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## Article

# Transversal analysis of predictors, mediators and related effects of heavy work investment

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## TRANSVERSAL ANALYSIS OF PREDICTORS, MEDIATORS AND RELATED EFFECTS OF HEAVY WORK INVESTMENT

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### Abstract

In recent years, the significant and intensive change of working conditions necessitates employees to modify their work patterns to increase the number of working hours and work intensity by improving the efforts, which leads to the occurrence of the heavy work investment (HWI) phenomenon. Analyzing the models of HWI we can distinguish two types: workaholism (WH), considered being the negative form of the HWI, and working engagement (WE), considered to be the positive form of the HWI. This paper proposes a multidimensional model of HWI that is built on four main elements: HWI (with its two types: WH and WE), potential predictors, work outcomes and mediating factors between HWI and work outcomes. The model is empirically tested on a sample of 298 Romanian employees, using correlational study, confirmatory factorial analysis, and artificial neural networks analysis established between model variables. The results of the research are explained and discussed, recommendations are issued for the improvement of organizational practices and new research directions are proposed.

**Keywords:** HWI, WH, WE, work addiction, job satisfaction.

**JEL Classification:** O15.

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## Introduction

The contemporary world is characterized by a large number of challenges for the individual engaged in a working relationship. More and more employees fail to maintain the balance between their work-family lives, because they devote most of their time to their work, ignoring family relationships. This phenomenon, which has been defined as WH (Oates, 1971), not only affects the family life but, sometimes, also their mental and physical health. WH represents excessive unsolicited efforts of an employee which affect their health (van Beek et al., 2012). The increasingly dynamic and changing work environment characterized by competitiveness determines more behaviours and influences more employees to opt for such a work style.

WH and WE have been referred to as forms (one negative and one positive) of HWI in mainstream literature. Despite some definitions that have distinct elements and outcomes that target the individual and organizational level, WH and WE are not differentiated by researchers and practitioners, as they show certain overlapping characteristics. Research on the relationship between WH and WE have traditionally focused on these constructs as two different forms of HWI. Questions about WH and WE have guided researchers' efforts to gain a more subtle understanding of the nature of these behaviors, first separately, then in tandem.

This paper aims to build and test a multidimensional model of HWI that establishes relationships among HWI, predictors, and mediators, and the outcomes of HWI. The ten predictors, which are proposed in the model based on the literature review, run as follows: gender, age, education, marital status, seniority, size of the organization, sector of activity, organization seniority, position type, and motivation. As mediating factors, we selected the organizational culture and management support, and as outcomes indicators: employee satisfaction, employee turnover, employee performance. Through this model and its application in practice, we aim to contribute to better integration of the two dimensions of HWI (workaholism and WE). The model created will harmonize the two dimensions of HWI to ease a better understanding of the phenomenon, allowing human resource managers to improve employee satisfaction and performance, reducing their intention to quit. Through the tools used we aim to ensure comparability with other studies, by comparing the results obtained with the results of other research. The paper is structured in seven sections, which present a review of the literature, the main instruments for HWI measuring, the proposed model of HWI, methodology, research hypotheses, and research results, which are explained and discussed. The last section of the paper focuses on the general conclusions, recommendations for improving organizational practices, and proposes new research directions.

## 1. Review of the scientific literature

The two main research issues addressed in the literature concerning HWI have focused on understanding the dual nature of this phenomenon (good and bad) and on identifying the predictors, mediators, moderators, and potential outcomes of this phenomenon.

The "workaholic" concept was proposed in 1971 by Wayne E. Oates, who describes (1971, p. 11) WH as "the compulsion or the uncontrollable need to work incessantly". Such a need can endanger health because of oversteering, reduction in the welfare of employees and the creation of conflicts with relatives as a result of reducing rest time and spending time

outside the work environment. As a result, many researchers have argued that WH is by definition a negative phenomenon because it generates an addiction similar to alcoholism (Cherrington, 1980; Robinson, 1989; Porter, 1996). Several researchers have long considered that the phenomenon of WH can also have positive valences (Spence and Robbins, 1992; Scott, Moore and Miceli, 1997; Buelens and Poelmans, 2004)), considering that workaholics are satisfied and productive, overperform at least from the organizational perspective, manifest a joy of creativity, are involved in work and satisfied when the work outcomes are very good. Ng, Sorensen and Feldman (2007) propose, in addition to the behavioral dimension (excessive work) and the cognitive dimension (obsessive-compulsive work), a third affective dimension (the joy of working). However, Ng, Sorensen and Feldman (2007) and other researchers acknowledge that workaholics usually do not enjoy the work they do and stressed that work is more important than job satisfaction.

There is also a third category of researchers who differentiate between different types of WH, remarking that some are positive for the individual and organization, while others are negative for the individual and organization (Scott, Moore and Miceli, 1997; Korn, Pratt and Lambrou, 1987; Schaufeli, Taris and Bakker, 2006).). Most of these researchers relate the compulsive nature of WH to its negative nature. Although theories adapted over time by different researchers explain WH differently; they are not mutually exclusive (Andreassen, 2014).

The second major research issue in this area is dominated by a systemic vision that involves identifying predictive factors, mediators, and moderators, as well as the potential effects of the phenomenon. WH is a result of predisposing factors (for example, needs, values, traits, genes), socio-cultural factors (organizational learning, organizational culture oriented towards achieving goals), and motivational factors (reward system, job satisfaction) (Ng, Sorensen and Feldman). Snir and Harpaz (2012) introduced the concept of *HWI*, which includes two components: time invested in work and work intensity. *HWI* is a comprehensive concept that includes several concepts: WH, work addiction, passion for work, WE (Snir and Harpaz, 2015). Although WH is equivalent to the *HWI*, it is necessary to take into account not only the number of working hours, which exceed the normal level but also the obsessive or compulsive character that creates addiction. In addition to extrinsic or contextual factors, which have a marginal influence, a typical workaholic is driven by an internal force that they cannot resist (Scott, Moore and Miceli, 1997). Schaufeli, Shimazu and Taris (2009) find, based on their research, that both dimensions of WH are significantly correlated with two indicators of overtime: overwork (homework and work weekends) and the proportion of overtime (actual working time versus normal working time). Also, Schaufeli, Shimazu and Taris (2009) point out that these two indicators expressing working time correlate more strongly with working excessively than working compulsively, results confirmed in other studies (Buelens and Poelmans, 2004; Snir and Zohar, 2008). Schaufeli, Shimazu and Taris (2009) concluded, in the following research that a combination of high levels of working excessively and working compulsively is usually associated with low levels of employment and this is the most harmful combination to the well-being of employees from a physical and mental point of view and low. Snir (2018) claims that there is no relationship between changing financial needs and the intensity of work that an employee does at one point. He also notes that the effectiveness of policies aimed at encouraging long working hours or an optimal work-life balance is questionable. A specific intervention can encourage investment in work by expanding the workplace vertically rather than horizontally.

