

Work Design Questionnaire (WDQ): Russian Version Adaptation and Validation

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Abstract

Introduction. The article presents the results of the Russian adaptation of the Work Design Questionnaire (WDQ) originally developed by F. Morgeson and S. Humphrey in 2006. The authors aimed to keep the original instrument's structure as much as possible – the questionnaire includes 77 questions combined into 21 scales in 4 domains: task characteristics, knowledge characteristics, social characteristics, and work context. This adaptation is intended to fill the lack of Russian psychometric tools for the theoretical study of psychosocial work design, as well as for the practical assessment and design of competitive and safe workplaces. **Methods.** The Russian translation of the questionnaire was conducted focusing on its psychological equivalence to the English original source. The psychometric properties of the technique were tested on a sample of 500 respondents (average age 39 years, 65% female) employed in more than 20 industries. Internal consistency was tested by Cronbach's alpha coefficients, factor structure was checked by Confirmatory Factor Analysis and Item Response Theory methods. **Results.** The adapted questionnaire generally showed satisfactory internal consistency ($\alpha = 0.85$). The instrument structure was checked by CFA (RMSEA = 0.058; SRMR = 0.07; CFI = 0.78) and IRT methods (noise levels for each scale not exceeding 40%). The obtained results allow the questionnaire to be used on a Russian sample, but remain the possibility of further improvement of some items and general structure. **Discussion** The psychometric properties of the adapted version of WDQ are similar to the original English version. The study results show that the Russian version of WDQ is a well enough reliable and valid psychometric tool that can be used in future research.

Keywords

work design, work environment, psychosocial environment, psychosocial design, quality of work life, work design questionnaire, psychosocial environment design, work environment design

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Introduction

According to the consulting agency "Yakov and Partners" (formerly "McKinsey Russia"), the Russian labor market is facing a shortage of personnel, which may increase to 4 million people by 2030, and employers' use of traditional approaches (including increasing salary and creating some conditions for productivity growth, as well as attracting migrant workers) is unable to cope with the problem (Kuznetsova, Zuev, Babchenko, Chuichenko, 2023).

In the situation of increasing competition for professionally trained human resources, the ability to change, pro-active flexibility and timely consideration of personal needs and interests of employees become an important goal for the organization's survival and development. The studies conducted since the early 20th century have shown that work design, the design of the employee's workplace has a crucial role in this process (Parker, Morgeson & Johns, 2017).

The COVID-19 pandemic has significantly changed the labor market, accelerating the changes that were already taking place and thus contributing to the emergence of new approaches to organizing and building employer-employee relations (Vyas, 2022). It should be recognized that the time of the domination of unified workplaces is over. Personalized and hybrid models of work organization create both new opportunities and challenges for employees and employers. At the forefront are social aspects, collaboration, the need to reinforce a sense of common goals and the organization's culture (Babapour, Hultberg & Bozic, 2021). To sustain productivity, organizations are now being forced to flexibly reorganize their existing internal processes, adopt hybrid and remote work formats, and focus on motivation and work-life balance (Vyas, 2022).

Employee productivity and engagement are dependent on the harmonization of the work design with their psychological needs (Kahn, 1992). Another important and socially significant issue is the protection of employees' health. Over the past decades, research on this issue has increasingly emphasized work factors other than physical factors that affect health. For their labeling the term "psychosocial factors" or "stressors" is most often used (Kop et al., 2016). The complex of these factors is forming the "psychosocial work environment" of the organization. In Russian science, the concept closest in meaning is "collective socio-psychological climate". The main difference is the emphasis not on the interaction of a person with the working environment, but on the interpersonal relations formed in it (Medvedeva, 2008). The factors of the working environment are considered as external to the emotional, behavioral and cognitive components of the socio-psychological climate (Necheporenko, 2013).

Employees evaluate the attractiveness of a workplace in terms of the possibility of achieving social well-being and taking into account their own criteria of the quality of working life (including job content, workplace characteristics, organizational and managerial culture, etc.). In the competition for the most qualified and valuable employee, as a rule, the employer who is able to create the most attractive and interesting conditions for this employee wins (Maslov, 2014).

Therefore, the question of psychosocial design and regular re-design of work – designing "the content and organization of work tasks, activities, relationships and responsibilities" (Parker, 2014) – arises. The solution to this issue on the part of psychological science requires the availability and application of appropriate psychometric tools, especially questionnaires that allow for comprehensive quantitative measurements of physical and psychological factors of the work context (Mararitza et al., 2024).

The analysis of Russian scientific publications on the keywords "work evaluation" and "workplace design" has shown that most of the methods presented in them are related either to the process of lawfully established "special assessment of working conditions" (including the assessment of physical work factors that can be harmful to the employee's health), or to economic indicators of work efficiency. The methods operationalizing the concept of "socio-psychological climate" of an organization are mostly narrowly aimed at assessing interpersonal relations in the work environment (which makes their application for work design purposes difficult). Foreign psychometric techniques for assessing socio-psychological factors of the working environment of organizations published in Russian sources do not contain references to data on testing their psychometric properties on a Russian sample. Examples of such publications are: "Factor structure of organizational context" (Lvova, 2017) – Workspace Characteristics Profile and The Work Design Questionnaire; 'Socio-psychological factors of organizational commitment of employees (on the example of commercial organizations)' (Lipatov, Sinchuk, 2015) – 'Organizational Commitment Scale' by J. Meyer and N. Allen; "Extended model of affective commitment" (Nikolaeva, 2017) – Work Design Questionnaire; "Proactivity as a predictor of employee engagement" (Sharifzyanova, 2021) – Work Design Questionnaire;

"International requirements for the order of translation and cultural adaptation of the universal questionnaire COPSOQ III on assessment of psychosocial working conditions and health promotion of medical workers" (Kuznetsova, Vasilieva, Tyranovec, 2023) – COPSOQ questionnaire. Even the paper titled "Development of the Russian-language version of the Copenhagen Psychosocial Questionnaire COPSOQ III and its adaptation in different professional groups" (Novikova, Perevezentseva, Shirokov, 2024) describes only the process of translation and adaptation, but does not provide any psychometric details. This situation significantly reduces the possibility of conducting relevant research related to the psychosocial design of work.

