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Being Driven to Work Excessively Hard

The Evaluation of a Two-Factor Measure of Workaholism in The Netherlands and Japan

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Based on a conceptual analysis, a two-dimensional self-report questionnaire for assessing workaholism (work addiction) is proposed, including (1) working excessively hard and (2) working compulsively. Using independent explorative and confirmative samples that include employees from The Netherlands ($N = 7,594$) and Japan ($N = 3,311$), a questionnaire is developed and psychometrically evaluated. Results show that both scales (five items each) are internally consistent and that the hypothesized two-factor structure fits to the data of both countries. Furthermore, convergent validity was shown with measures of excess working time and discriminant validity was shown with measures of burnout and work engagement. Workaholics who work excessively hard *and* compulsively have a high relative risk on burnout and a low relative risk on work engagement. It is concluded that the two-dimensional measure—dubbed the Dutch Workaholism Scale (DUWAS)—is useful tool in future (cross-cultural) research on workaholism.

Keywords: *workaholism; cross-cultural measurement; burnout; work engagement; validation*

Since the term *workaholism* was coined by the American minister and psychologist Wayne E. Oates (1968) to denote his own work addiction, it has rapidly become a colloquial notion. From the onset, workaholism was a well-liked topic in the popular, business and self-help press (e.g., Robinson, 1998). In sharp contrast to its colloquial use, relatively few scholarly publications on

workaholism have appeared. For instance, in the Business Source Premier research database, 131 articles on workaholism were located, of which only 28 were empirical in nature (Ng, Sorensen, & Feldman, 2007). Our own literature search from 1968 onward using *PsycInfo* (May 2007), revealed 184 publications on workaholism, of which 88 were published after 2000. One of the main reasons for this large discrepancy between public and scientific interest in workaholism is that current instruments vary widely in their conceptualization and measurement of the workaholism construct (McMillan & O'Driscoll, 2006). Moreover, there is very little consensus about the meaning of workaholism; beyond that, it refers to an unreasonable investment in work, which is usually considered to be its core element.

Based on the conceptualization of a workaholic as a person who is obsessively driven to work excessively hard, the current article proposes an improved self-report instrument that is based on two scales from existing and well-known workaholism measures. For two reasons, this instrument is simultaneously developed in two countries, The Netherlands and in Japan. First, cross-cultural generalizability of findings is important as no less than 75% of the research on workaholism employed samples from the United States (McMillan, O'Driscoll, Marsh, & Brady, 2001). Consequently, our understanding of workaholism runs the risk of becoming culturally biased, and developing and validating a workaholism measure in an European and East Asian country minimizes this risk. Second, The Netherlands and Japan are each other's opposites as it comes to the number of working hours and the value attached to work. Using data from the United States, Belgium, Israel, The Netherlands, and Japan, Snir and Harpaz (2006) showed that the total number of weekly work hours was highest in Japan (47.6) and lowest in The Netherlands (39.7). The same was true for work centrality. These results agree with observations of Japanese scholars, who studied workaholism that work plays a crucial role in the lives of most Japanese (Kanai & Wakabayashi, 2001, 2004). In a similar vein, Japan ranks near the top of all Organisation for Economic Co-operation and Development (OECD) countries when it comes to work hours, whereas the Netherlands ranks at the bottom (OECD, 2007). More specifically, Japanese employees work about 400 hr per year more than their Dutch counterparts (OECD, 2007), and 12% of the Japanese employees works more than 60 hr per week (Iwasaki, Takahashi, & Nakata, 2006). The problematic nature of overwork

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in Japan is also exemplified by the typical notions of *karoshi* (work to death) and *karo-jisatu* (suicide because of work overload; Kanai, 2006). To prevent health impairment due to excessive overwork, the Japanese government launched a comprehensive program in 2002 that includes—amongst others—reducing overtime to a maximum of 45 hr per month and providing health counseling for overworked employees (Iwasaki et al., 2006).

What is Workaholism?

For the lay public, workaholism seems synonymous with working extremely hard. However, conceiving workaholism exclusively in terms of the number of working hours is misleading because it neglects its addictive nature. Obviously, people may work long hours for many reasons such as financial problems, poor marriage, organizational culture, pressure by their supervisor, or a strong desire for career advancement without being *addicted* to it. Rather than being motivated by such external or contextual factors, a typical work addict is motivated by a strong internal drive that cannot be resisted. This follows from the overview of earlier theory and research as performed by Scott, Moore, and Miceli (1997), who found three common characteristics of workaholism that feature across various definitions. First, workaholics spend a great deal of time on work activities when given the discretion to do so—they are excessively hard workers. Second, workaholics are reluctant to disengage from work, and they persistently and frequently think about work when they are not at work. This suggests that workaholics are obsessed with their work—they are compulsive workers. The third common feature—workaholics work beyond what is reasonably expected from them to meet organizational or economic requirements—is, in fact, a specification of the first and the second features because it deals with a particular manifestation of working hard and compulsively. In a similar vein, in seven of the nine workaholism definitions that are listed by McMillan and O’Driscoll (2006), working excessively hard and being propelled by an obsessive inner drive are mentioned as core characteristics.

Hence, we define workaholism as the tendency to work excessively hard (the behavioral dimension) and being obsessed with work (the cognitive dimension), which manifests itself in working compulsively. Our definition agrees with that of the founding father, who described workaholism as “the compulsion or the uncontrollable need to work incessantly” (Oates, 1971, p. 11). Second, it also agrees with the lay perception of workaholism. This is illustrated by the study of McMillan and O’Driscoll (2006), who asked

workers, colleagues, and partners the question “How would you describe someone who is workaholic?” After content analysis, it appeared that the two most often mentioned answering categories were “time spent working or thinking about work” (39%) and “obsessive personal style” (22%), together representing 61% of the responses. Finally, it also agrees with the most recent analysis of scholarly definitions that concludes that hard work at the expense of other important life roles and a strong internal drive to work are two key aspects of workaholism (Ng et al., 2007).

“Positive” Workaholism?