Shimazu et al. (2012, 2015) investigate the distinctiveness of WH and WE, examining their longitudinal relationships with employees' well-being and performance. The reports show that WH and WE have positive but weak correlations and WH is related to a decrease in health level and poor job satisfaction, whereas WE is related to increases of both life satisfaction and employees' performance and an increase in health level (Shimazu et al., 2015). Therefore, WH must be avoided and WE stimulated as a desirable behavior. Shimazu et al. (2012) conclude that WH and WE are two differentiated psychological states that adversely affect indicators of work outcomes such as health status, job satisfaction, and job performance.

Mazzetti et al. (2019) dwell on the mediating effect of presenteeism and the moderating effect of managerial support in the relation between WH and the conflict private life-work time. Mazzetti et al. (2019) state that presenteeism is a factor that mediates the association between WH and conflict private life-work time, association moderated by managerial support. Therefore, Mazzetti et al. (2019) underline the protective role played by managerial support in preventing employees' workaholic behavior.

In their work, Tziner, Shkoler and Bat Zur (2019) tested and validated the model of Snir and Harpaz (2015) on the mediational mechanism of HWI between various predictors and outcomes as well as the moderation mechanism of specific factors (work equity, work environment, etc.). Tziner, Shkoler and Bat Zur (2019) highlight that extrinsic motivation can cancel the effects of intrinsic motivation, diminishing or even canceling, intrinsic impulses. Thus, it is necessary to balance the components of the motivational system so that it does not produce effects contrary to the intentions for which they were applied. Although the research undertaken by Tziner, Shkoler and Bat Zur (2019) approaches a cross-sectional design, they suggest a longitudinal research design and the inclusion of other variables with potentially moderating effects (such as work ethics, organizational culture, and gender) for future research. Di Stefano and Gaudiino (2019) undertake a meta-analysis of the available research, the selection is made through a systematic review, on the relationships between the sub-dimensions of WH and WE. Di Stefano and Gaudiino (2019) analyze the different types of correlation between the two concepts based on empirical research on this topic. There is no homogeneity in this research, i.e. a series of research show associations that differ in sign and magnitude, ranging from positive to negative correlations and from insignificant or no effect to moderate or strong effect. However, Di Stefano and Gaudiino (2019) note the emergence of partial associations between the WH dimensions that target excessive work and compulsive work, on the one hand, and the extent of WE that targets the absorption. The outcomes show that nationality is an important moderator of the relationship between the two concepts.

## 2. Analysis model of the predictor factors, mediators and related effects associated with HWI

Shkoler et al. (2017) formulate a theoretical framework of WH, built on two basic facets. One facet refers to the dimensions of WH, with three elements: cognitive, emotional, and instrumental. The second facet identifies the resources of WH: time and effort. WH requires an investment of cognitive energy because the workaholic persistently thinks about work, it becomes an obsession even when not working (Snir and Zohar, 2000; Andreassen et al., 2014). The second dimension of WH is the emotional one (Ng, Sorensen and Feldman 2007; Schaufeli, Shimazu and Taris, 2009; Andreassen et al., 2012), because the

workaholic experiences several positive emotions (e.g., enthusiasm at work), as well as negative (for example, the frustration of failure). A third dimension of WH suggested by Shkoler, Rabenu and Tziner (2017) is the instrumental one of a behavioral nature (Ng, Sorensen and Feldman, 2007; Schaufeli, Shimazu and Taris, 2009). Snir and Harpaz (2012) put forward a model for the HWI that is built from four main elements: HWI, with its two types (situational and dispositional), potential predictors, its outcomes, and the moderating factors between the HWI and work outcomes. The predictors of the model are differentiated into three categories: contextual predictors (gender, marital status, level of education, etc.), external predictors (basic financial needs, employer requirements, etc.), and internal predictors (dependence on work, passion for work). The two types of HWI are: situational (based on financial needs and employer-oriented) and dispositional (WH and WE). Snir and Harpaz (2012) classified the work outcomes on three levels: individual (health, job satisfaction), family (conflict between family life and excessive work time), organizational (performance, productivity, etc.). The moderators refer to, among other factors, job type, the work environment, and the equity of rewards.

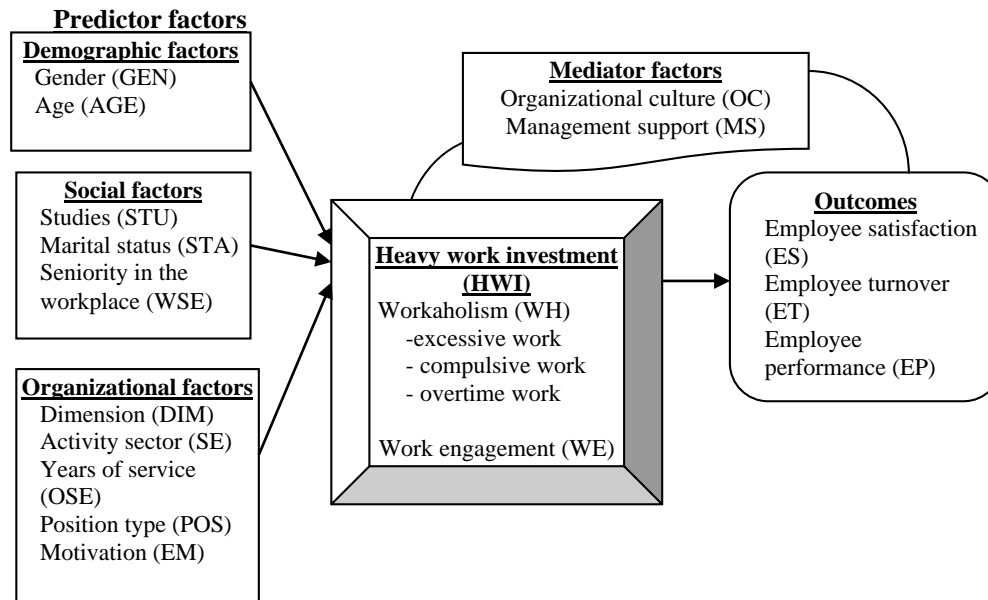
WH has often been considered a multidimensional structure (Andreassen, 2015). Shkoler, Rabenu and Tziner (2017) test the multi-dimensional structure of WH and its relation with internal and external factors. To reach their goal, these authors rely on a theoretical framework that incorporates the satisfactory and impulse dimensions of WH, including in this framework antecedents, moderation, and mediation factors, as well as outcomes. Shkoler, Rabenu and Tziner (2017) show that compulsive working, sometimes considered to be negative, as a result of its potentially negative outcomes and can also have positive outcomes (ie, job satisfaction).