International publications describe numerous models and instruments that are based on various directions of psychosocial work environment research and are based on their own categorizations of the constructs being measured. A review of instruments that can be used in assessing and developing organizational environments conducive to workers' mental health published in 2023 in the USA (Nebbs et al., 2023) includes 207 different psychometric tools. A comparison of some of the most widely known and popular international instruments (Kabanova, Shport, Makurina, 2019) is presented in Appendix 1.

Despite the common features, each of the questionnaires (as well as the model it operationalizes) is designed for a certain task and cannot claim to be a comprehensive assessment of the characteristics of the work environment "as a whole". For example, the Organizational Stress Questionnaire, developed in the UK and used since 2008 to assess stress in the workplace, contains 35 questions and operationalizes 7 constructs related only to psychological factors affecting employees (Edwards et al., 2008).

The most up-to-date, 3rd version of the Copenhagen Psychosocial Environment Questionnaire (COPSOQ-III), which includes 152 questions and has been used since 2019 to assess psychosocial factors in the workplace, measures 26 scales that capture both psychological and physical exposures (Burr et al., 2019), but some of the dimensions (e.g., Sense of Community, Commitment, Quality of Work) are more applicable to assessment rather than work environment design. In addition, this questionnaire has a rather large volume that requires a long time to be filled out and processed, which reduces its practical usability.

The Work Design Questionnaire (WDQ), specifically developed for this purpose (Morgeson & Humphrey, 2006), is, in our view, the most relevant to the task of designing a workplace. The questionnaire, developed in 2006 in the USA, allows measuring the impact of both psychological and physical factors on 21 scales and contains 77 questions.

The questionnaire has been translated into German, Dutch, Spanish, Chinese, Polish and has been successfully adapted and validated in at least five countries. It has been evaluated as a powerful measurement technique that corresponds to modern concepts of work design and covers almost the entire range of variables related to work characteristics. Limitations of the technique may include the fact that it does not address

such potential and important aspects of work design as motivation, emotional well-being and worker safety, and the factor of time. The rather small size of the subscales and of the whole questionnaire allows it to be used on large samples, but may cause superficial assessment of some constructs (Ríos et al., 2017).

It was chosen because of its wide applicability and its high reliability and validity in the above-mentioned cross-cultural validation.

The technique was developed by American psychologists Frederick Morgeson and Stephen Humphrey (Morgeson & Humphrey, 2006) based on several theories of motivation and work performance, the key of which is Hackman and Oldham's Job Characteristics Model (this model considers five basic characteristics of work: variety, complexity and importance of tasks, autonomy in how they are performed, and external and internal feedback) (Hackman & Oldham, 1976). The development of the technique was a response to the lack of a widely applicable tool suitable for both fundamental research on the nature of work and for designing and redesigning workplaces in organizations. The selection of the set of constructs measured by the instrument was made by its authors on the basis of a careful review of specialized scientific literature (to identify, sort, and categorize terms describing work and then develop questionnaire items based on them). Half of the items were developed anew, while the rest were taken or adapted from pre-existing techniques. The 77 items of the questionnaire, organized into 21 measurement subscales, reflect the four domains of the psychosocial work environment: task characteristics, required knowledge, and the social and physical context of work. The subscale values are calculated by averaging the items comprising them. Initial validation of the technique was conducted on a sample of 540 U.S. workers from 22 occupational groups (due to the research strategy of collecting primary data from business students among their relatives and friends, this sample includes a disproportionately large number of managers). Construct validity was tested by comparing the results of the study with previously published data from the U.S. Department of Labor (the DOT directory and the O*NET database, which contain comprehensive descriptions and characteristics of various occupations and positions) and conducting confirmatory factor analysis; internal consistency and reliability were tested by calculating Cronbach's alphas and intraclass correlation coefficients (Morgeson & Humphrey, 2006).

The original English version, available on the official website of one of the authors www.morgeson.com/wdq.html and allowed by him for research purposes, was used as the Russian translation and adaptation source. The Russian-language version of the questionnaire posted on the same site (as well as translations into several other languages) by Y. Levashina was not used due to significant structural differences from the original source (e.g., order of questions, number and names of domains) and the lack of any data on its validation in the Russian sample. In addition, due to the detailed published description of the translation and adaptation procedure, the authors of this article considered it useful to perform an expert version of the translation.

Methods

The translation, adaptation, and validation of the questionnaire were conducted in several stages using international recommendations and best practices outlined in the University of Michigan's guidelines for cross-cultural research (Survey Research Center [SRC], 2011).

Translation procedure

The procedure of translating an adapted foreign-language psychometric technique raises the question of psychological equivalence of its items rather than linguistic equivalence (Osin, 2012). Since the procedure of forward and backward translation with subsequent harmonization of their results, which is usually applied and complies with international recommendations, does not take into account the possibility of obtaining a result that may have a slightly different psychological meaning than the original, the authors of the present study chose a different approach.

The translation of the questionnaire into Russian was carried out by a group of experts (4 persons): with Master's and PhD degrees in social psychology, fluent in English and familiar with the subject area – research on work design – psychological characteristics of the work environment in general, and with the content and structure of the WDQ questionnaire, in particular.

The translation process was organized with the aim of precisely reflecting the meaningful stimulus of the original English-language questionnaire while adapting it for perception in Russian, taking into account the specifics of language and culture. From the point of view of process, the translation was performed by each expert separately, without preliminary reading of each other's versions, and then the final wording of the translation was harmonized by eliminating discrepancies and making the necessary adjustments. This approach did not require a back-translation procedure due to the above-described features of the chosen focus of the study.

Sampling and data collection

The finalized English-Russian translation of the questionnaire was expanded with questions to clarify the socio-demographic profile and working status of the respondents and posted as a moderated online survey (using anketolog.ru) on the Internet. Participation in the study was voluntary and anonymous, the survey involved working respondents aged 18 years and older, and the survey was conducted until a sample of 500 people was reached. The sample size on which the adapted version of the questionnaire was tested (N=500) is comparable to the sample from the original study (N=540), but the average age of participants in the Russian study was significantly lower than in the American study (39 and 48 years, accordingly). Unlike the original technique, which used a 5-point Likert scale, the adapted questionnaire used a 7-point scale to obtain a more differentiated picture of the factors.