Some argued that workaholism may also be seen in positive terms. For instance, Machlowitz (1980) distinguished between “fulfilled” and “unfulfilled” workaholics, Scott, Moore, and Miceli (1997) considered achievement-oriented workaholics as “hyper performers,” and Buelens and Poelmans (2004) wrote about some workaholics as “happy hard workers.” Moreover, one of the leading models of workaholism (Spence & Robbins, 1992) assumes three underlying dimensions—the “workaholic-triad”—consisting of work involvement, drive, and work enjoyment. Different combinations of these three elements are assumed to produce different kinds of workaholism. In a similar vein, Ng et al. (2007) proposed—in addition to the behavioral dimension (excessive working) and the cognitive dimension (obsessive or compulsive working)—a third affective dimension: joy in working. However, they recognized that some workaholics do not enjoy the work that they do and point to the fact that it is the *act of working* rather than the nature of the *actual work itself* that workaholics enjoy. In doing so, they criticize the traditional positive views on workaholism, including the workaholic triad.

However, we agree with Mudrack (2006) who argued that *because* workaholics may or may not enjoy their work, enjoyment is not a constituting element of work addiction. We go one step beyond by arguing below that, in fact, “positive workaholism” constitutes a distinct psychological phenomenon: work engagement. In our view, workaholism and work engagement share the behavioral component (working excessively hard), but the underlying motivation differs fundamentally. Workaholics are propelled by an obsessive inner drive they cannot resist, whereas engaged employees are intrinsically motivated. That means that the latter work hard because the pleasure they get from the work itself; for them, work is fun. Or put differently, workaholics are being pushed toward work, whereas engaged workers are being pulled toward it.

The typical obsessive inner drive underscores the addictive nature of workaholism, but by including work enjoyment as a constituting component, this addictive nature is denied. We agree with Porter (1996, p. 71), who called on students of workaholism to “return to the origin of the term as a starting point for future research,” meaning that workaholism should be interpreted as a behavioral addiction (compare to Mulé, 1981) that “involves engaging in a specific behavior for relief, comfort, or stimulation and which results in discomfort or unease of some type when discontinued” (Porter, 2006, p. 536). Or, as Porter (2001, p. 151) wrote, “Joy in work is not a part of workaholism viewed as an addiction.” Thus, from the perspective of work *addiction*, a positive interpretation of workaholism is confusing. Therefore, we introduce the notion of work engagement as an alternative for positive workaholism.

Workaholism and Work Engagement

Although Charlton and Danforth (2007) successfully distinguished between addiction and high engagement in the context of online computer gaming, research using the workaholic triad (Spence & Robbins, 1992) confuses work addiction and work engagement. In addition to the “real work addicts,” who score high in involvement, low on enjoyment, and high on drive, “work enthusiasts” are described as those who are high in involvement and enjoyment and *low* in drive. Tellingly, the latter group is also labeled *positively engaged workers* (Aziz & Zickar, 2006, p. 58), or *happy hard workers* who “are enthusiastic, meet interesting people, love their jobs, and avoid conflict at home and in the workplace, possibly owing to their resulting positive attitude” (Buelens & Poelmans, 2004, p. 454). This description of “good” workaholics seems to overlap with engaged employees, who have a sense of energetic and effective connection with their work activities. More specifically, work engagement refers to a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption (Schaufeli, Salanova, González-Romá, & Bakker, 2002). Vigor is characterized by high levels of energy, the willingness to invest effort in one’s work, and persistence also in the face of difficulties. Dedication refers to being strongly involved in one’s work and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge. Finally, absorption is characterized by being fully concentrated and engrossed in one’s work, whereby time passes quickly and one has difficulties with detaching oneself from work.

Thus engaged employees work hard (vigor), are involved (dedicated), and feel engrossed (absorbed) in their work. In this sense, they seem similar to workaholics. However, in contrast to workaholics, engaged workers lack the typical compulsive drive. For them work is fun, not an addiction, they work hard because they like their job (intrinsic motivation) and not because they are driven by an obsessive inner drive they cannot resist, as was concluded from a qualitative interview study (Schaufeli et al., 2001). So, despite the fact that workaholics and engaged employees may work similarly hard, their motivation to do so differs fundamentally.

A recent summary of research on workaholic types—based on the workaholic triad of Spence and Robbins (1992)—concluded that compared to “real work addicts,” “work enthusiasts” are less stressed, less perfectionist, more willing to delegate, show more self-worth and lower need to prove themselves, are less often displaying a Type A behavioral pattern, are more satisfied with their jobs, their careers, and their extra work life, show less intention to quit, have less psychosomatic complaints, and show more physical and emotional well-being (Burke, 2006). In short, work enthusiasts closely resemble engaged employees, who show a similar profile on a wide variety of work and person-related variables (for an overview, see Schaufeli & Salanova, 2007a). Moreover, it seems that the drive component makes the difference because it is negatively related to work outcomes, quality of social relationships, and perceived health, whereas work engagement is positively related with these variables (Schaufeli, Taris, & Van Rhenen, 2008). Hence, for the sake of conceptual clarity instead of discriminating between “good” and “bad” forms of workaholism, we propose to discriminate between workaholism (being intrinsically bad) and work engagement (being intrinsically good).

The Measurement of Workaholism

We operationalize both workaholism components with two existing scales. That is to say, we use these scales as a starting point for developing a new, short instrument. For assessing working excessively, the Compulsive Tendencies scale is used that is included in the Work Addiction Risk Test (WART; Robinson, 1999). However, the label of this scale is somewhat misleading because seven of its nine items refer to working hard, without any reference to the underlying motivation, whereas the remaining items refer to the inability to relax and to feel guilty when not working, both of which are indicative for working compulsively. For that reason, we relabeled the scale as Working Excessively (WE). A recent validity study of the WART, using

three independent Dutch samples, showed that the WE scale performed equally well as the original 25-item version of the WART (Taris, Schaufeli, & Verhoeven, 2005). For assessing working compulsively, the Drive scale is used that is included in the Workaholism Battery (WorkBat; Spence & Robbins, 1992). This scale explicitly refers to the compulsive nature of the underlying motivation to work hard as well as to the compulsiveness of excessive work behavior. For the purpose of the current study, the scale was relabeled as Working Compulsively (WC). Although, overall, the psychometric results of the WorkBat are rather disappointing, the internal consistency of the WC scale is sufficient in samples from various countries such as New Zealand (McMillan, Brady, O'Driscoll, & Marsh, 2002), Norway (Burke & Matthiesen, 2004), The Netherlands (Schaufeli, Taris, & Van Rhenen, 2008), and Japan (Kanai, Wakabayashi, & Fling, 1996). However, in a Turkish sample, the internal consistency of all WorkBat scales was very poor, and none of the scales was significantly correlated with extra hours worked (Burke & Koksall, 2002). These findings raise questions about the construct validity of the WorkBat in Turkey and underscores the importance of cross-national research on workaholism.