Drawing on the models proposed by Snir and Harpaz (2012), Shkoler, Rabenu and Tziner (2017), Tziner, Shkoler and Bat Zur (2019) we have built a multidimensional model of HWI that is built on four main components: HWI (with two facets: WH and WE), potential predictors of HWI, work outcomes and the mediating factors between HWI and work outcomes. The originality of the proposed model consists of the parallel research of workaholism and work engagement in direct relation to the predictive factors (which were selected after researching several models), with the outcomes indicators and with the mediators involved in the direct relationship between the HWI phenomenon and potential outcomes (organizational culture and management support). Figure no. 1 presents our research model and the relationships that are established among the main components of the model.

Within the model, we proposed 10 predictor factors classified into three categories: demographic factors (gender, age); social factors (studies, marital status, and work seniority) and organizational factors (dimension of organization, activity sector, and organizational seniority, position type, and motivation). Marital status took into consideration both the existence of the relationship and the existence of a child in care. Position type refers to management and execution functions. The selected organizations come from the sectors: production, trade, and services, and as size, they are among micro, small and medium-sized enterprises.

Within the model, the two forms of HWI are considered (WH and WE), as well as three outcome indicators (satisfaction, turnover, employee performance). In the case of workaholism, we include, within the model, three components: excessive work, compulsive work, overtime work. As mediator factors, we selected the organizational culture (by

focusing on goals and reflection in reward policy) and the management support given in the current activity.



**Figure no. 1. Multidimensional model of HWI**

*Source: Developed by authors based on Snir and Harpaz (2012), Shkoler, Rabenu and Tziner (2017), Tziner, Shkoler and Bat Zur (2019)*

The tool created based on the theoretical model aims to identify the predominant behavior of employees in terms of HWI, and based on this behavior to determine predictors and specific outcomes, which allows analysis of the positive or negative nature of WH and WE (the two facets of HWI).

### 3. Testing the multidimensional HWI model

#### 3.1. Test methodology

The proposed model was tested in an empirical study that we conducted among employees in Romania. The participants were recruited from organizations in different fields (services, trade, and industry) and with different sizes (micro, small and medium enterprises). We contacted the managers of these organizations who granted us permission to collect information by applying the questionnaire. The sample was constructed using a statistical procedure of random sampling that allows estimating the distribution of the statistical population. To obtain data as relevant as possible for the population among which the research was conducted, 330 employees were invited to complete a questionnaire. All respondents were informed about the nature and objectives of the study and were informed that participation was voluntary. Of the 330 employees approached, 298 employees answered the call (response rate was 90.30%). In the research, WH was measured with the Dutch Work Addiction Scale (DUWAS) (Schaufeli, Shimazu and Taris, 2006), which includes two sub-scales: Working Excessively and Working Compulsively. For our

research, we used the short version of the DUWAS scale. Working Excessively and Working Compulsively were assessed using five items. Additionally, we added three items that illustrate the time allocated by workers for additional work. Working Excessively was assessed by nine items of the Utrecht Work Engagement Scale (UWES) (Schaufeli, Shimazu and Taris, 2006) which contained three subscales: vigor, dedication and absorption, each sub-scale being assigned three items. The questionnaire also included items on job satisfaction (I am satisfied with my current job), intention to quit my job (I intend to change my job over the next year), job performance (how do you evaluate overall performance in work in the last year on a scale between 0 and 10), the motivation level of the employee (how motivated you are at work on a scale between 0 and 10), the management support given in the current activity (how to evaluate the direct manager's support in achieving your goals on a scale from 0 to 10), organizational culture (your organization has a strong orientation regarding the objectives that are also reflected in the reward policy). Excepting three items that are expressed on a scale from 0 to 10, the 28 items regarding work had response options on a 5-level Likert- scale with the following values: 5 - total agreement, 4 - partially agree, 3 - neutral, 2 - partial disagreement, 1 - total disagreement, to ensure compatibility of responses. If job satisfaction, turnover rate, job performance were considered outcome (output) indicators of HWI, the employee's motivation level is considered a predictive factor, and management support and organizational culture factors are considered as mediating factors for HWI.

Based on the analysis of the literature and the objectives of the research, we formulated the following hypotheses:

H1. There are no predictors that will significantly influence the behavior generated by the HWI.

H2. A dual correlation between the employees' motivation, on the one hand, and workaholism and WE, cannot be demonstrated.

H3. An association between the size of the HWI and the indicators of labor outcomes cannot be demonstrated.

H4. No differentiated influences of workaholism components (excessive work, compulsive work, overtime work) can be observed on the work outcomes indicators.

H5. It is difficult to demonstrate that there is a mediating effect of organizational culture and management support between the two dimensions of HWI and the three selected outcome indicators.

The hypotheses are tested for validation, using the study of correlations, the SPSS automatic linear modelling function, the analysis of artificial neural networks, MANOVA, the modelling of structural equations.

### **3.2. Results and discussions**

To test the reliability of the items in the questionnaire applied to the respondents, we ran a reliability test, calculating all the values of Guttman's Lambda coefficient ( $\lambda$ ). Among these, the values  $\lambda_2$  and  $\lambda_3$  (Alpha Cronbach) are the most used in the statistical reliability tests. Both values recorded by the Gutmann coefficients (Alpha Cronbach - 0.869,



respectively  $\lambda_2 = 0.812$ ) show very good reliability of the variables that make up the questionnaire, allowing the recording of relevant and replicable results.

