seems to suggest that engaged workers are capable of appreciating both the intrinsic and extrinsic aspects of the job, while workaholics are less concerned with the job's extrinsic aspects.

We also examined the relationships between the DUWAS measures and socio-demographic variables. We did not find the DUWAS scales to be related to age (r close to zero in all cases). Similarly, we found no differences in the DUWAS scales according to educational level. We did, however, find that women reported higher levels of workaholism, measured by DUWAS, in comparison to men. This was true for the overall scale ($p < .05$) and for the WE and WC subscales as well. Notably, this was also true for the overcommitment measure ($p < .05$ in all cases). We also found that women reported fewer work hours ($p < .001$) but greater exhaustion ($p < .05$), compared to men. Finally, we examined differences in workaholism by seniority (whether or not the participant held a managerial position), and found that managers obtained higher scores on the overall DUWAS scale ($p < .01$), as well as on the WE subscale ($p < .001$). With the exception of the finding emerging for gender, all remaining results were in line with previous research on workaholism using DUWAS (Schaufeli, Taris, & Bakker, 2008).

Finally, we checked whether the validation sample that was used to explore the nomological network of the DUWAS differed from the total CFA sample in terms of workaholism scores. To this end we performed a t -test to compare the 251 participants of the validation sample to the 100 participants who were added to them to create the CFA sample. Results revealed indications of a significant difference between the two samples, with participants of the validation sample reporting slightly higher scores on the overall DUWAS and its component scales; however, in none of the cases chance could be statistically excluded [$t(334) = 1.85$, n.s., for the DUWAS overall score; $t(342) = 1.42$, n.s., for WE; and $t(338) = 1.50$, n.s., for WC].

Overall, the analyses provided some support for the two-factor solution of the DUWAS (H1) whereas they supported a high test-retest and self-other report consistencies of the scale (H2 and H3, respectively). As for the nomological network of the DUWAS, the analyses provided substantial support for the association

between the DUWAS and the number of hours worked and overcommitment (H4), whereas only partial support emerged for the association between the DUWAS and the central dimensions of burnout, that is, exhaustion and cynicism (H5). Finally, as hypothesized (H6), the analyses provided support that workaholism is related to work engagement mainly through the absorption component of the latter construct.

Discussion

The present study provides some evidence for the reliability and validity of the Hebrew version of the DUWAS-10 as an overall measure of workaholism. DUWAS-10 shows reasonable internal consistency and test-retest reliability at levels very close to the suggested threshold of .80 (Nunnally & Bernstein, 1994), consistent with findings related to the original Dutch version of the scale (Schaufeli et al., 2009).

Comprehensive data analyses confirmed the superiority of the two-factor CFA solution of DUWAS over the one-factor solution, and replicated findings of studies on Dutch data. It should, however, be noted that the suboptimal fit of the two-factor solution calls for further investigations on the latent structure of the Hebrew version of the scale. The internal consistency of the WC subscale was also satisfactory, but the WE subscale scores showed an internal consistency lower than in previous studies (e.g., Del Libano et al., 2010) and which may be defined as “questionable” (Kline, 1999). However, it has also been argued that for less clearly delimited psychological phenomena, of which the behavioral components of workaholism can be considered an example (for another example, see Balducci, Schaufeli, & Fraccaroli, 2011), measurement scales that attain an alpha of .60 to .70 may be regarded as acceptable (Kline, 1999). Furthermore, a different aspect of reliability, namely test-retest reliability, was adequate for the WE subscale, which indicates that the measure has indeed a certain degree of accuracy. However, considering the importance of internal consistency in psychological research, we believe that this aspect of reliability of the WE subscale deserves attention in future research with the DUWAS.

Although we found the same configuration as in the original version of the scale, we found that the WE and WC factors were strongly related to each other, and more strongly compared to findings based on the original version of the scale (Schaufeli et al., 2009). This may suggest that, among Hebrew-speaking workers (at least, those included in the present study), workaholic tendencies measured by the DUWAS still refer to two underlying elements (WE and WC) rather than one; however, these elements are very strongly related to each other. Also, in light of the low internal consistency of the WE subscale, this suggests the feasibility of using the Hebrew version of the DUWAS as a single overall score in future workaholism research in Israel. A similar situation has been reported for the Utrecht Work Engagement Scale (Balducci, Fraccaroli, & Schaufeli, 2010), for

which CFA indicates the superiority of a three-factor solution (Vigor, Dedication, and Absorption) over the one-factor solution; however, the three factors are so strongly intercorrelated that the use of a single overall work engagement score is generally accepted. Notably, however, we also found some evidence for discriminant validity of the two workaholism components hypothesized by the DUWAS (see the following).