The Current Study

The general purpose of the present study is to develop a brief self-report measure to assess workaholism that can be used across different nations. More specifically, the first objective is to construct a two-dimensional measure that includes working excessively and working compulsively and that shows factorial validity across The Netherlands and Japan.

The second objective is to examine the convergent validity of this workaholism instrument. We expect that both components of workaholism are positively related to indicators of excess working (*Hypothesis 1a*) and that, compared to working compulsively, working excessively shows stronger relationships (*Hypothesis 1b*). The reason why we expect to confirm the latter hypothesis is that, being the behavioral component of workaholism, working excessively is likely to have a stronger relationship with other behavioral indicators of excess working than working compulsively, which is a manifestation of the cognitive component of workaholism.

The third objective is to examine the discriminant validity of our operationalization of workaholism. That is, we expect workaholism to be empirically distinct from engagement and burnout in the Dutch and Japanese samples (*Hypothesis 2*). Establishing discriminant validity between these three aspects of employee well-being is important because of their interconnectedness. For

instance, it has been suggested that workaholism might act as the root cause of burnout as excessively and frantically working employees use up their mental resources, leaving them depleted and “burned out” (Maslach, 1986; Porter, 2001). Furthermore, using their workaholism triad, Spence and Robbins (1992) described types of workers that are remarkably similar to engagement—the “work enthusiasts” (see above). Finally, using the same workaholism triad, “disenchanted workers,” who are low in involvement and enjoyment and high in drive are remarkable similar to burned-out workers (Maslach, Schaufeli, & Leiter, 2001). This is illustrated by a Norwegian study that found that these disenchanted workers score highest on the two most prominent burnout dimensions—exhaustion and cynicism (Burke & Matthiesen, 2004). A previous Dutch study—using the original scales of the WART and WorkBat—has shown that the three concepts could be discriminated, albeit that the pattern was a bit more complicated than anticipated (Schaufeli et al., 2008). The present study uses slightly different scales and intends to replicate the discriminant validity of workaholism among Japanese employees.

The fourth objective is to explore the different combinations of both workaholism dimensions. We hypothesize that workaholics (who score high on both working excessively hard *and* working compulsively) are characterized by relatively high levels of burnout (*Hypothesis 3a*) and low levels of engagement (*Hypothesis 3b*) as compared to relaxed workers (who score low on both workaholism scales), but also as compared to hard workers (who score high only on working excessively) and compulsive workers (who score high only on working compulsively). The rationale for Hypothesis 3a is that workaholics, who by definition of all groups invest most in their work both behaviorally as well as cognitively, are likely deplete their energy so that they are at risk for developing burnout, which is defined as a syndrome of mental exhaustion (Maslach et al., 2001). Because work engagement is considered to be the antithesis of burnout (González-Romá, Schaufeli, Bakker, & Lloret, 2006) and is characterized by energy rather than by exhaustion, we expect workaholics to have *lower* levels of engagement than the other three groups (Hypothesis 3b).

Method

Sample and Procedure

The Dutch sample ($N = 7,594$) is a composite sample consisting of 52% women and 48% men. The major occupational groups included in the sample

are hospital workers (28%), managers (24%), and professionals such as organizational consultants (14%). The mean age was 36.4 years ($SD = 9.5$). The majority (71%) were approached by their organization to participate in an employee satisfaction survey or in a health check-up and filled out either a computerized or a paper-and-pencil questionnaire. The remaining respondents (29%) were recruited through the Internet. The average response rate across the samples that are included in the Dutch database and were approached by their organizations is 72%.

The Japanese sample ($N = 3,311$) is a composite sample consisting of 49% women and 51% men. The major occupational groups included in the sample are nurses (48%), blue-collar workers (20%), and lower professionals, such as engineers (24%). The mean age was 34.4 years ($SD = 10.5$). All respondents were approached by their organization to participate in an employee satisfaction survey or in a health check-up and filled out either a computerized or a paper-and-pencil questionnaire. The average response rate across the samples that are included in the Japanese database is 92%.

Measures

Workaholism was operationalized by two scales: (1) WE, as assessed with the nine-item Compulsive Tendencies scale of the WART (Robinson, 1999); and (2) WC, as assessed with the eight-item Drive scale of the WorkBat (Spence & Robbins, 1992). The items of both scales were translated by the third author in Dutch and by the second author in Japanese and then back-translated by a lay person who was unaware of the subject of the questionnaire. Differences in translations were discussed until agreement was reached. In the appendix, example items of both scales can be found. Items were scored on a 4-point rating scale, ranging from 1 (*totally disagree*) to 4 (*totally agree*). The internal consistencies (Cronbach's alpha) of all scales that are used in the current study are presented in Table 1.

Burnout was assessed with the Dutch (Schaufeli & Van Dierendonck, 2000) and Japanese (Kitaoka-Higashiguchi et al., 2004) versions of the Maslach Burnout Inventory—General Survey (MBI-GS; Schaufeli, Leiter, Maslach, & Jackson, 1996). The MBI-GS includes three subscales: Exhaustion (five items), Cynicism (five items), and Professional Efficacy (six items). All items were scored on a 7-point frequency rating scale ranging from 0 (*never*) to 6 (*always*). High scores on exhaustion and cynicism and low scores on professional efficacy are indicative of burnout (i.e., the efficacy items were reversibly scored). Burnout scores were available only for 1,406 Dutch respondents (19% of the sample) and 2,025 Japanese respondents (61% of the sample).