**Hypothesis H1. There are no predictors that will significantly influence the behavior generated by the HWI.**

To identify the predictor factors with the strongest influence on the behavior generated by the massive investment in work, we first calculated the Pearson correlation coefficients. In table no. 1 we presented the values of the correlation coefficients established between the two dimensions of HWI (WH and WE) and the ten predictors selected for the multidimensional model of HWI.

From the analysis of the data presented in table no. 1 it can be seen that four of the predictive factors (age, work seniority, studies, and motivation) record significant correlations with the two dimensions of HWI.

**Table no. 1. The correlations between predicting factors and dimensions of the HWI**

		Workaholism (WH)	Work engagement (WE)
Dimension (DIM)	Pearson Correlation	-0.043	-0.152**
	Significance	0.456	0.008
Activity sector (SE)	Pearson Correlation	0.028	-0.067
	Significance	0.629	0.248
Gender (GEN)	Pearson Correlation	0.021	0.078
	Significance	0.720	0.178
Age (AGE)	Pearson Correlation	-0.291**	-0.124*
	Significance	0.000	0.032
Work seniority (WSE)	Pearson Correlation	-0.363**	-0.153**
	Significance	0.000	0.008
Organizational seniority (OSE)	Pearson Correlation	-0.088	0.106
	Significance	0.131	0.068
Position type (POS)	Pearson Correlation	-0.081	-0.463**
	Significance	0.161	0.000
Studies (STU)	Pearson Correlation	0.222**	0.401**
	Significance	0.000	0.000
Marital status (STA)	Pearson Correlation	0.010	0.060
	Significance	0.857	0.301
Motivation (EM)	Pearson Correlation	-0.386**	0.787**
	Significance	0.000	0.000
WH	Pearson Correlation	1	-0.215**
	Significance		0.000
WE	Pearson Correlation	-0.215**	1
	Significance	0.000	

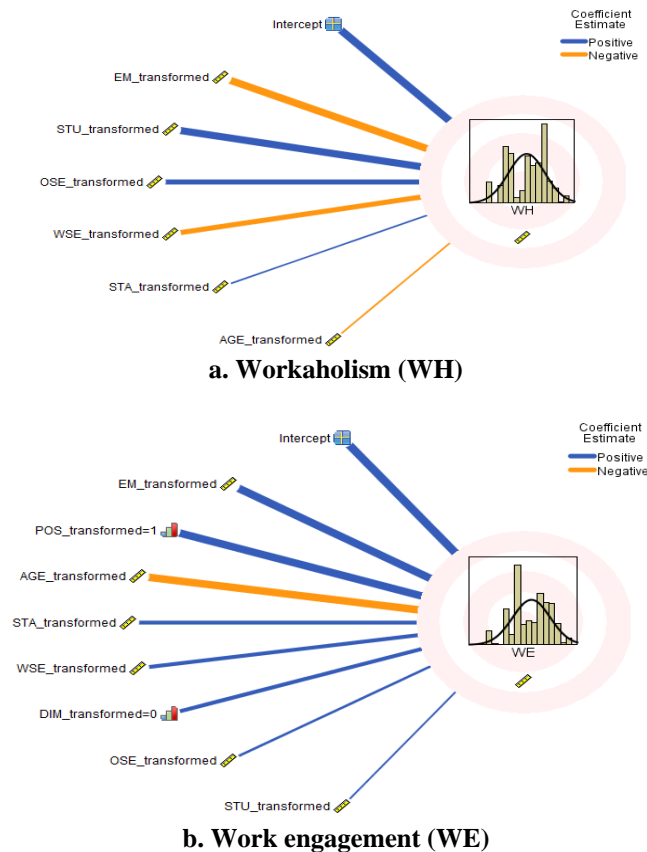
Note: \*\*. Correlation is strong; \*. Correlation is average

Source: Developed by authors based on data collected

Two other predicting factors (the size of the organization and the type of position held by the respondent) record significant correlations with WE.

To determine the effects of the predictive factors on the two dimensions of the HWI, we used the automatic linear modelling function provided by SPSS, version 2.0. Figure no. 2 illustrates the intensity of predictive factors' effects on the dimensions of HWI

(workaholism- WH and work engagement - WE), and table no.2 contains the coefficients, the importance, the significance of the variables influencing the two dimensions of the HWI.



**Figure no. 2. Intensity of predictive factors' effects on the dimensions of HWI**

*Source: Developed by authors based on data collected using SPSS v20*

**Table no. 2. The values of the automatic linear modeling functions applied to the dimensions of the HWI**

Workaholism				Work engagement-WE			
Variable	Coefficient	Significance	Importance	Variable	Coefficient	Significance	Importance
Employees' motivation - EM	-0.220	0.000	0.601	Employees' motivation - EM	0.265	0.000	0.839
Studies - STU	0.250	0.000	0.321	Position - POS	0.469	0.000	0.071
Organizational seniority - OSE	0.104	0.001	0.044	Age - AGE	-0.303	0.000	0.057
Work seniority - WSE	-0.240	0.000	0.032				
Intercept	4.480	0.000		Intercept	1.558	0.000	
Corrected Information Criterion Aikake (AICC)			379.850	Corrected Information Criterion Aikake (AICC)			-592.938