Assessment of psychometric properties

Reliability and internal consistency of the scales were assessed by calculating Cronbach's alpha coefficient. The fit of the obtained data to the factor structure was checked by confirmatory factor analysis and Item Response Theory (IRT) methods.

Results

The translation of the questionnaire was done without any significant dispute between the translators. The final version of the translation used in the study is provided in Appendix 2 (items are listed in the order of their correspondence to the scales, the item number in the questionnaire is given in the first column below the scale coding).

The study data were collected from October to November 2023. 500 respondents (employed in more than 20 sectors of the Russian economy) from all federal districts of the Russian Federation aged 18 to 66 years, including 174 men and 323 women (3 respondents refused to specify their gender) took part in the study.

More than 64% of respondents are employed in six industries: "trade and commerce", "manufacturing", "science and education", "health care and social security", "construction and architecture" and "information technology". In each of the other 16 industries, less than 5% of the total number of the sample are involved, and 3.4% of respondents refused to indicate the industry. 44% of respondents have the status of ordinary employees, 32% are key specialists, 11% are middle managers, and 9% are top managers.

Major socio-demographic data on the study participants are summarized in Appendix 3. Statistical analysis of the collected data was made using Statistica, Jamovi and JMP software. The questionnaire showed high consistency – the value of Cronbach's alpha coefficient was 0.85. The internal consistency of each scale was checked by calculating Cronbach's alpha coefficients with items removed one by one. For most of the scales, the value of the alpha coefficient is within acceptable limits (0.63...0.85). The consistency of the "Specialization" and "Ergonomics" scales is 0.57 and is below the commonly used in psychological research acceptable lower limit of 0.6. The similar indicator from the original study on the "Ergonomics" scale was also low – 0.64. At the same time, the values of McDonald's omega coefficient were above the cut-off point of 0.6 for all scales of the questionnaire.

Consistency has also been tested by calculating the correlations between responses to each individual question (questionnaire item) and the mean score on the scale in which they are included. All items showed a medium to high level of correlation on the Cheddock scale (0.56...0.93) at a significance level of $p \leq 0.05$, indicating that each item measures the same construct as the entire subscale to which they belong. Measurement results are summarized in Table 1 (parameter values for all individual items within scales are given in the same order as in Appendix 2).

Table 1

Measurement results (N=500, Cronbach's $\alpha = 0.85$)

Scale		Num- ber of Items	M	SD	α with item remo- ved	α	Scale corre- lation	ω
Domen: Task characteristics								
WSA	Work scheduling autonomy	3	4,92	1,12	0,70 0,56 0,53	0,70	0,79 0,78 0,80	0,71
DMA	Decision-making autonomy	3	4,97	1,13	0,77 0,61 0,60	0,75	0,78 0,83 0,84	0,76
WMA	Work methods autonomy	3	5,06	1,12	0,71 0,66 0,62	0,75	0,80 0,83 0,82	0,75
TV	Task variety	4	5,08	1,06	0,71 0,71 0,72 0,73	0,76	0,80 0,79 0,76 0,74	0,78
TS	Significance	4	5,01	1,22	0,82 0,81 0,79 0,81	0,85	0,81 0,82 0,86 0,83	0,85
TI	Task identity	4	5,19	0,95	0,75 0,62 0,64 0,65	0,74	0,69 0,79 0,77 0,74	0,74
FFJ	Feedback from job	3	4,90	1,08	0,69 0,54 0,57	0,69*	0,74 0,83 0,80	0,70
Domen: Knowledge characteristics								
JC	Job complexity	4	3,84	1,17	0,79 0,60 0,65 0,67	0,75	0,64 0,84 0,77 0,76	0,76
IP	Information processing	4	5,20	1,13	0,71 0,73 0,79 0,68	0,78	0,80 0,78 0,68 0,84	0,79

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Scale		Num- ber of Items	M	SD	α with item remo- ved	α	Scale corre- lation	ω
PS	Problem solving	4	4,46	1,12	0,70 0,59 0,67 0,55	0,70	0,65 0,77 0,67 0,80	0,71
SV	Skill variety	4	5,06	1,11	0,80 0,76 0,80 0,73	0,82	0,77 0,83 0,77 0,86	0,82
Spec	Specialization	4	4,47	1,03	0,62 0,51 0,34 0,50	0,57* (0,62)**	0,56 0,64 0,78 0,68	0,61
Domen: Social characteristics								
SS	Social support	6	4,94	1,00	0,72 0,71 0,76 0,76 0,72 0,73	0,78	0,71 0,75 0,61 0,64 0,72 0,69	0,78
II	Initiated interdependence	3	4,19	1,25	0,68 0,64 0,57	0,72	0,78 0,80 0,83	0,72
RI	Received interdependence	3	4,50	1,13	0,47 0,50 0,62	0,63*	0,76 0,78 0,74	0,64
IOO	Interaction outside organi- zation	4	4,29	1,41	0,79 0,78 0,77 0,78	0,83	0,80 0,80 0,82 0,81	0,83
FFO	Feedback from others	3	4,24	1,32	0,77 0,72 0,71	0,81	0,83 0,85 0,86	0,81
Domen: Work context								
Ergo	Ergonomics	3	4,51	1,21	0,26 0,46 0,63	0,57* (0,63)**	0,82 0,74 0,64	0,64
PD	Physical demands	3	3,50	1,60	0,89 0,84 0,81	0,89	0,88 0,91 0,93	0,89

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Scale		Num- ber of Items	M	SD	α with item remo- ved	α	Scale corre- lation	ω
WC	Work conditions	5	4,93	1,20	0,80	0,81	0,70	0,81
					0,77		0,72	
					0,76		0,76	
					0,73		0,81	
					0,75		0,76	
EU	Equipment use	3	3,77	1,28	0,60	0,67*	0,78	0,69
					0,47		0,83	
					0,65		0,72	

Note. (*) $\alpha < 0,7$. (**) Excluding Spec-1 and Ergo-3 items from the Specialization and Ergonomics scales increases Cronbach's alpha to from "poor" to "questionable" level of values ($\alpha > 0,6$).