Table 1
Mean, Standard Deviation, Internal Consistency (Dutch/Japanese Cronbach's Alpha on the Diagonal),
and Zero-Order Correlations of the Study Variables in the Dutch ($N = 7,594^a$; Below the Diagonal)
and Japanese ($N = 3,311^b$; Above the Diagonal) Samples

Variable	Dutch		Japanese		1	2	3	4	5	6	7	8
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>								
1. Working excessively	2.53	0.60	2.31	0.67	.78/.73	.46***	.29***	.29***	.04	-.14***	-.03	-.13***
2. Working compulsively	2.01	0.63	1.94	0.58	.44***	.78/.68	.36***	.25***	.02	.08***	.15***	.09***
3. Exhaustion	1.28	0.87	3.86	1.50	.27***	.43***	.85/.92	.63***	-.05*	-.38***	-.27***	-.30***
4. Cynicism	1.16	0.93	2.32	1.42	.05*	.30***	.53***	.77/.86	-.13***	-.44***	-.42***	-.35***
5. Professional efficacy	4.24	0.80	2.41	1.14	.11***	-.25***	-.34***	-.45***	.81/.85	.47***	.48***	.38***
6. Vigor	3.09	1.14	1.96	1.25	-.01	-.10***	-.51***	-.53***	.65***	.85/.86	.81***	.73***
7. Dedication	3.40	1.93	2.40	1.24	.02*	-.11***	-.37***	-.64***	.69***	.79***	.87/.86	.69***
8. Absorption	3.38	1.73	1.49	1.33	.03*	.01	-.22***	-.37***	.52**	.71**	.69***	.81/.83

a. $N = 1,406$ for the burnout scales.

b. $N = 2,024$ for the burnout scales.

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

Work engagement was assessed with the short form of the Utrecht Work Engagement Scale (UWES; Schaufeli, Bakker, & Salanova, 2006) that has recently been validated in Japan as well (Shimazu et al., 2008). The UWES includes three subscales that reflect the underlying dimensions of engagement: Vigor (three items), Dedication (three items), and Absorption (three items). The engagement items were similarly scored as those of the MBI-GS.

Excess working time (overwork) was measured with two questions in both samples: "How often do you take work home" and "How often do you work at weekends" (1 = *almost never*, 4 = *almost always*). The answers on both questions correlated .59 ($p < .001$) in the Dutch sample and .47 ($p < .001$) in the Japanese sample and were added to constitute one score: *overwork*. In addition, respondents in the Dutch sample were asked how many hours per week they worked according to their labor contract ($M = 38.2$; $SD = 7.1$; range 11-60 hr) and how many hours they worked actually in an average week, including overwork ($M = 45.2$; $SD = 10.2$; range 11-89 hr). Both questions were used to calculate the *percentage of overtime*; the actual working time relative to the contracted working time. Overwork and percentage overtime were correlated .55 ($p < .001$).

Results

Scale Construction

To avoid chance capitalization during the process of scale construction (MacCallum, Roznowski, & Necowitz, 1992), the total Japanese ($N = 3,311$) and Dutch ($N = 7,594$) samples were randomly split into two equally sized subsamples of 1,655 and 3,797 employees, respectively. One subsample from each country was used for scale construction (exploratory sample), whereas the remaining subsample was used for cross-validation (confirmatory sample). After the two workaholism scales were constructed, the total sample ($N = 10,905$; 70% Dutch, 30% Japanese) was used for testing the hypotheses. Furthermore, all workaholism items were transformed into z scores within each country so that possible between-country differences in distribution of item-scores would not affect the results (Leung & Bond, 1989).

Exploratory analyses. In the first step, an exploratory principal components analysis with varimax rotation including all WE and WC items was carried out separately for the Dutch and Japanese employees. In both groups,

Table 2
Factor Loadings of the Workaholism Scales in the Dutch
(*N* = 3,797) and Japanese (*N* = 1,655) Explorative Samples

Item	Dutch		Japanese	
	WC	WE	WE	WC
Racing against the clock	.12	.76	.74	.13
Continue to work after colleagues left	.26	.60	.67	.21
Many irons in the fire	.10	.82	.79	.11
More time working than socializing	.17	.57	.59	.20
Doing two or three things at a time	.16	.68	.58	.12
Important to work hard	.82	.03	.10	.61
Something inside me that drives me	.75	.15	.28	.52
Feel obliged to work hard	.78	.17	.22	.67
Feel guilty when take time off work	.60	.26	.01	.74
Hard to relax when not working	.57	.29	.22	.58
Explained variance	37.5%	15.0%	34.0%	12.5%

Note: WE = working excessively; WC = working compulsively; Factor loadings of items that constitute the WE and WC scales are printed in bold.

three factors appeared with eigenvalues greater than 1. In addition to the expected WE and WC factor, a third factor emerged on which three items loaded, two of which referred to guilt and one to the inability to relax; all but one of these items also loaded on one of the two other items.

No clear simple solution was achieved in the sense that all items load on a particular factor and on that factor only, so without cross-loadings on other factors. Therefore, a second step was deemed necessary. Items were selected based on their overlapping content and the size of their factor loadings. Two overlapping items were removed (“I feel guilty when I am not working on something” and “I seem to have an inner compulsion to work hard, a feeling that it’s something I have to do whether I like it or not”). Based on the criterion that factor loadings should exceed .50 on the target component and load not higher than .30 on the remaining component in both countries, 10 items were selected (see the appendix). After a second exploratory principal components analysis with varimax rotation, a clear-cut two-factor solution emerged from both samples (see Table 2).

Confirmatory analyses. Next, using the AMOS 5 program for structural equation modeling (Arbuckle, 2003), the two-factor structure (see Table 2) was cross-validated in the fresh confirmatory Dutch (*N* = 3,797) and Japanese

Table 3
Fit Indices of One-Factor (M1) and Two-Factor (M2)
Models of Workaholism (Cross-Validation)

Model	<i>N</i>	χ^2	<i>df</i>	GFI	AGFI	RMSEA	NFI	NNFI	CFI
M1-MG	5,473	3563.23	70	.86	.78	.10	.73	.66	.73
M2-MG	5,473	1300.23	68	.95	.92	.06	.90	.88	.91
Null model-MG	5,473	13148.05	90	.55	.46	.16	—	—	—
M2-Dutch	3,797	1008.31	34	.95	.91	.06	.90	.87	.90
M2-Japanese	1,676	291.96	34	.97	.94	.07	.91	.90	.92

Note: MG = multiple group; GFI = Goodness-of-Fit Index; AGFI = Adjusted Goodness-of-Fit Index; RMSEA = root mean square estimate of approximation; NFI = Normed Fit Index; NNFI = Non-Normed Fit Index; CFI = Comparative Fit Index.