*Source: Developed by authors based on data collected*

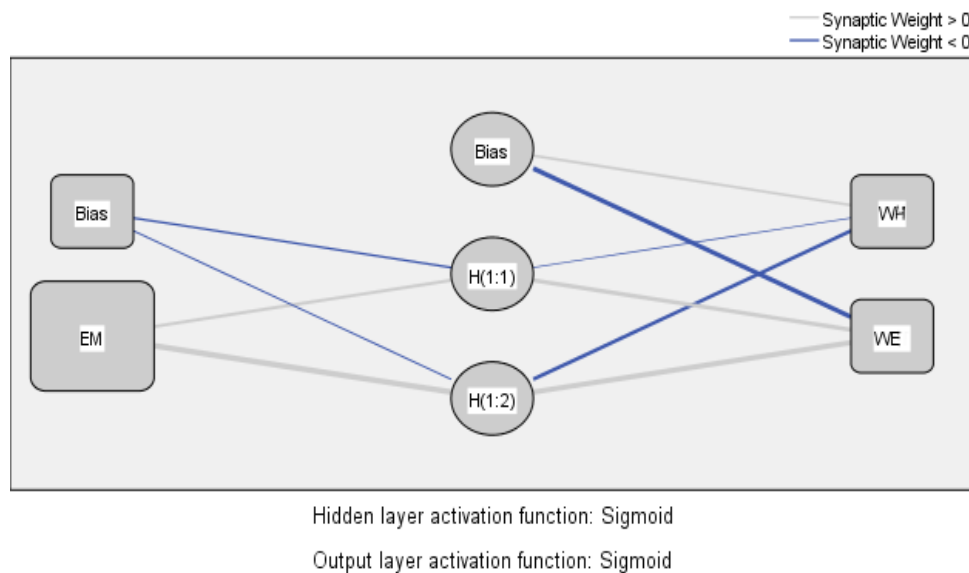
Analyzing the data from figure no. 2 and table no. 2 it can be seen that the level of employee motivation has a negative effect, meaning that a better motivation reduces the WH intensity. Studies and organizational seniority have positive effects, meaning that those with higher education and those with more seniority in organizations are prone to WH. On the other hand, work seniority has a negative effect meaning that those with less work seniority are more prone to workaholic behavior than those with extensive experience in the their field. On the other hand, the employee's motivation level has a positive effect, wherein higher motivation increases the intensity of the WE. Furthermore, we found that within the researched sample, the operating personnel and those with a lower age range have a higher intensity of WE.

*As a conclusion of the results correlation research and automatic linear modeling, we found that the H1 hypothesis is invalid.* Several predictors significantly influence the behavior generated by HWI through its two dimensions: workaholism and WE. These factors can be used by HR managers and supervisors to encourage certain positive behaviors (dedication) and to discourage other negative behaviors (compulsiveness). The strongest influences on the behavior generated by the HWI are exerted by the employees' motivation, studies, seniority in work, and the organization, occupied position, age. The only predictor influencing both dimensions of HWI is employee motivation, but the influences identified are opposite, positive on WE and negative on workaholism. It can be seen that half of the predictors with relevant influences are organizational factors, as the organizations' policies play a decisive role in the behavior' intensity generated by the HWI, which confirms previous research (Schaufeli, Shimazu and Taris, 2009; Snir and Harpaz, 2012; Shkoler, Rabenu and Tziner, 2017).

**Hypothesis H2.** A dual correlation between the employees' motivation, on the one hand, and workaholism and WE, cannot be demonstrated.

To determine the level of association and the meaning of the association between the employees' motivation and the two dimensions of the HWI (WE and WH) we used the analysis of artificial neural networks, to deepen and confirm the results of the analyses of the correlations and the effects of the employee's motivation determined by automatic linear modelling. We opted for the multilayer perceptron model in which the input variable is the employees' motivation level, and the output variables are the WE and WH. Within the hidden layer that is interposed between the input and output variable, we have defined two units. These two units represent the two dimensions of motivation: intrinsic motivation and extrinsic motivation. As functions of activating the hidden layer (intrinsic motivation and extrinsic motivation) and the output layer (WE and WH), we used the sigmoid function. The average relative error within the model is 0.603. The rescaling method used for the dependent and independent variables was data normalization.

Figure no. 3 presents the influences established among the multilayer perceptron model variables.



**Figure no. 3. Multilayer perceptron model to identify the employees' motivational influences on WE and WH**

Note: Bias - external influences; EM - employee motivation; WH - workaholism; WE work engagement; H(1:1), H(1:2) - hidden layer units.

Source: Developed by authors based on data collected using SPSS v20

Table no. 3 presents the predicted values of the model for the hidden layer and output layer.

**Table no. 3. The values of the multilayer perceptron model**

Predictors		Predicted values			
		Hidden layer 1		Output layer	
		H(1:1)	H(1:2)	WH	WE
Input layer	(Bias)	-0.434	-0.193		
	EM	0.839	2.214		
Hidden layer 1	(Bias)			0.560	-1.357
	H(1:1)			-0.026	1.230
	H(1:2)			-1.190	1.828

Source: Developed by authors based on data collected using SPSS v20

Following the analysis of figure no. 3 and table no. 3, we observed that the two units of the hidden layer (intrinsic and extrinsic motivation) are positively and directly influenced by the input variable (employee motivation) to a different extent: 0.839 for unit H (1: 1) of the hidden layer (which represents the extrinsic motivation), respectively 2,214 for the H (1: 2) unit of the hidden layer (which represents the intrinsic motivation). Over the hidden layer is exerted influence by other exogenous variables (through bias), rather small and negative influences. Unit H (1: 1) of the hidden layer (extrinsic motivation) has a positive consistent influence on WE and a negative and reduced influence on WH. Unit H (1: 1) of the hidden layer (intrinsic motivation) has a dominant positive influence on WE and a dominant-

negative influence on WH. Exogenous variables exert by bias a dual influence of opposite sign (positive on WH and negative on WE). Following the research of the artificial neural network that is established between the studied variables, it can be concluded that a dual correlation can be demonstrated between the level of employees' motivation, on the one hand, and workaholism and WE, on the other hand, which allows us to state that hypothesis H2 is invalid. Employees' motivation is positively associated with WE and negatively associated with workaholism, which can be a valuable tool for managers and supervisors in managing the behaviors generated by HWI. A high level of motivation leads to a reduction in WH and an increase in WE, which has been shown by other researchers (Scott, Moore and Miceli, 1997; Ng, Sorensen and Feldman., 2007; Mazzetti, Schaufeli and Guglielmi, 2014; van Beek, Taris and Schaufeli 2011; van Beek et al., 2012; Tziner, Shkoler and Bat Zur, 2019). Moreover, the two dimensions of motivation (intrinsic and extrinsic) exhibit different intensities of influence, intrinsic motivation playing a crucial role in the behavior associated with HWI, as stated by Scott, Moore and Miceli (1997) and Tziner, Shkoler and Bat Zur (2019).