The factor structure of the questionnaire was tested by using Confirmatory Factor Analysis (CFA) and comparing its results with those reported in the original study. CFA analysis was conducted for the 21-factor model that showed the best fit both in the original study (Morgeson & Humphrey, 2006) and in several validations of the WDQ on samples from other European countries (Ríos, Ramírez-Vielma, Sanchez, Bargsted, Polo Vargas, Ruiz, 2017).

Good model fit can be confirmed by either $CFI \geq 0.96$ comparative fit index and $SRMR \leq 0.09$ standardized root mean square residuals or $RMSEA \leq 0.06$ and $SRMR \leq 0.09$ (Hooper, Coughlan & Mullen, 2008). The test of fit based on CFI is more applicable for exploratory and RMSEA is more applicable for confirmatory factor analysis (Rigdon, 1996). When the number of degrees of freedom is large, it is also recommended to favor the RMSEA test (Kenny, Kaniskan & McCoach, 2015). The CFA results and their comparison with the original study are summarized in Table 2.

Table 2
Comparison of CFA results for 21-factor model

Model	χ^2	d f	$\chi^2 / d f$	C F I	R M S E A	S R M R
Original study						
	5 027	2 618	1,92	0,91	0,04	0,06
(USA) N=540						
Russian version						
	7 122	2 639	2,70	0,78	0,058	0,07
N=500						

In addition to these types of analysis, the Polytomous Rasch Model (one of the IRT methods), was used to examine the structure of the questionnaire. This method allows testing latent variables (constructs) one by one. The fit of the items to the construct (the subscale they are part of) is assessed using the values of the Infit (weighted) and Outfit (unweighted) statistics. The mathematical expectation of the values of these statistics is equal to one; deviation from one indicates a measure of noise (disagreement of the data with the measurement model). For psychometric instruments, statistic values between 0.6 and 1.4 (inclusive) are considered acceptable. Items with statistic values greater than 1.5 require the most attention (Wright, Masters, 1982). The concordance statistics for each of the subscales of the Russian version of the questionnaire are shown in Table 3.

Table 3
IRT statistics

Scale and item	Infit	Outfit	Scale and item	Infit	Outfit	Scale and item	Infit	Outfit	
			1	1,34	1,34				
	1	1,18	1,20				1	0,87	0,88
			2	0,94	0,95				
WSA	2	0,92	0,92	JC		RI	2	1,07	1,07
			3	0,79	0,81				
	3	0,94	0,93				3	1,07	1,09
			4	0,94	0,96				
			1	0,95	0,96		1	1,10	1,10
	1	1,15	1,14						
			2	1,05	1,03		2	0,92	0,93
DMA	2	1,03	0,98	IP		IOO			
			3	1,17	1,19		3	1,01	1,01
	3	0,92	0,92						
			4	0,94	0,93		4	1,04	1,04
			1	1,12	1,13				
	1	1,07	1,05				1	1,02	1,05
			2	1,01	1,01				
WMA	2	1,10	1,11	PS		FFO	2	0,98	0,97
			3	1,00	1,01				
	3	0,89	0,87				3	1,03	1,02
			4	0,89	0,88				

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Scale and item		Infit	Outfit	Scale and item		Infit	Outfit	Scale and item		Infit	Outfit
TV	1	1,11	1,11	SV	1	1,18	1,15	Ergo	1	1,01	1,00
	2	1,03	1,03		2	0,95	0,95		2	0,98	1,00
	3	0,98	0,95		3	1,11	1,12		3	1,02	1,05
	4	0,98	0,98		4	0,87	0,86				
TS	1	1,08	1,09	Spec	1	1,06	1,09	PD	1	1,12	1,10
	2	1,09	1,06		2	0,94	0,97		2	0,98	0,94
	3	0,90	0,85		3	0,87	0,86		3	0,93	0,88
	4	1,03	1,01		4	1,09	1,08				
TI				SS	1	0,93	0,92	WC	1	1,24	1,27
	1	1,30	1,31		2	0,90	0,88		2	0,92	0,96
	2	0,97	0,96		3	1,40	1,36		3	1,07	1,08
	3	0,92	0,94		4	1,21	1,27		4	1,12	1,04
	4	0,88	0,87		5	0,70	0,75		5	0,77	0,77
					6	0,94	0,93				
FFJ	1	1,11	1,10	II	1	1,02	1,03	EU	1	1,06	1,06
	2	1,06	1,07		2	1,01	1,02		2	1,00	0,99
	3	0,91	0,90		3	0,98	0,98		3	0,96	1,00

The concurrent validity of the questionnaire (which is understood as its ability to differentiate respondents on the basis of significant characteristics of their work) was additionally checked by comparing the mean values and standard deviations of the scales for 6 major groups of employees in the category "Industry of organization" (Appendix 4) and 4 groups in the category "Position level" (Appendix 5). This comparison revealed the presence of differences in almost all scales of the questionnaire between all selected groups in both categories.

Discussion

The consistency of the Russian version (Cronbach's $\alpha = 0.85$) is only slightly lower than the result ($\alpha = 0.87$) reported by the authors of the original study. In the case of the item-by-item analysis of almost all scales of the questionnaire, there is a decrease (or only a slight increase) in the value of the Cronbach's alpha coefficient, which indicates its stable structure, which, in turn, confirms a satisfactory level of translation and cultural adaptation. The McDonald's omega coefficient and the correlation coefficients between each scale and their items also confirmed the satisfactory reliability of the measurements.

At the same time, the low consistency values obtained for two scales – "Specialization" and "Ergonomics" – can probably indicate either an incorrect translation or significant cultural differences between the countries in which the research was conducted (or the social desirability of some respondents' answers). One partial solution to this problem would be to remove the items "My work goals, tasks and activities are highly specialized" and "I receive feedback on my performance from other people in the company (such as my manager and colleagues)" from the Russian version of the questionnaire, which would raise the consistency of the respective scales to an acceptable level. Nevertheless, given the fact that the exclusion of these items would raise the Cronbach's alpha coefficient above the "threshold" value of 0.6 and from "poor" to "questionable", we concluded that the original structure of the questionnaire should be kept.