(*N* = 1,655) samples. More particularly, we tested the fit of two competing models: M1 that assumes that all 10 items load on one general workaholism factor, and M2 that assumes that the WE and WC items load on their corresponding (correlated) factors. Maximum likelihood estimation methods were used and the input for each analysis was the covariance matrix of the items. The goodness of fit of both models was evaluated using the χ^2 goodness-of-fit statistic and the root mean square error of approximation (RMSEA). In addition, three relative goodness-of-fit indices were computed: the Normed Fit Index (NFI), the Non-Normed Fit Index (NNFI), and the Comparative Fit Index (CFI). For all relative fit indices, as a rule of thumb, values greater than .90 are considered as indicating a good fit (Byrne, 2001, pp. 79-88), whereas values smaller than .08 for RMSEA indicate acceptable fit (Cudeck & Browne, 1993). Table 3 shows the fit indices of both models when tested simultaneously in both samples using the multiple-group method, as well as in each of the samples separately.

A formal test revealed that M2 fits significantly better to the data than M1 ($\Delta\chi^2 = 2263.00$; *df* = 1, *p* < .001) in both countries. WE and WC correlate moderately strong in the Dutch (*r* = .50; *p* < .001) and the Japanese (*r* = .59; *p* < .001) samples, sharing between 25% and 35% of their variances, respectively. Please note that these correlations between the latent WE and WC factors are—by definition—higher than those between the observed factors as displayed in Table 1.

By constraining model parameters to be equal across both countries and comparing the fit of the resulting model of that with the original model in which these parameters were freely estimated, the invariance of the parameters across both samples can be evaluated (Steenkamp & Baumgartner,

1998). Invariance is demonstrated when the fit of the constrained model does *not* significantly deteriorate compared to that of the freely estimated model. Invariance analyses revealed that the correlation between both factors ($\Delta\chi^2 = 5.34$; $df = 1$, $p < .05$) as well as the item-loadings of the WE scale ($\Delta\chi^2 = 43.34$; $df = 4$, $p < .001$) and of the WC scale ($\Delta\chi^2 = 12.22$; $df = 4$, $p < .05$) differed significantly between countries. However, a subsequent iterative procedure in which each single item was constrained—and retained if it proves to be invariant—revealed that the loadings of two WE items (3 and 5) and two WC items (2 and 4) were invariant across the Dutch and Japanese samples ($\Delta\chi^2 = 7.56$; $df = 4$, *ns*).

Internal consistency. Table 1 shows the internal consistencies of both workaholism scales in the Dutch and the Japanese samples. All values of Cronbach's alpha meet the criterion of .70 (Nunnally & Bernstein, 1994) that is used as a rule of thumb for sufficient internal consistency, except the WC scale in the Japanese sample which has a value slightly below the criterion ($\alpha = .68$).

Overlap with original scales. In the Dutch sample, correlations between the original and shortened WE and WC scales are .91 and .95, respectively, whereas in the Japanese sample, the corresponding values are .92 and .90. Accordingly, original and shortened scales share 80% to 90% of their variance and can therefore be considered virtually identical.

In conclusion, both short workaholism scales (1) show factorial validity; (2) are moderately correlated; (3) are internally consistent; (4) overlap with the original scales; and (5) show the same pattern of psychometric results across both samples.

Convergent Validity (Hypothesis 1)

All correlations between workaholism (WE and WC) and excess working time (overtime percentage and overwork) are positive and significant (see Table 4) so that Hypothesis 1a is confirmed. Thus the higher the workaholism scores, the more hours employees actually work relative to their labor contract and the more they take work home and work in weekends. Furthermore, we tested whether WE and WC differed as regards their correlations with excess working time. To this aim, we compared the fit of an unconstrained structural equation model (in which the correlations among WE and WC on the one hand and overwork and overtime percentage on the other were left free) with that of a constrained model (in which the correlations

Table 4
Correlations Between Workaholism (WE and WC)
and Excess Working Time (Overtime % and Overwork)

	Dutch (<i>N</i> = 7,595)		Japanese (<i>N</i> = 3,311)	
	WE	WC	WE	WC
Overtime (%)	.32***	.13***	NA	NA
Overwork	.40***	.23***	.53***	.25***

Note: WE = working excessively; WC = working compulsively.

*** $p < .001$.

between WE and the two indicators of excess working time were set equal to the corresponding correlations between WC and excess working time). The chi-square difference test was highly significant for the Dutch sample, $\chi^2(2) = 180.3, p < .001$. For the Japanese sample, a similar test was conducted (note that excess working time was only measured using overwork), $\chi^2(1) = 262.6, p < .001$. Thus, WE is more strongly associated with excess working time than WC in both samples (Hypothesis 1b is confirmed).

Discriminant Validity (Hypothesis 2)

To test Hypothesis 2 that states that workaholism can be distinguished from work engagement as well as from burnout, the fit of two models was tested to the data of the Japanese and the Dutch samples: M1 that assumes that all scales load on one common general well-being factor, and M2 that assumes three latent correlated factors: workaholism (WE and WC), burnout factor (Exhaustion, Cynicism, and Professional Efficacy), and engagement (Vigor, Dedication, and Absorption). Table 1 presents the observed correlations between the scales that are included in the analysis. First, both models were tested simultaneously in both samples, using the multiple-group method. Next, the best fitting model was tested in each sample separately.

M1 and M2 fit poorly to the data with none of their fit indices meeting its respective criterion for acceptable fit (Table 5). The so-called Modification Indices indicated that the poor fit of M2 was likely to be caused by Professional Efficacy loading on the “wrong” factor. Instead of loading on burnout, Professional Efficacy was allowed to load on the latent engagement factor. Indeed, re-specifying M2 accordingly improved the fit with NFI and CFI now satisfying their criteria for good fit. Please note that no formal χ^2 -difference test could be performed because both models have the same number of degrees of freedom.