We also found high test-retest reliability of the DUWAS measure. The high level of stability of workaholism found in the present study supported the previous conceptualization of workaholism as a personal disposition rather than situational response (Burke et al., 2006). Furthermore, we found a strong correlation between self-reports and other-reports of workaholism, specifically for the observable aspects of the workaholism (WE). These findings offer support for the validity of the two-factor structure of DUWAS that has been used in several countries (Del Líbano et al., 2010; Schaufeli et al., 2009).

Consistent with previous findings, the correlation found in the current study between workaholism and number of hours worked in a week ranged from low to moderate. Notably, it was mainly the behavioral component (WE) of workaholism that correlated with number of hours worked in a week, which provides some support for the discriminant validity of the two workaholism components. Furthermore, the size of the correlations between the DUWAS scores and number of hours worked in a week emphasizes the distinction between workaholism and extended hours of work. In other words, people can work long hours either because they are workaholics or for other reasons (for example, because they have financial obligations).

As expected, similarly to previous studies (Burke et al., 2006), a positive correlation was found between workaholism and mental exhaustion, one dimension of burnout, and a negative correlation was found between the WE subscale of workaholism and professional efficacy, a second dimension of burnout. This finding is consistent with the findings of Machlowitz (1980), which show that workaholics create more work for themselves by transforming minor tasks into unnecessarily complicated projects. According to their characteristics, workaholics work hard, but not necessarily efficiently or intelligently (Schaufeli, Taris, et al., 2006).

A weak positive correlation was found between workaholism and work engagement, which alludes to similar factors underlying both constructs. Both constructs involve an innate tendency to devote excessive time and thought to work, as well as a tendency to become immersed in work. However, the crucial difference between these two constructs is that workaholism lacks the positive affective (enjoyment) component of work engagement, and therefore is associated with lower work satisfaction. The correlation between workaholism and work engagement appears to be influenced primarily by absorption. Both workaholism and absorption are characterized by a difficulty to disengage from work (Schaufeli & Bakker, 2004; Scott, Moore, & Miceli, 1997) although the underlying motivations

differ substantially: the motivation for work engagement is intrinsic (individuals enjoy their work), whereas workaholism is driven by a compulsion. In a recent article, Gorgievski and Bakker (2010) introduced new concepts to explain this difference. They identified two forms of passion (harmonious passion and obsessive passion). Harmonious passion, which is theoretically linked to work engagement, occurs when the individual controls an activity that is important and enjoyable but does not invade other areas in her life. Obsessive passion, which is conceptually linked to workaholism, occurs when the activity controls the individual, assumes a disproportionate space in the individual's life, and causes conflicts with other life domains (such as family and leisure time). The fact that the correlation is very weak reinforces previous findings of Schaufeli et al. (2008), who propose to distinguish between workaholism and work engagement.

We also examined the relationship between workaholism and job satisfaction and found a weak yet positive correlation with intrinsic job satisfaction. No similar correlation was found with extrinsic job satisfaction. Machlowitz (1980) claimed that workaholics are intrinsically motivated to work hard, and do not appreciate the extrinsic aspects of their job. Their internal drive, which pushes them to work hard, also rewards them and generates a certain level of intrinsic satisfaction, which, in turn, creates a feedback loop that reinforces workaholism. The correlation between workaholism and intrinsic job satisfaction is also supported by the definition of workaholism as an addiction (Oates, 1968): just as addicts who find pleasure and satisfaction by satisfying their urge to engage in their addiction, workaholics gain intrinsic satisfaction by satisfying their urge to work hard, but not by the job's rewards and content.

We found that absorption (but not dedication or vigor) has stronger relationships than intrinsic (but not extrinsic) job satisfaction, with working compulsively (but not with working excessively). Our findings are consistent with Macey and Schneider (2008), who, based on a review, urged that thinking and research about engagement should place greater emphasis on absorption, passion, and affect, and less emphasis on satisfaction, involvement, and organizational commitment. In contrast to simple satisfaction, engagement involves passion and commitment—the willingness to invest oneself and expend one's discretionary effort to help the employer succeed.