For several items whose removal of them from their scales leads to, albeit not significant, increases the Cronbach's alpha coefficient:

- DMA-1 "The job gives me a chance to use my personal initiative or judgment in carrying out the work"
- TI-1 "The job involves completing a piece of work that has an obvious beginning and end"
- JC-1 "The job requires that I only do one task or activity at a time (reverse scored)"
- IP-3 "The job requires me to keep track of more than one thing at a time";
- Spec-1 "The job is highly specialized in terms of purpose, tasks, or activities"
- Ergo-3 "The job involves excessive reaching (reverse scored)"

It is important to note that the translation of the questionnaire used in this study may be difficult to understand by respondents. A more detailed and easy-to-understand decoding of these items may be necessary in its application. Measurement testing using Rasch's polytomous model showed that all items have acceptable fit with their scales, with noise levels not exceeding 40% for any of them (Andrich, 2010).

Confirmatory factor analysis proved the quality of the factor structure of the instrument – its results indicate good fit of the fullest 21-factor model. The obtained values of RMSEA = 0.058 and SRMR = 0.07 with a large number of degrees of freedom $df = 2639$ meet the condition ($RMSEA \leq 0.06$ and $SRMR \leq 0.09$), indicating good model fit (Rigdon, 1996; Hooper, Coughlan & Mullen, 2008; Kenny, Kaniskan & McCoach, 2015) and are not significantly different from the results obtained in the original study by this criterion (RMSEA = 0.04; SRMR = 0.06; $df = 2618$). However, the obtained value of CFI = 0.78 is lower than the value obtained for original English-language questionnaire (0.91), which may indicate the possibility of improving the structure of the Russian version.

Considerable differences of mean values and standard deviations of all scales of the questionnaire, revealed by their comparison for 6 main groups in the category "Industry of organization" and all 4 groups in the category "Level of position" allows to suggest the concurrent validity of the adapted instrument.

As a result, the obtained data suggest that the adapted technique can be used to properly assess the constructs measured by it.

Limitations

A limitation of this study is the lack of verification of content validity and an attempt to preserve as much as possible the structure of the questionnaire items and scales developed by the authors of the original American technique, which may not fully correspond to the current sociocultural and organizational context of Russian organizations. The consistency of several scales shows a doubtful level of reliability, which may indicate that the translation of the items is not clear enough for respondents. Like the original technique, the adapted questionnaire was tested on representatives of a significant but limited number of industries and types of workplaces. Therefore, we can say about its broad, but, still, not comprehensive applicability, especially in the context of dynamic development of the modern labor market and the increasing importance of such factors as: emotional well-being and intrinsic motivation of employees. In addition, given that the retest reliability of the adapted technique has not been analyzed in the Russian sample, it is impossible to state unequivocally that the reliability of the construct's measurement will remain stable in the long term.

Conclusion

In the study, the Work Design Questionary was translated, linguistically and culturally adapted, and its main psychometric properties were tested on a Russian sample. The

study showed satisfactory reliability and stable structure of the Russian version of WDQ, which can be used both in further studies of psychosocial work environment and in developing and improving work design in Russian organizations.

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Appendix 1

Comparison of the most popular overseas (non-Russian) questionnaires

Questionnaire, year	Items	Scales	Purpose of development
Health and Safety Executive Indicator Tool (HSE), 2008	35	Job demand	workplace stress evaluation
		Job control	
		Management support	
		Colleague support	
		Relationships	
		Role clarity	
COPSOQ-III, 2019	152	Changes	evaluation of psychosocial factors in the workplace
		Quantitative Demands	
		Work Pace	
		Cognitive Demands	
		Emotional Demands	
		Demands for Hiding Emotions	
		Influence at Work	
		Possibilities for Development	
		Variation of Work	
		Control over Working Time	
		Meaning of Work	
		Predictability	
		Recognition	
		Role Clarity	
		Role Conflicts	
		Illegitimate Tasks	
		Quality of Leadership	
		Social Support from Supervisor	
		Social Support from Colleagues	
		Sense of Community at Work	
		Commitment to the Workplace	
		Work Engagement	
		Job Insecurity	
		Insecurity over Working Conditions	
		Quality of Work	
		Job Satisfaction	
		Work Life Conflict	

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Questionnaire, year	Items	Scales	Purpose of development
Work Design Questionnaire (WDQ) 2006	77	Work scheduling autonomy	measuring workplace characteristics
		Work methods autonomy	
		Decision-making autonomy	
		Task variety	
		Significance	
		Task identity	
		Feedback from job	
		Job complexity	
		Information processing	
		Problem solving	
		Skill variety	
		Specialization	
		Social support	
		Initiated interdependence	
		Received interdependence	
		Interaction outside organization	
		Feedback from others	
		Ergonomics	
		Physical demands	
		Work conditions	
		Equipment use	

Appendix 2

WDQ Translation

In English		In Russian
Using the scale below, please indicate the extent to which you agree with each statement. Remember to think only about your job itself, rather than your reactions to the job.		Используя приведенную ниже шкалу, укажите, в какой степени вы согласны с каждым утверждением. Пожалуйста, думайте о самой работе, а не о своих реакциях на нее.
1 = Strongly Disagree 2 = Disagree 3 = Neither Agree nor Disagree 4 = Agree 5 = Strongly Agree		1 = Совершенно не согласен 2 = Не согласен 3 = Скорее не согласен 4 = Неопределенно 5 = Скорее согласен 6 = Согласен 7 = Совершенно согласен
Task Characteristics / Характеристики задач		
Autonomy / Автономия		
WSA	Work Scheduling Autonomy	Управление расписанием и режимом работы
1	1. The job allows me to make my own decisions about how to schedule my work.	1. Работа позволяет мне управлять своим рабочим расписанием и режимом
9	2. The job allows me to decide on the order in which things are done on the job.	2. Работа позволяет мне определять приоритетность и порядок выполнения рабочих задач
17	3. The job allows me to plan how I do my work.	3. Работа позволяет мне самостоятельно раскладывать рабочие задачи на шаги и подзадачи
DMA	Decision-Making Autonomy	Автономия в принятии решений
25	1. The job gives me a chance to use my personal initiative or judgment in carrying out the work.	1. Работа позволяет мне действовать инициативно и в соответствии со своими представлениями о выполнении задач
33	2. The job allows me to make a lot of decisions on my own.	2. Многие решения на работе я могу принимать самостоятельно
41	3. The job provides me with significant autonomy in making decisions	3. При принятии рабочих решений многое остаётся на моё усмотрение
WMA	Work Methods Autonomy	Автономия в выборе методов работы
49	1. The job allows me to make decisions about what methods I use to complete my work.	1. Работа позволяет мне решать, каким способом выполнить ту или иную задачу
57	2. The job gives me considerable opportunity for independence and freedom in how I do the work.	2. На работе у меня есть возможность действовать самостоятельно и независимо
65	3. The job allows me to decide on my own how to go about doing my work	3. Работа позволяет мне определять подход к решению задач