Table 5
Fit Indices of One-Factor (M1) and Three-Factor (M2)
Models of Workaholism, Burnout, and Engagement

Model	<i>N</i>	Chi-square	<i>df</i>	GFI	AGFI	RMSEA	NFI	NNFI	CFI
M1-MG	3,430	3452.86	40	.78	.60	.16	.74	.64	.74
M2-MG	3,430	1920.30	34	.88	.75	.13	.86	.77	.86
M2-revised MG	3,430	1216.67	34	.92	.83	.10	.91	.85	.91
Null model MG	3,430	13280.62	56	.46	.30	.26	—	—	—
M2 revised DT	1,406	716.63	17	.89	.82	.15	.90	.83	.90
M2 revised JP	2,024	499.99	17	.94	.88	.12	.93	.90	.94

Note: MG = multiple group; DT = Dutch; JP = Japanese; GFI = Goodness-of-Fit Index; AGFI = Adjusted Goodness-of-Fit Index; RMSEA = root mean square estimate of approximation; NFI = Normed Fit Index; NNFI = Non-Normed Fit Index; CFI = Comparative Fit Index; For all models: $\chi^2, p < .001$.

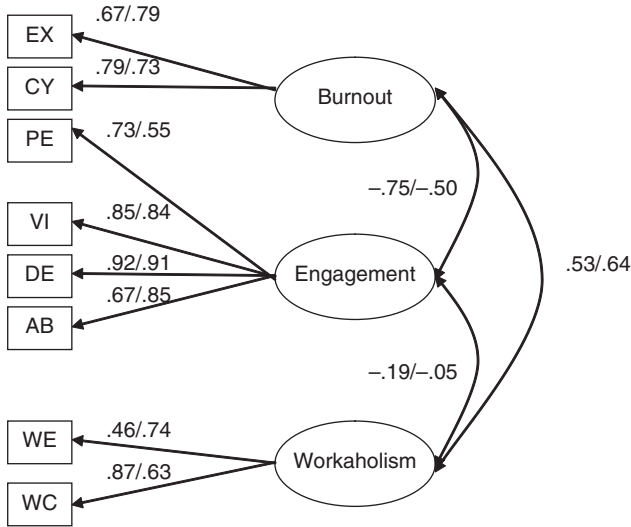
As is shown in Table 5, the revised model M2 fits the data of the separate Dutch and Japanese samples reasonably well, although RMSEA does not meet its criterion and NNFI approaches its critical value in the Dutch sample. In the final step, the invariance of M2–revised across both samples is evaluated. Results revealed that the correlations between the three latent constructs as well as their factor loadings differ significantly ($\Delta\chi^2 = 174.49$; $df = 7, p < .001$). A subsequent iterative procedure in which each single factor loading or correlation was constrained did not yield any positive results. This means that the underlying second-order factor-structure is similar in The Netherlands and Japan, albeit that the sizes of the estimated parameters differ. The final model is depicted in Figure 1.

In conclusion, although all three concepts are weakly to moderately interrelated, workaholism can be distinguished from burnout and engagement. However, instead of the hypothesized model, a model with professional efficacy loading on engagement instead of burnout was found to represent the data of both countries. Hence Hypothesis 2 is partly supported.

The Combination of Working Excessively and Working Compulsively (Hypothesis 3)

The final hypothesis to be tested states that a combination of working excessively and working compulsively is associated with relatively high levels of burnout—particularly exhaustion—(*Hypothesis 3a*) and low levels of engagement—particularly vigor—(*Hypothesis 3b*). To test this hypothesis,

Figure 1
The Relationship Between Workaholism, Burnout, and Work Engagement (M2-Revised 3; Dutch $N = 1,406$ /Japanese $N = 2,024$)



Note: EX = exhaustion; CY = cynicism; PE = professional efficacy; VI = vigor; DE = dedication; AB = absorption; WE = working excessively; WC = working compulsively.

a median split was used to discriminate between those who scored high and low on WE and WC, respectively. Combining both dichotomous dimensions yields four groups: (1) Workaholics—high on both WE and WC; (2) Hard workers—high on WE and low on WC; (3) Compulsive workers—low on WE and high on WC; (4) Relaxed workers—low on both WE and WC. By taking the workaholics as a reference group, relative risks (odds ratios) of burnout and engagement were computed for the other three groups.¹ High scores on burnout and engagement were defined as those that are included in the top third of the scoring distribution.

As can be seen from Table 6, compared to Dutch and Japanese workaholics, relaxed workers, hard workers, and compulsive workers are significantly less likely to experience severe exhaustion and cynicism (except for cynicism among Dutch compulsive workers and Japanese relaxed workers). Results for the third dimension of burnout—professional efficacy—are less clear: Japanese workaholics do not differ from the three other groups, whereas Dutch hard workers feel less efficacious, and Dutch compulsive

Table 6
ORs and 95% CI of Burnout and Engagement
for “Relaxed Workers,” “Hard Workers,” “Compulsive
Workers,” and “Workaholics”

	Netherlands			Japan		
	<i>N</i>	OR	95% CI	<i>N</i>	OR	95% CI
Exhaustion						
Relaxed workers	213	0.21***	0.13-0.33	635	0.42***	0.07-0.20
Hard workers	236	0.25***	0.17-0.39	356	0.27***	0.15-0.48
Compulsive workers	211	0.56***	0.40-0.80	350	0.41**	0.23-0.76
Workaholics	746	reference		684	reference	
Cynicism						
Relaxed workers	213	0.35***	0.25-0.52	635	0.27	0.21-0.35
Hard workers	236	0.43***	0.30-0.61	356	0.44***	0.33-0.58
Compulsive workers	211	1.14	0.84-1.56	350	0.63**	0.47-0.84
Workaholics	746	reference		684	reference	
Professional efficacy						
Relaxed workers	213	0.75	0.53-1.05	635	1.19	0.82-1.71
Hard workers	236	0.43***	0.30-0.63	356	0.77	0.52-1.13
Compulsive workers	211	2.34***	1.72-3.19	350	1.56	0.96-2.49
Workaholics	746	reference		683	reference	
Vigor						
Relaxed workers	2,135	1.42***	1.04-1.61	1,069	0.68*	0.50-0.95
Hard workers	1,303	1.59***	1.37-1.84	543	0.66*	0.44-1.00
Compulsive workers	1,276	1.26***	1.08-1.46	586	1.44*	1.04-1.99
Workaholics	2,787	reference		1,033	reference	
Dedication						
Relaxed workers	2,135	1.59***	1.40-1.81	1,069	0.48***	0.34-0.68
Hard workers	1,303	1.55***	1.34-1.80	543	0.58**	0.38-0.87
Compulsive workers	1,276	1.30***	1.10-1.51	586	1.01	0.78-1.52
Workaholics	2,787	reference		1,033	reference	
Absorption						
Relaxed workers	2,130	1.22***	1.06-1.40	1,076	0.68	0.42-1.11
Hard workers	1,303	1.23**	1.05-1.44	543	0.44*	0.22-0.89
Compulsive workers	1,273	1.43*	1.22-1.76	585	1.22	0.76-1.99
Workaholics	2,786	reference		1,031	reference	

Note: OR = odds ratio; CI = confidence intervals.