**Hypothesis H3. An association between the size of the HWI and labor outcomes indicators cannot be demonstrated.**

To test the relations established between WH and employees' turnover, respectively, between WE and employees' satisfaction level and performance, we conducted a MANOVA analysis (multiple analysis of variance). Within the model, the employees' turnover, satisfaction level, and performance are defined as dependent variables, and WE and WH are independent variables. The model chosen is completely factorial and recorded after running the Bartlett sphericity test a significant association between variables: Chi-square  $\chi^2 = 256.801$ ,  $df = 5$ ,  $p = 0.000 < 0.05$ . The results of multivariate tests are shown in table no. 4. The table indicates the full significance of the model, and the values recorded by the models' exogenous variables represented by the intercept are lower than the values recorded by the models' endogenous variables (WE and WH). The values recorded in the four tests of the Pillai's Trace, Wilks' Lambda, Hotelling's Trace, Roy's Largest Root model indicate significant effects, especially of the WE on the dependent variables.

**Table no. 4. Multivariate tests of MANOVA model to determine the effects of WH and WE**

Effect		Value	F	Meaning	Partial Eta Squared
Intercept	Pillai's Trace	0.645	176.661	0.000	0.645
	Wilks' Lambda	0.355	176.661	0.000	0.645
	Hotelling's Trace	1.815	176.661	0.000	0.645
	Roy's Largest Root	1.815	176.661	0.000	0.645
WH Workaholism	Pillai's Trace	0.352	52.943	0.000	0.352
	Wilks' Lambda	0.648	52.943	0.000	0.352
	Hotelling's Trace	0.544	52.943	0.000	0.352
	Roy's Largest Root	0.544	52.943	0.000	0.352
WE Work engagement	Pillai's Trace	0.727	258.657	0.000	0.727
	Wilks' Lambda	0.273	258.657	0.000	0.727
	Hotelling's Trace	2.657	258.657	0.000	0.727
	Roy's Largest Root	2.657	258.657	0.000	0.727

Source: Developed by authors based on data collected using SPSS v20

These effects are also confirmed by the values recorded by WE, WH, and intercept in the case of the partial eta-square coefficient. The predominant effect is manifested by WE, but WH also has a significant effect. In table no. 5 we presented the parameters recorded after running the MANOVA model, to illustrate the two independent variables' effects on the three dependent variables.

**Table no. 5. Parameters recorded in the MANOVA model to determine the effects of WH and WE**

Dependent variable	Parameter	B	Standard error	t	Sig.	Partial Eta Squared
ES	Intercept	0.741	0.216	3.436	0.001	0.039
	WH	-0.327	0.042	-7.770	0.000	0.170
	WE	1.189	0.043	27.872	0.000	0.725
ET	Intercept	4.131	0.373	11.084	0.000	0.295
	WH	0.632	0.073	8.692	0.000	0.204
	WE	-1.064	0.074	-14.429	0.000	0.415
EP	Intercept	7.317	0.429	17.064	0.000	0.498
	WH	-0.890	0.084	-10.633	0.000	0.278
	WE	0.987	0.085	11.633	0.000	0.315

Note: ES - employee satisfaction; ET- employee turnover; EP - employee performance.

Source: Developed by authors based on data collected using SPSS v20

By researching the parameters in table 5, it can be seen that workaholism causes important effects on the intention to quit the job, while WE has effects on employee satisfaction and performance.

Following the MANOVA analysis, we can conclude that the H3 hypothesis is invalid. An increase in WH leads to an increase in employee turnover, while an increase in the WE leads to a decrease in the employee turnover. WE determines a high level of employee satisfaction and performance, the influence on employee satisfaction being dominant. Conclusions from the invalidated hypothesis can help managers and supervisors identify desirable behaviors among employees, which can lead to an increase in employee satisfaction and performance and a decrease in the intention to quit their job.

The research results are fully correlated with those of van Beek et al. (2014), which show that WH is negatively correlated with job satisfaction and performance and negatively with the employees' turnover, while WE is positively correlated with job satisfaction and performance and, negatively with employees' turnover. Workaholic employees and engaged employees have different work goals and use different strategies to achieve these goals. Organizations can develop policies to reduce WH and promote WE by influencing workers' motivation. In turn, Tziner, Shkoler and Bat Zur (2019) show that HWI influences several outcome indicators, such as employee health, work-time balance, job satisfaction, productivity, which makes HWI in certain circumstances to be considered a mediation variable.

**Hypothesis H4.** No differentiated influences of the workaholism components (excessive work, compulsive work, additional work) can be observed on the work outcomes indicators.

To investigate the amplitude and meaning of the relationships that are established between the components of WH and result indicators (satisfaction, employee turnover, and performance), we performed a MANOVA analysis (multiple analysis of variance). Within the model, the employee turnover, satisfaction, and performance are defined as dependent variables, and excessive work, compulsive work, and overtime work are independent variables. The chosen model is completely factorial and recorded after running Bartlett's sphericity test a significant association between variables: Chi-square  $\chi^2 = 425,959$ ,  $df = 5$ ,  $p = 0.000 < 0.05$ . The results of the multivariate tests are presented in table no. 6.

**Table no. 6. Multivariate tests of the MANOVA type model for determining the effects of WH components**

	Effect	Value	F	Meaning	Partial Eta
<b>Intercept</b>	<b>Pillai's Trace</b>	0.842	515.437	0.000	0.842
	<b>Wilks' Lambda</b>	0.158	515.437	0.000	0.842
	<b>Hotelling's Trace</b>	5.314	515.437	0.000	0.842
	<b>Roy's Largest Root</b>	5.314	515.437	0.000	0.842
<b>WEx excessive work</b>	<b>Pillai's Trace</b>	0.124	13.747	0.000	0.124
	<b>Wilks' Lambda</b>	0.876	13.747	0.000	0.124
	<b>Hotelling's Trace</b>	0.142	13.747	0.000	0.124
	<b>Roy's Largest Root</b>	0.142	13.747	0.000	0.124
<b>WC compulsive work</b>	<b>Pillai's Trace</b>	0.152	17.405	0.000	0.152
	<b>Wilks' Lambda</b>	0.848	17.405	0.000	0.152
	<b>Hotelling's Trace</b>	0.179	17.405	0.000	0.152
	<b>Roy's Largest Root</b>	0.179	17.405	0.000	0.152
<b>OT overtime work</b>	<b>Pillai's Trace</b>	0.163	18.916	0.000	0.163
	<b>Wilks' Lambda</b>	0.837	18.916	0.000	0.163
	<b>Hotelling's Trace</b>	0.195	18.916	0.000	0.163
	<b>Roy's Largest Root</b>	0.195	18.916	0.000	0.163

*Source: Developed by authors based on data collected using SPSS v20*

Following the analysis of the four multivariate tests (Pillai's Trace, Wilks' Lambda, Hotelling's Trace, Roy's Largest Root) a full relevance of the model can be found. These effects are also confirmed by the values recorded for the partial eta-square coefficient. Within the table no. 7 we presented the parameters registered after running the MANOVA type model, in order to reproduce the effects of the three components of WH on the three dependent variables.