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In English		In Russian
<u>TV</u>	<u>Task Variety</u>	<u>Разнообразие задач</u>
2	1. The job involves a great deal of task variety.	1. Моя работа предполагает большое разнообразие задач
10	2. The job involves doing a number of different things.	2. На работе я делаю много самых разных вещей
18	3. The job requires the performance of a wide range of tasks.	3. Работа требует от меня справляться с широким кругом задач
26	4. The job involves performing a variety of tasks.	4. Моя работа требует эффективно выполнять разнообразные задачи
<u>TS</u>	<u>Task Significance</u>	<u>Значимость задач</u>
34	1. The results of my work are likely to significantly affect the lives of other people.	1. Результаты моей работы могут оказывать существенное влияние на жизнь других людей
42	2. The job itself is very significant and important in the broader scheme of things.	2. Такая работа, как моя, очень важна в самом широком смысле этого слова
50	3. The job has a large impact on people outside the organization.	3. Моя работа значима для людей, важна за пределами моей организации
58	4. The work performed on the job has a significant impact on people outside the organization.	4. Результаты моей работы заметны и важны для людей за рамками моей организации
<u>TI</u>	<u>Task Identity</u>	<u>Цельность задач</u>
3	1. The job involves completing a piece of work that has an obvious beginning and end.	1. На работе я выполняю такие задачи, где начало и конец процесса очевидны
11	2. The job is arranged so that I can do an entire piece of work from beginning to end.	2. Моя работа даёт возможность выполнять задачи целиком, от начала до конца
66	3. The job provides me the chance to completely finish the pieces of work I begin.	3. Работа позволяет мне финализировать задачи, за которые я берусь
72	4. The job allows me to complete work I start.	4. На работе у меня есть возможность доводить начатое до конца
<u>FFJ</u>	<u>Feedback From Job</u>	<u>Обратная связь об эффективности</u>
19	1. The work activities themselves provide direct and clear information about the effectiveness (e.g., quality and quantity) of my job performance.	1. Характер моих рабочих задач таков, что результативность и эффективность их выполнения очевидны для меня (например, с точки зрения качественных и количественных показателей)
27	2. The job itself provides feedback on my performance.	2. В работе я постоянно получаю обратную связь о моих результатах
35	3. The job itself provides me with information about my performance.	3. У меня есть возможность без дополнительных усилий получать информацию о качестве моей работы

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In English		In Russian
Knowledge Characteristics / Особенности знания		
JC	Job Complexity	Сложность действий и задач
43	1. The job requires that I only do one task or activity at a time (reverse scored).	1. Работа предполагает, что я занимаюсь только одним делом или задачей в один момент времени (подсчитывается по обратной шкале)
51	2. The tasks on the job are simple and uncomplicated (reverse scored).	2. Мои рабочие задачи просты, в них нет ничего сложного (подсчитывается по обратной шкале)
59	3. The job comprises relatively uncomplicated tasks (reverse scored).	3. Моя работа раскладывается на относительно простые задачи (подсчитывается по обратной шкале)
67	4. The job involves performing relatively simple tasks (reverse scored).	4. Работа требует от меня выполнения несложных действий (подсчитывается по обратной шкале)
IP	Information Processing	Обработка информации
4	1. The job requires me to monitor a great deal of information.	1. На работе через меня проходит большой объем информации
12	2. The job requires that I engage in a large amount of thinking.	2. На работе от меня часто требуется прикладывать умственные усилия
20	3. The job requires me to keep track of more than one thing at a time.	3. Работа предполагает, что я слежу за несколькими задачами параллельно
73	4. The job requires me to analyze a lot of information.	4. На работе я занимаюсь анализом большого объема информации
PS	Problem Solving	Решение проблем
28	1. The job involves solving problems that have no obvious correct answer.	1. На работе я занимаюсь выполнением таких задач, для которых нет очевидного правильного решения
36	2. The job requires me to be creative.	2. Работа требует от меня креативности
44	3. The job often involves dealing with problems that I have not met before.	3. На работе мне часто приходится решать такие проблемы, с которыми я до этого не сталкивался
52	4. The job requires unique ideas or solutions to problems.	4. Работа требует от меня уникальных идей и решений

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	In English	In Russian
<u>SV</u>	<u>Skill Variety</u>	<u>Разнообразие навыков</u>
5	1. The job requires a variety of skills.	1. Работа требует от меня разноплановых навыков
60	2. The job requires me to utilize a variety of different skills in order to complete the work.	2. Чтобы успешно справиться со своими задачами, мне необходимы разные по своему характеру знания и навыки
68	3. The job requires me to use a number of complex or high-level skills.	3. На работе от меня требуется мастерски владеть целым рядом сложных навыков
74	4. The job requires the use of a number of skills.	4. Мне необходимо много навыков для выполнения работы
<u>Spec</u>	<u>Specialization</u>	<u>Специализация</u>
13	1. The job is highly specialized in terms of purpose, tasks, or activities. *	1. Мои рабочие цели, задачи и деятельность узкоспециализированы *
21	2. The tools, procedures, materials, and so forth used on this job are highly specialized in terms of purpose.	2. Инструменты, процедуры, материалы и пр. в моей работе являются специфическим именно для неё, заточенным под её цели
29	3. The job requires very specialized knowledge and skills.	3. Моя работа требует узкопрофильных знаний и навыков
37	4. The job requires a depth of knowledge and expertise.	4. Моя работа требует глубоких экспертных знаний
Social Characteristics / Особенности социальной среды		
<u>SS</u>	<u>Social Support</u>	<u>Социальная поддержка</u>
6	1. I have the opportunity to develop close friendships in my job.	1. У меня есть возможность развивать близкие дружеские отношения на работе
45	2. I have the chance in my job to get to know other people.	2. Работа позволяет мне познакомиться и хорошо узнать своих коллег
53	3. I have the opportunity to meet with others in my work.	3. Работа позволяет мне встречаться и общаться с другими людьми
61	4. My supervisor is concerned about the welfare of the people that work for him/her.	4. Мой руководитель заботится о благополучии своих сотрудников
69	5. People I work with take a personal interest in me.	5. Я интересен моим коллегам как человек
75	6. People I work with are friendly.	6. Мои коллеги дружелюбны