Our findings are quite consistent with the Job Demands-Resources model (Schaufeli & Bakker, 2004), as we found that workaholics are overcommitted to work, which means that they may contribute to create their own job demands. This implies that workaholics tend to experience high levels of job demands, which—as hypothesized by the Job Demands-Resources model—in the longer run may trigger a health impairment process leading to negative outcomes such as burnout. This is reflected in our data by the positive correlation between workaholism and emotional exhaustion, despite it should be pointed out that we expected higher correlations between workaholism and the key dimensions of burnout.

The relationships found between DUWAS workaholism scores and work engagement, job satisfaction, overcommitment, and burnout provided evidence for both convergent and divergent validity of the scale. It should be noted that, excluding overcommitment, the relationships between workaholism and criterion measures, especially emotional exhaustion, were a bit lower than expected (see, e.g., Schaufeli et al., 2009). However, the pattern of relationships between workaholism and criteria was quite similar (in magnitude and direction) to the pattern of relationships between overcommitment and the same criteria. Since most of the criterion measures included in our study can be considered outcomes of the stress process, it may well be that workaholism, as a personal disposition similar to overcommitment (see Siegrist, 1996), does not have a strong direct influence on the criterion measures. Rather, workaholism may act as a moderator of the effect of job stressors on outcome variables, strengthening the aversive effect of factors such as role overload and role conflict.

Overall, we believe that our findings suggest that the Hebrew version of the DUWAS has encouraging psychometric properties, although more research is warranted, especially research designed to provide stronger support for the two-factor structure of the scale and to shed more light on its correlates (other personality characteristics). Further investigation is also warranted on the relationship between workaholism and the exhaustion dimension of burnout, which generated weak correlations in the present study that were generally lower than the correlations reported in previous research (e.g., Schaufeli et al., 2009).

In addition to an examination of the reliability and validity of the questionnaire, the relationship between workaholism and several socio-demographic factors was examined. Managers were found to be more workaholic, worked more compulsively, and were more overcommitted than non-managerial employees. These findings recall the findings of a study conducted in Israel by Harpaz and Snir (2003), which found that managers and professional employees had the highest probability of being workaholics, compared to individuals in nonmanagerial or nonprofessional positions. While workaholics may be presumed to be attracted to managerial positions that are more challenging and require extensive time commitments, it is also possible that the nature of managerial jobs leads to workaholic-like behaviors and attitudes.

Another interesting finding that is not directly connected to DUWAS but is connected to workaholism is gender differences. Although women report working fewer hours per week than do men, they are typically more workaholic, had a greater tendency to compulsive work and over-commitment, and experience greater exhaustion than men. Our finding is consistent with previous studies that found that women spent less time at work and yet had suffered from higher levels of stress, exhaustion and negative affect, and from lower levels of satisfaction and well-being (Burke, 1999; Burke & Matthiesen, 2009; Spence & Robbins, 1992), and that women had higher work-drive, which can be considered as equivalent to

the compulsive tendency (Burke & Matthiesen, 2009). Although women's roles in the workplace have expanded, the expectations of women in the family have not diminished (Hochschild, 1997). Our finding may be explained by previous findings of Grzywacz and Marks (2000), which indicate that greater pressure at work and barriers in the workplace are associated with more negative spillover effects. Since women face more challenges and barriers at work they tend to suffer more from the negative outcomes. Women's reports that the emotional experience of multitasking (at home and in public settings) is negative, stressful, and saturated with conflicts (Offer & Schneider, 2011) may provide another explanation for their exhaustion.

The conclusions derived from the present study must be tempered by its limitations. First, these self- and other-report questionnaires on workaholism and work-related attitudes and outcomes tell us nothing about whether respondents are actually good workers. Second, in some aspects, this study was cross-sectional rather than longitudinal, and therefore it is not possible to examine pertinent questions about causal relations between workaholism and work outcomes, such as whether changes in workaholism precede changes in job satisfaction or burnout. Another limitation of the current study is related to the snowball sampling method used to enlist the sample. While this method allowed us to reach a wider population, there is no way of knowing whether the sample is representative of the general population. The sample may be tainted by self-selection bias, in that more workaholics responded positively to the request and completed the questionnaire.