**Table no. 7. Parameters registered in the MANOVA type model for determining the effects of WH components**

Dependent variable	Parameter	B	Standard error	t	Meaning	Partial Eta Squared
ES	Intercept	5.959	0.268	22.237	0.000	0.628
	WEx	-0.364	0.157	-2.317	0.021	0.018
	WC	-0.580	0.148	-3.930	0.000	0.050
	OT	0.379	0.106	3.584	0.000	0.042
ET	Intercept	-0.369	0.328	-1.126	0.261	0.004
	WEx	0.249	0.192	1.298	0.195	0.006
	WC	0.688	0.180	3.814	0.000	0.047
	OT	-0.102	0.129	-0.788	0.431	0.002
EP	Intercept	10.920	0.339	32.212	0.000	0.780
	WEx	0.574	0.199	2.893	0.004	0.028
	WC	-1.313	0.187	-7.035	0.000	0.145
	OT	-0.276	0.134	-2.063	0.040	0.014

Note: ES - employee satisfaction; ET- employee turnover; EP - employee performance; WEx - excessive work; WC - compulsive work; OT - overtime work.

Source: Developed by authors based on data collected using SPSS v20

Analyzing the parameters from table no. 7 it can be seen that the influences of two of the three components of WH (overwork and compulsive work) on employee satisfaction are negative in nature, while overtime has a positive influence. This phenomenon can be explained by the fact that overtime work (which exceeds normal working time) is better rewarded, which increases employee satisfaction by mediating the extrinsic motivational factor- financial reward.

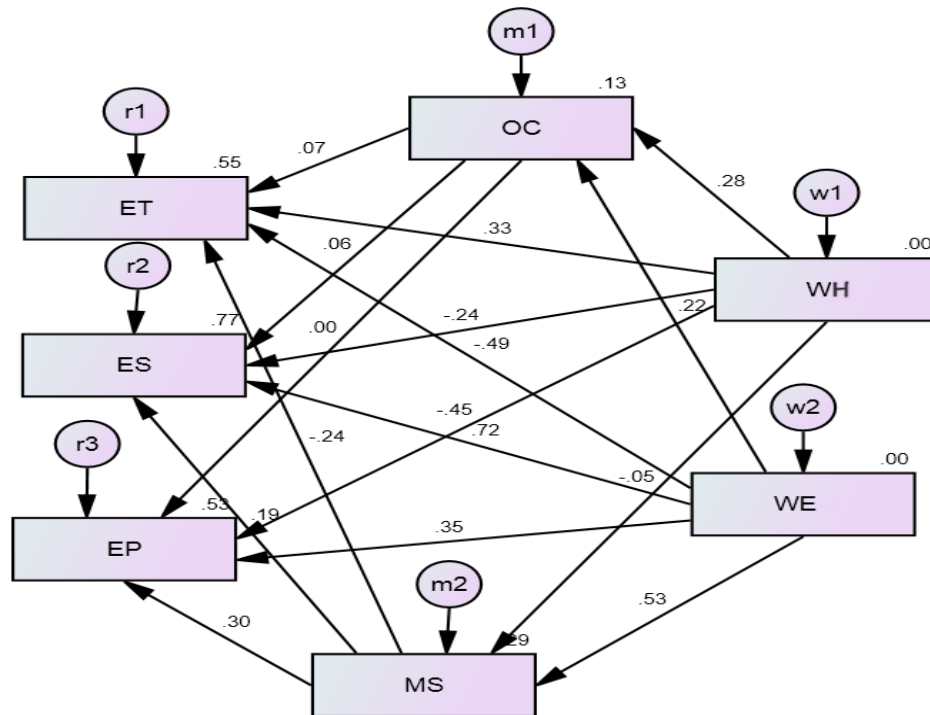
Following the MANOVA analysis, we can conclude that the H4 hypothesis is invalid. Determining differentiated influences of workaholism components (excessive work, compulsive work, overtime work) on work outcome indicators can be useful to managers and supervisors to encourage those behaviors that characterize the components with positive influence. The influences of WH three components on the employee turnover are predominantly positive (except for overtime work that has a slightly negative influence), both excessive work and compulsive work causing the employee to think about changing jobs. Concerning the employee's performance, the two components (excessive work and compulsive work) have opposite influences, compulsive work contributing to the reduction of performance while excessive work to an increase. However, the submission of a large amount of overtime work leads to a reduction in employee performance, but relatively reduced influence in importance. Following the investigations undertaken, we can state that the results of our research correlate with the results of the research of Scott, Moore and Miceli (1997), Korn, Pratt and Lambrou (1987), Schaufeli, Taris and Bakker (2006), Schaufeli, Shimazu and Taris (2009), which links the compulsive nature of WH to its negative nature, as a result of its potentially negative results on outcome indicators.

**H5. It is difficult to demonstrate that there is a mediating effect of organizational culture and management support between the two dimensions of HWI and the three selected outcome indicators.**

To determine if there are mediation effects of organizational culture and management support in modelling structural equations among the two forms of HWI (workaholism –



WH and work engagement – WE) and the three selected outcome indicators (satisfaction, intention to quit, employee performance), we used structural equation modelling (SEM). The diagram of the relationships that are established between the variables is illustrated in figure no 4.



**Figure no. 4. The diagram of relations within the framework of structural equations modeling**

Note: ES - employee satisfaction; ET- employee turnover; EP - employee performance; WH - workaholism; WE - work engagement; MS - management support; OC – organizational culture; r1, r2, r3, m1, m2, w1, w2 - unobservable exogenous variable.