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

workers feel more efficacious than Dutch workaholics. Hence, Hypothesis 3a was fully supported in both countries for exhaustion, mostly supported for cynicism, but *not* for personal efficacy.

As expected, Dutch workaholics have lower relative risks for engagement, meaning that compared to workaholics, all other three groups feel more engaged. Consequently, Hypothesis 3b is confirmed for the Dutch sample. However, the picture is rather different in the Japanese sample, only the compulsive workers feel significantly more vigorous than the workaholics. However, compared to workaholics, Japanese relaxed workers and hard workers feel *less* vigorous and dedicated, and hard workers also feel less absorbed. So with the exception vigor among compulsive workers, Hypothesis 3b is not confirmed in the Japanese sample. Taken together, our results suggest that—generally speaking—the combination of working excessively and working compulsively is associated with higher levels of burnout (notably exhaustion and cynicism) and lower levels of engagement, although the latter was almost exclusively observed in the Dutch sample.

Discussion

The current study introduced a brief self-report questionnaire to assess workaholism in different cultural contexts. The main results are summarized and discussed below.

Scale construction. Following our definition of workaholism as the tendency to work excessively hard in a compulsive fashion, our questionnaire includes two scales: WE and WC. Using two existing scales as a point of departure, and after selection of items based on their content and on their factor-loadings, two 5-item WE and WC scales emerged. This two-factor structure was successfully cross-validated in two independent Dutch and Japanese samples, albeit that it was only partly invariant across both countries. This means that the *structure* of workaholism is similar in the Dutch and the Japanese samples (factorial validity), but that the *sizes* of most estimates, including the correlations between WE and WC, differ between countries. This poor invariance might reflect cultural bias as well as sample bias—or both. Sample bias is likely to play a role because the composition of the Dutch and the Japanese sample differs, for instance, as far as employees' occupational background is concerned. As can be expected from two scales that refer to a common underlying construct they share a reasonable amount of their variance (i.e., between 25% and 35%). By way of comparison, this proportion is higher than for the three components of burnout (i.e., between 10% and 25%; Schaufeli & Enzmann, 1998) but lower than

for the three components of work engagement (i.e., about 45%; Schaufeli & Salanova, 2007a).

Subsequent reliability analysis revealed that both workaholism scales have sufficient internal consistency in both countries. Only in the Japanese sample, WC showed a slightly lower value ($\alpha = .68$) as compared to the criterion of .70 proposed by Nunnally and Bernstein (1994). Adding an overlapping item that was removed previously (“I seem to have an inner compulsion to work hard, a feeling that it’s something I have to do whether I want to or not”) increased the value of α beyond its critical level ($\alpha = .73$). However, we refrained from doing so because including items with overlapping content is an artificial way to increase internal consistency (Streiner, 2003). Instead, we decided to use the five-item scale, despite its somewhat lower value of Cronbach’s alpha in the Japanese sample. The main reason being that the criterion of .70 is an arbitrary value that is not universally accepted. For instance, De Vellis (2003) in his handbook on scale construction, proposed .65 as a minimum threshold for an acceptable coefficient α . As an example of the arbitrariness of his criterion, Nunnally (1978) mentioned that α s ranging from .50 to .60 would be acceptable, but in the second edition of his book he suggests a value .70—without further justification (Nunnally, 1978). Moreover, the minimally required degree of reliability is a function of the research purpose; for individual-level, diagnostic research α should be much higher than for the basic, group-level research reported in our study (Peterson, 1994).

In conclusion, the first aim of the study—to construct a two-dimensional brief self-report instrument to assess workaholism—was accomplished. The instrument is dubbed Dutch Workaholism Scale (DUWAS).

Convergent validity (Hypothesis 1). In accordance of our Hypothesis 1a, both workaholism dimensions were significantly correlated with two indicators of excess working time: overwork (i.e., taking work home and working in weekends) and proportion of overtime (i.e., actual working time relative to official working time). Moreover, and also in accordance of our Hypothesis 1b, correlations of these two indices with WE were significantly higher than with WC. This agrees with numerous studies that showed that workaholics spend much of their time working (e.g., Brett & Stroh, 2003; Buelens & Poelmans, 2004; Snir & Zohar, 2008).

Discriminant validity (Hypothesis 2). Confirmatory factor analyses revealed in both national samples that instead of collapsing into one general well-being factor, workaholism, work engagement, and burnout can be distinguished as

separate, yet correlated, constructs. Although our results generally support Hypothesis 2, the relationships between the constituting scales of the three constructs were slightly different from what was expected on theoretical grounds. As in some other studies (e.g., Schaufeli, Salanova, et al., 2002; Schaufeli & Bakker, 2004), instead of loading on burnout, professional efficacy loaded on work engagement. Recently, it was shown that most likely this results from the fact that positively phrased efficacy items are reversed to tap inefficacy (Schaufeli & Salanova, 2007b). Hence, it can be speculated that when negatively phrased inefficacy items had been included, the inefficacy scale would have loaded on the latent burnout factor and *not* on the work engagement factor. Subsequent analyses of invariance revealed that the *structure* of the relationships between workaholism, work engagement, and burnout was similar across both national samples, whereas the sizes of the factor loadings and the correlations differed significantly. Again, cultural bias or sampling bias—or both—may be responsible for this result.