The demonstration that DUWAS, a workaholism scale developed in a specific language for a specific cultural setting, exhibits similar psychometric properties in other languages and cultures attests to its validity, at least, in Western democratic societies. The present findings are in line with the results of previous research suggesting that the DUWAS is a promising tool for conducting cross-cultural research on workaholism (see Schaufeli et al., 2009). Furthermore, the present findings also suggest that the DUWAS may be useful for the screening of workaholic tendencies in organizational contexts, which is a suggested strategy to prevent the negative consequences of workaholism (see Van Wijhe, Peeters, & Schaufeli, 2010). As far as the Hebrew version of the scale is specifically concerned, we hope that new evidence strengthening the present findings will soon become available.

AUTHOR NOTES

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REFERENCES

- Avanzi, L., Van Dick, R., Fraccaroli, F., & Sarchielli, G. (2012). The downside of organizational identification: Relations between identification, workaholism and well-being. *Work & Stress, 26*(3), 289–307.
- Balducci, C., Cecchin, M., Fraccaroli, F., & Schaufeli, W. (2012). Exploring the relationship between workaholism and workplace aggressive behaviour: The role of job-related emotion. *Personality and Individual Differences, 53*, 629–634.
- Balducci, C., Fraccaroli, F., & Schaufeli, W. B. (2010). Psychometric properties of the Italian version of the Utrecht Work Engagement Scale (UWES-9): A cross-cultural analysis. *European Journal of Psychological Assessment, 26*(2), 143–149.
- Balducci, C., Schaufeli, W. B., & Fraccaroli, F. (2011). The Job Demands-Resources Model and counterproductive work behaviour: The role of job-related affect. *European Journal of Work and Organizational Psychology, 20*(4), 467–496.
- Burke, R. J. (1999). Workaholism in organizations: Gender differences. *Sex Roles, 41*, 5/6, 333–345.
- Burke, R.J., & Matthiesen, S.B. (2009). Workaholism among Norwegian journalists: Gender differences. *Equal Opportunities International, 28*(6), 452–464.
- Burke, R. J., Matthiesen, S. B., & Pallesen, S. (2006). Personality correlates of workaholism. *Personality and Individual Differences, 40*, 1223–1233.
- Burke, R. J., Richardsen A. M., & Mortinussen, M. (2004). Workaholism among Norwegian managers: Work and well-being outcomes. *Journal of Organizational Change Management, 7*, 459–70.
- Cunningham, C. J. L., De La Rosa, G. M., & Jex, S. M. (2008). The dynamic influence of individual characteristics on employee well-being: a review of the theory, research, and future directions. In J. Hellgren, M. Sverke, & K. Näswall (Eds.), *The individual in the changing working life* (pp. 258–283). New York, NY: Cambridge University Press.
- Del Líbano, M. D., Llorens, S., Salanova, M., & Schaufeli, W. B. (2010). Validity of a brief workaholism scale, *Psicothema, 22*, 143–150.
- Gorgievski, M. J., & Bakker, A. B. (2010). Passion for work: Work engagement versus workaholism. In S. L. Albrecht (Ed.), *Handbook of employee engagement: Perspectives, issues, research and practice* (pp. 264–271). Cheltenham, UK: Edward Elgar.
- Grzywacz, J. G., & Marks, N. F. (2000). Reconceptualizing the work–family interface: An ecological perspective on the correlates of positive and negative spillover between work and family. *Journal of Occupational Health Psychology, 5*, 111–126.
- Harpaz, I., & Snir, R. (2003). Workaholism: Its definition and nature. *Human Relations, 56*, 292–320.
- Hochschild, A. R. (1997). *The time bind: When work becomes home and home becomes work*. New York, NY: Metropolitan Books.
- Karasek, R. A., & Theorell, T. (1990). *Healthy work: Stress, productivity, and the reconstruction of working life*. New York, NY: Basic Books.
- Kline, P. (1999). *The handbook of psychological testing* (2nd ed.). London: Routledge.
- Littman-Ovadia, H., & Balducci, C. (2013). Psychometric properties of the Hebrew version of the Utrecht Work Engagement Scale (UWES-9). *European Journal of Psychological Assessment, 29*(1), 58–63.