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In English		In Russian
Interdependence / Взаимозависимость		
<u>II</u>	<u>Initiated Interdependence</u>	<u>Зависимость других от моей работы</u>
14	1. The job requires me to accomplish my job before others complete their job.	1. Чтобы другие могли выполнить задачи, от меня требуется сначала закончить свои
22	2. Other jobs depend directly on my job.e	2. Работа других зависит напрямую от моей
30	3. Unless my job gets done, other jobs cannot be completed	3. Пока я не выполню свои задачи, другие люди не смогут завершить свои
<u>RI</u>	<u>Received Interdependence</u>	<u>Зависимость моей работы от работы других</u>
38	1. The job activities are greatly affected by the work of other people.	1. Работа других людей оказывает большое влияние на рабочие процессы в целом
46	2. The job depends on the work of many different people for its completion.	2. Успешное выполнение работы зависит от участия большого количества разных людей
54	3. My job cannot be done unless others do their work.	3. Я не смогу выполнить свою работу, если другие не выполнят свою
<u>IOO</u>	<u>Interaction Outside Organization</u>	<u>Взаимодействие вне организации</u>
7	1. The job requires spending a great deal of time with people outside my organization.	1. Для выполнения работы необходимо проводить много времени с людьми, не работающими в нашей компании
62	2. The job involves interaction with people who are not members of my organization.	2. Работа предполагает взаимодействие с людьми, которые не входят в нашу организацию
70	3. On the job, I frequently communicate with people who do not work for the same organization as I do.	3. Я часто по работе общаюсь с людьми, не являющимися сотрудниками нашей компании
76	4. The job involves a great deal of interaction with people outside my organization.	4. Взаимодействие с людьми вне нашей организации составляет львиную долю моего общения по работе
<u>FEO</u>	<u>Feedback From Others</u>	<u>Обратная связь от других людей</u>
15	1. I receive a great deal of information from my manager and coworkers about my job performance.	1. От своего руководителя и коллег я получаю очень много информации о том, как я справляюсь со своей работой
23	2. Other people in the organization, such as managers and coworkers, provide information about the effectiveness (e.g., quality and quantity) of my job performance.	2. Другие сотрудники организации, в том числе руководители и коллеги, предоставляют мне информацию об эффективности моей работы (в качественных и количественных показателях)
31	3. I receive feedback on my performance from other people in my organization (such as my manager or coworkers).	3. Я получаю обратную связь о результатах моей работы от других людей в компании (таких как мой руководитель и коллеги)

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In English		In Russian
Work Context / Рабочий контекст (Рабочая среда)		
<u>Ergo</u>	<u>Ergonomics</u>	<u>Эргономика</u>
39	1. The seating arrangements on the job are adequate (e.g., ample opportunities to sit, comfortable chairs, good postural support).	1. Сидячие рабочие места организованы удобно (например, есть достаточное количество посадочных мест, комфортные стулья, кресла с удобными спинками с поддержкой)
47	2. The work place allows for all size differences between people in terms of clearance, reach, eye height, leg room, etc.	2. Рабочее пространство приспособлено для людей с разным ростом и комплекцией: с точки зрения расстояний между мебелью, доступностью объектов, высоты, пространства для ног и т. д.
55	3. The job involves excessive reaching (reverse scored).*	3. Часто используемые предметы или объекты расположены неудобно: приходится прикладывать усилия, чтобы ими воспользоваться (подсчитывается по обратной шкале) *
<u>PD</u>	<u>Physical Demands</u>	<u>Требования к физической форме</u>
63	1. The job requires a great deal of muscular endurance.	1. Выполнение работы требует большой физической выносливости
71	2. The job requires a great deal of muscular strength.	2. Выполнение работы требует сильных мышц
77	3. The job requires a lot of physical effort.	3. Выполнение работы требует значительных физических усилий
<u>WC</u>	<u>Work Conditions</u>	<u>Условия труда</u>
8	1. The work place is free from excessive noise.	1. На рабочем месте не шумно
16	2. The climate at the work place is comfortable in terms of temperature and humidity.	2. На рабочем месте комфортный микроклимат с точки зрения температуры и влажности
24	3. The job has a low risk of accident.	3. Риск несчастного случая на моей работе незначителен
32	4. The job takes place in an environment free from health hazards (e.g., chemicals, fumes, etc.).	4. Работа проходит в безопасной для здоровья среде (например, нет угроз, связанных с химикатами, испарениями и т. д.)
40	5. The job occurs in a clean environment.	5. В рабочем пространстве чисто
<u>EU</u>	<u>Equipment Use</u>	<u>Использование технологий и оборудования</u>
48	1. The job involves the use of a variety of different equipment.	1. Работа связана с использованием разнообразного оборудования
56	2. The job involves the use of complex equipment or technology.	2. Выполнение работы требует использования сложного оборудования или технологий
64	3. A lot of time was required to learn the equipment used on the job.	3. Чтобы разобраться с оборудованием, используемым в работе, требуется много времени

Appendix 3

Study participant profile (N=500)