The combination of working excessively and working compulsively (Hypothesis 3). We defined workaholism as the tendency to work excessively and compulsively, which implies that the *combination* of high scores on both WE and WC typifies workaholics. Indeed, Dutch and Japanese employees who score high on both WE and WC (workaholics) have significantly higher scores on burnout (exhaustion and cynicism) than relaxed workers, who scored low on both workaholism scales, and also than hard workers and compulsive workers, who scored high only on WE and WC, respectively. This confirms Hypothesis 3a which, stated that particularly the combination of high scores on both WE and WC is linked to burnout. Contrary to expectations, except for Dutch compulsive workers, who felt more efficacious and Dutch hard workers who felt less efficacious than Dutch workaholics, no significant differences were found regarding the third dimension of burnout. This might be explained by the fact that this dimension plays a rather distinct role, as compared to exhaustion and cynicism that are considered to be the core of burnout (Schaufeli & Salanova, 2007b). For instance, efficacy correlates relatively low with exhaustion and cynicism, and compared to exhaustion and cynicism, lack of efficacy shows a different pattern of correlations with various job characteristics (for a meta-analysis, see Lee & Ashforth, 1996). Also, instead of a genuine burnout dimension, lack of efficacy has been considered similar to a personality characteristic (Shirom, 2003). So taken together, empirical as well as conceptual evidence documents the extraordinary role of efficacy beliefs in burnout compared to both other core dimensions.

In a similar vein, the *combination* of working excessively and working compulsively is associated with low levels of work engagement. That is, compared with all three other groups, workaholics score significantly lower on vigor, dedication, and absorption, at least as far as the Dutch sample is concerned; thus confirming Hypothesis 3 in that sample. In conclusion, our results suggest that the combination of working hard and working compulsively is most detrimental for employee well-being in terms of burnout (most notably exhaustion and cynicism) and low engagement (only in the Dutch sample).

However, contrary to expectations, in the Japanese sample, the odds ratios of vigor (relaxed workers and hard workers), dedication (relaxed workers and hard workers) and absorption (hard workers) are significantly *lower* compared to the reference group of workaholics. Only for vigor in the compulsive group, the odds ratio is in the expected direction. What could be the explanation for this finding that, overall, Japanese workaholics seem to experience relatively *high* levels of work engagement? It can be speculated that Japanese workaholics are more inclined to respond favorably to items tapping work engagement for reasons that have to do with Japanese culture in which social relationships (at work) are interdependent (Markus & Kitayama, 1991) and strongly hierarchical (Matsumoto, Kudoh, & Takeuchi, 1996). In an interdependent, collective culture like Japan, social harmony plays a key role. This means that, for instance, individual well-being is subordinate to the well-being of the group (Iwata, Roberts, & Kawakami, 1995). Hence, if a team-member faces high job demands, others will assist voluntarily. Furthermore, a strong hierarchical (vertical) culture requires Japanese employees to respect their senior superiors. This means that, for instance, younger, subordinate employees will not leave before their older superior has left work late at night. They feel social and psychological pressures to stay until their boss leaves office, pretending to be busy with their own work. So it seems that, more than in Dutch society, in Japanese society workaholism is valued—the driven, hard working, and loyal employee is cultivated as a role model.

Limitations and Suggestions for Further Research

All data are based on self-reports which means that the magnitudes of the effects that we reported may have been biased due to common method variance or the wish to answer consistently (Conway, 2002). Unfortunately, we cannot test the strength of this type of variance, but recently Spector (2006) has argued that common method variance is not that troublesome as one might expect in studies as the current one. He showed convincingly that

potentially biasing variables such as social desirability, negative affectivity, and acquiescence (the tendency to agree with items independent of their content) do not systematically inflate correlations between self-reported variables. Moreover, if common method variance would have led to inflated correlations, one would expect relatively high associations among all pairs of variables. However, inspection of Table 1 reveals that this condition is not satisfied, with 20% of the correlations being lower than .10. In a similar vein, our factor analyses of the subscales of burnout, engagement, and workaholism revealed that instead of one, three dimensions were needed to account for the associations among these scales (see Figure 1). This result strongly suggests that monomethod bias does not play a major role in our data (cf. Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Another limitation is that both samples are neither nationally representative, nor comparable as far as occupational groups are concerned. The purpose of the current study—the development and validation of a questionnaire—does not require similar and comparable national samples. However, the fact that the composition of the Dutch and Japanese samples differs markedly, for instance as far as occupational groups are concerned, precludes a comparison of mean values of workaholism (WE and WC) and of proportions of workaholics, relaxed workers, hard workers, and compulsive workers across countries. Future research that includes carefully selected and comparable (representative) national samples should uncover to what extent levels of workaholism (WE and WC) and the prevalence of workaholism differs between countries.

In the current study, we used a statistical criterion (median split) to discriminate between those who scored high and low on WE and WC. So in fact our classification of four types of employees is based on an arbitrary statistical norm. Future research should establish cut-off points for WE and WC that are based on independent, external criteria such as peer ratings from colleagues, friends, or spouse, or assessment by professionals (cf. Aziz & Zickar, 2006).

A logical next step in future research is to examine the construct validity of the WE and WC scales in greater detail. For instance, do both dimensions of workaholism have similar antecedents and consequences? It can be assumed that scores on WE are positively related to (objective) indicators of working time, such as number of hours spent at work, allocating leisure time to work, and thinking about work when not working. This can be studied by using Ecological Momentary Assessment (Stone & Shiffman, 1994), a method that has only occasionally applied to study workaholism (Snir & Zohar, 2008). However, WC is expected to be related to personality factors such as

perfectionism, consciousness, obstinacy, rigidity, orderliness, dominance, and to obsessive thinking and ruminating (Killinger, 2006; Mudrack, 2004).

Finally, the DUWAS opens to possibility of investigating the underlying psychological mechanisms of workaholism and of differentiating it from the process that drives work engagement. For instance, workaholics may be motivated by the pursuit of performance goals that are competitive, other referenced, and extrinsic, whereas engaged workers are motivated by mastery goals that are self-enhancing, self-referenced and intrinsic (Elliot, 2005).

Appendix

Working Excessively (WE)

1. I seem to be in a hurry and racing against the clock.
2. I find myself continuing to work after my coworkers have called it quits.
3. I stay busy and keep many irons in the fire.
4. I spend more time working than on socializing with friends, on hobbies, or on leisure activities.
5. I find myself doing two or three things at one time such as eating lunch and writing a memo, while taking on the telephone.

Working Compulsively (WC)

1. It is important to me to work hard even when I do not enjoy what I am doing.
 2. I feel that there is something inside me that drives me to work hard.
 3. I feel obliged to work hard, even when it is not enjoyable.
 4. I feel guilty when I take time off work.
 5. It is hard for me to relax when I am not working.
-

Note

1. The term *relative risk* may sound a bit awkward when applied to a positive state such as work engagement. Nevertheless we decided to follow the convention by employing this statistical term.

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