Source: Developed by authors based on data collected using SPSS v20

The selected model defines all seven observable variables as endogenous, having attached non-observable exogenous variables (r1, r2, r3, m1, m2, w2, w1) that influence each endogenous variable. Within the model, maximum likelihood estimation methods were used, the model having a good significance level: Chi-square  $\chi^2 = 120.208$ ,  $df = 5$ ,  $p = 0.000 < 0.05$ . The Non-Normed Fit Index (NNFI) and the adjustment Comparative Fit Index (CFI) recorded values 0.903 and 0.905 respectively, values greater than 0.90 being considered as indicating good significance.

Table no. 8 presents direct, indirect, and total effects recorded among the variables of the model. Analyzing figure no. 4 and table no. 8 it can be observed a partial mediation effect of the organizational culture and management support among the two forms of HWI (WH and WE) and the three selected outcome indicators (employee turnover, employee satisfaction, and employee performance). This effect is stronger in the case of management

support, which mediates mostly the relationships between WE and ET, employee satisfaction and performance, and less significantly in the case of the relationships between these three indicators and WH.

**Table no. 8. Standardized effects recorded among the variables of a structural equation modelling**

Standardized Total Effects					Standardized Direct Effects					Standardized Indirect				
	WE	WH	MS	OC		WE	WH	MS	OC		WE	WH	MS	OC
<b>MS</b>	0.534	-	0.000	0.000	<b>MS</b>	0.534	-	0.000	0.000	<b>MS</b>	0.000	0.000	0.000	0.000
<b>OC</b>	0.222	0.281	0.000	0.000	<b>OC</b>	0.222	0.281	0.000	0.000	<b>OC</b>	0.000	0.000	0.000	0.000
<b>ES</b>	0.833	-	0.185	0.062	<b>ES</b>	0.720	-	0.185	0.062	<b>ES</b>	0.113	0.008	0.000	0.000
<b>EP</b>	0.506	-	0.298	0.001	<b>EP</b>	0.346	-	0.298	0.001	<b>EP</b>	0.159	-	0.000	0.000
<b>ET</b>	-	0.365	-	0.068	<b>ET</b>	-	0.334	-	0.068	<b>ET</b>	-	0.031	0.000	0.000

Note: ES - employee satisfaction; ET- employee turnover; EP - employee performance; WH - workaholism; WE - work engagement; MS - management support; OC - organizational culture.

*Source: Developed by authors based on data collected using SPSS v20*

Managers and supervisors (direct managers) contribute to the achievement of individual objectives under normal conditions by giving their support to the workers in the current activity. The mediation effect of the organizational culture is very low. In the case of the selected sample, the mediation relationship between the organizational culture through an over-demanding work climate and the dimensions of HWI is not confirmed, as described by Mazzetti, Schaufeli and Guglielmi (2014). In the case of our questionnaire, the organizational culture was quantified through the strong orientation concerning the objectives that are reflected in the organization's reward policy. As a result of the deficient and asymmetrical reward, a clear orientation could not be given, which resulted in a limited mediation effect.

*Summarizing the research results, the H5 hypothesis is valid.* It is difficult to demonstrate that there is a mediating effect of organizational culture and management support between the two dimensions of HWI and the three selected outcome indicators.

There is a mediating effect of organizational culture and management support between the two forms of HWI (WH and WE) and the three selected outcome indicators (employee turnover, employee satisfaction, and performance), but this is weak, the direct effects being predominant. A strong mediation effect of organizational culture and management support between the two dimensions of HWI and the three selected outcome indicators would have been useful for managers and supervisors to intervene in the efficient management of how behavior generated by the HWI influences the labor outcome indicators.

## Conclusions

Based on the dual nature of HWI, we built a multidimensional model which includes, on the one hand, the potential predictors and on the other hand the outcomes of this phenomenon, as well as two indicators that mediate the relationship between HWI and its outcomes (organizational culture and management support). The research indicated that among the predicting factors the most powerful influences on the behavior generated by the HWI are employees' motivation, studies, work seniority, organizational seniority, occupied

position, and age. The only predictive factor that significantly influences both dimensions of the HWI is the employees' motivation, but the influences are in opposition. A high level of motivation leads to an increase in WE and a reduction in the WH phenomenon.

Within the proposed model, we considered it necessary to analyze WH and WE concerning a series of indicators that illustrate individual work outcomes, such as job satisfaction and performance, intention to quit the job. In the case of workaholics, overloading with tasks also leads to lower performance, due to physical stress and mental fatigue. These problems are also reflected in the intention to quit the job. Workaholic employees are not only overworking, but obsessively-compulsive in their work, even when not working, which causes them to exhaust themselves more quickly as a result of the great mental and physical efforts they put into their work. Unlike workaholic employees, engaged workers voluntarily overwork because they enjoy their work, obtaining job satisfaction, and being able to perform large amounts of work without becoming exhausted. Therefore, WE is positively associated with job satisfaction and negatively associated with the intention to quit the job. As employed workers find their work to be valuable, enjoyable, interesting, and satisfying, with the support of direct managers and colleagues, they are workers who achieve performance. Therefore, WE is positively associated with workplace performance.

Positive and negative HWI can be differentiated by the level of compulsivity. If this is large, it will cancel the beneficial effects of involvement and engagement, affecting the well-being and employees' performance. Management needs to pay more attention to the effects and interaction between internal and external factors that affect the two dimensions of the HWI because these dimensions and behavior can have a strong impact on the practices in the area of human resources management.

Since the data was collected using a relatively unstructured design, there is no clear perspective on the type of employees who complete the questionnaire. In other words, we cannot claim that the sample features the average Romanian worker. There may be more workaholic workers than normal or more engaged workers, or non-workaholic and unengaged workers among the participants of this study. The over-representation in our sample does not impinge on the relevance of the research, because we aim to determine relationships between variables also according to the employees' behavior.

In our research, all the acquired data is based on the self-assessment results of individuals, rendering each completed questionnaire a subjective experience. Another limitation is that the sample is not nationally representative nor comparable in terms of professional groups. Future research should establish independent and external criteria, such as peer evaluations, friends' or relatives' evaluations, and/or the manager's evaluation.

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