- Littman-Ovadia, H., & Lavy, S. (2012). Differential ratings and associations with well-being of character strengths in two communities. *Health Sociology Review, 21* (3), 299–312.
- Macey, W., & Schneider, B. (2008). The Meaning of Employee Engagement. *Industrial and Organizational Psychology, 1*(1), 3–30.
- Machlowitz, M. (1980). *Workaholics: Living with them, working with them*. Reading, MA: Addison-Wesley.
- Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology, 52*, 397–422.
- Näswall, K., Hellgren, J., & Sverke, M. (2008). *The individual in the changing working life*. New York, NY: Cambridge University Press.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory*. New York, NY: McGraw-Hill.
- Oates, W. (1968). On being a workaholic (a serious jest). *Pastoral Psychology, 19*, 16–20.
- Offer, S., & Schneider, B. (2011). Revisiting the gender gap in time-use patterns: Multitasking and well-being among mothers and fathers in dual-earner families. *American Sociological Review 76*(6), 809–833.
- Porter, G. (1996). Organizational impact of workaholism: Suggestions for researching the negative outcomes of excessive work. *Journal of Occupational Health Psychology, 1*(1), 70–84.
- Porter, G. (2001). Workaholic tendencies and the high potential for stress among co-workers. *International Journal of Stress Management, 8*, 147–164.
- Robinson, B. E. (1999). The work addiction risk test: Development of a tentative measure of workaholism. *Perceptual and Motor Skills, 88*, 199–210.
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior, 25*, 293–315.
- Schaufeli, W. B., & Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and Psychological Measurement, 66*(4), 701–716.
- Schaufeli, W. B., Leiter, M. P., Maslach, C., & Jackson, S. E. (1996). MBI-General Survey. In C. Maslach, S. E. Jackson, & M. P. Leiter (Eds.), *Maslach Burnout Inventory Manual (3rd ed., pp. 22–26)*. Palo Alto, CA: Consulting Psychologists Press.
- Schaufeli, W. B., Shimazu, A., & Taris, T. W. (2009). Driven to work excessively hard: The evaluation of a two-factor measure of workaholism in the Netherlands and Japan. *Cross-Cultural Research, 43*, 320–348.
- Schaufeli, W. B., Taris, T. W., & Bakker, A. B. (2006). Dr Jekyll or Mr Hyde? On the differences between work engagement and workaholism. In R. J. Burke (Ed.), *Research companion to working time and work addiction* (pp.193–217). Cheltenham, UK: Edward Elgar.
- 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. 203–226). Bingley, UK: Emerald.
- Schaufeli, W. B., Taris, T. W., & Van Rhenen, W. (2008). Workaholism, burnout and engagement: Three of a kind or three different kinds of employee well-being. *Applied Psychology: International Review, 57*, 173–203.
- Schweizer, K. (2010). Some guidelines concerning the modeling of traits and abilities in test construction. *European Journal of Psychological Assessment, 26*(1), 1–2.
- Scott, K. S., Moore, K. S., & Miceli, M. P. (1997). An exploration of the meaning and consequences of workaholism. *Human Relations, 50*, 287–314.

- Shimazu, A., & Schaufeli, B. (2009). Is workaholism good or bad for employee well-being? The disincentiveness of workaholism and work engagement among Japanese employees. *Industrial Health, 47*, 495–502.
- Siegrist J. (1996). Adverse health effects of high effort/low reward conditions. *Journal of Occupational Health Psychology, 1*, 27–41.
- Siegrist, J., Starke, D., Chandola, T., Godin, I., Marmot, M., Niedhammer, I., & Peter, R. (2004). The measurement of effort–reward imbalance at work: European comparisons. *Social Science & Medicine, 58*, 1483–1499.
- Spence, J. T., & Robbins, A. S. (1992). Workaholism: Definition, measurement, and preliminary results. *Journal of Personality Assessment, 58*, 160–178.
- Van Wijhe, C., Peeters, M. C. W., & Schaufeli, W. B. (2010). Understanding and treating workaholism: Setting the stage for successful interventions. In R. J. Burke & C. L. Cooper (Eds.), *Risky business* (pp. 107–134). Farnham, UK: Gower Publishing.
- Weiss, D. J., Dawis, R. V., England, G. W., & Lofquist, L. H. (1967). *Manual for the Minnesota Satisfaction Questionnaire*. Minneapolis: University of Minnesota, Industrial Relations Center.

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