Sex	Female	323 ppl. (64,6%)
	Male	174 ppl. (34,8%)
	No answer	3 ppl. (0,6%)
Age	< 22 лет	17 ppl. (3,4%)
	22 .. 30	80 ppl. (16,0%)
	30 .. 40	174 ppl. (34,8%)
	> 40	229 ppl. (48,8%)
Education	High school	143 ppl. (28,6%)
	University	336 ppl. (67,2%)
	PhD	21 ppl. (4,2%)
Industry	trade and commerce	92 ppl. (18,4%)
	manufacturing	62 ppl. (12,4%)
	science and education	54 ppl. (10,8%)
	health care and socialmsecurity	39 ppl. (7,8%)
	constructing	32 ppl. (6,4%)
	IT	26 ppl. (5,2%)
	other	178 ppl. (35,6%)
	no answer	17 ppl. (3,4%)
TTL Staff number in organization	< 20 employees	106 ppl. (21,2%)
	20 .. 50	67 ppl. (13,4%)
	50 .. 100	74 ppl. (14,8%)
	100 .. 300	80 ppl. (16,0%)
	300 .. 1000	51 ppl. (10,2%)
	> 1000	106 ppl. (21,2%)
Position level	ordinary employee	220 ppl. (44,0%)
	specialist	161 ppl. (32,2%)
	middle management	54 ppl. (10,8%)
	top management	44 ppl. (8,8%)
	no answer	21 ppl. (4,2%)

Appendix 4

Difference in mean values (and standard deviations) of scales in the category "Industry of the employing organization"

scale	trade and commerce N=92	manu- facturing N=62	science and education N=54	health care N=39	con- structing N=32	IT N=26	Max diffe- rence
WSA	4,84 (1,12)	4,88 (1,04)	4,92 (0,96)	4,81 (1,13)	5,52 (0,85)	4,99 (1,15)	0,71
DMA	4,87 (1,13)	4,96 (0,99)	5,1 (0,97)	4,98 (1,15)	5,5 (0,77)	4,79 (1,22)	0,71
WMA	4,93 (1,11)	5,12 (0,92)	5,22 (0,93)	4,93 (1,23)	5,63 (0,68)	4,97 (1,22)	0,70
TV	4,82 (1,17)	5,07 (1,1)	5,36 (0,95)	5,32 (0,92)	5,43 (0,95)	4,87 (1,04)	0,61
TS	4,68 (1,15)	5,12 (1,12)	5,63 (0,94)	5,72 (1,06)	5,3 (0,89)	4,64 (1,12)	1,08
TI	5,06 (0,96)	5,25 (0,76)	5,29 (0,77)	5,38 (0,93)	5,51 (0,83)	5,2 (0,96)	0,45
FFJ	4,76 (1,14)	4,93 (0,94)	4,96 (1,08)	5,17 (0,84)	5,36 (0,84)	4,91 (1,13)	0,60
JC	3,49 (0,99)	4,15 (1,28)	4,05 (1,03)	3,96 (1,19)	3,82 (1,35)	3,73 (1,21)	0,66
IP	4,83 (1,21)	5,11 (1,28)	5,51 (1,02)	5,7 (0,96)	5,58 (1,01)	5,22 (0,88)	0,87
PS	4,17 (1,21)	4,35 (1,23)	4,86 (1,02)	4,69 (1,13)	4,65 (0,96)	4,59 (1,15)	0,69
SV	4,63 (1,12)	5,08 (1,15)	5,4 (0,94)	5,47 (0,84)	5,45 (0,83)	4,86 (1,08)	0,84
Spec	4,03 (1,08)	4,67 (0,89)	4,6 (0,86)	4,94 (1,01)	4,84 (0,95)	4,54 (1,04)	0,91
SS	4,92 (0,95)	4,88 (0,89)	5,06 (0,98)	5 (0,91)	5,24 (0,84)	4,74 (1,13)	0,50
II	3,92 (1,29)	4,69 (1,28)	3,89 (1,13)	4,38 (1,27)	4,82 (0,98)	4,17 (1,28)	0,93

GENERAL PSYCHOLOGY, PERSONALITY PSYCHOLOGY, PHILOSOPHY AND PSYCHOLOGY

scale	trade and commerce N=92	manu- facturing N=62	science and education N=54	health care N=39	con- structing N=32	IT N=26	Max diffe- rence
RI	4,38 (1,18)	4,84 (1)	4,25 (1,06)	4,68 (1,03)	4,65 (0,88)	4,58 (1,02)	0,59
IOO	4,63 (1,31)	3,71 (1,4)	4 (1,19)	4,79 (1,26)	4,23 (1,57)	4,26 (1,45)	1,08
FFO	4,33 (1,36)	4,17 (1,29)	4,23 (1,25)	4,51 (1,19)	4,26 (1,31)	4,42 (1,29)	0,34
Ergo	4,29 (1,24)	4,41 (1,26)	4,34 (1,21)	4,21 (1,23)	4,54 (1,14)	4,64 (1,15)	0,43
PD	3,8 (1,51)	3,79 (1,68)	3,09 (1,41)	3,51 (1,53)	3,58 (1,83)	3,12 (1,6)	0,71
WC	4,94 (1,17)	4,7 (1,16)	4,94 (1)	4,66 (1,2)	5,14 (1,21)	5,5 (0,8)	0,84
EU	3,54 (1,27)	4,13 (1,31)	3,5 (1,22)	3,95 (1,28)	3,97 (1,19)	3,72 (1,15)	0,63

Appendix 5

*Difference in mean values (and standard deviations) of scales in the category
 "Position Level"*

Scale	Top management N=44	Middle management N=54	Specialist N=161	Ordinary employee N=220	Max difference
WSA	5,58 (0,88)	5,46 (0,99)	4,88 (0,97)	4,68 (1,19)	0,9
DMA	5,67 (0,93)	5,47 (0,83)	4,96 (0,97)	4,7 (1,24)	0,97
WMA	5,74 (0,83)	5,53 (0,91)	5,06 (0,95)	4,8 (1,22)	0,94

GENERAL PSYCHOLOGY, PERSONALITY PSYCHOLOGY, PHILOSOPHY AND PSYCHOLOGY

Scale	Top management N=44	Middle management N=54	Specialist N=161	Ordinary employee N=220	Max difference
TV	5,65 (0,91)	5,63 (0,76)	5,19 (0,91)	4,75 (1,14)	0,9
TS	5,63 (1)	5,23 (1,15)	5,07 (1,05)	4,81 (1,33)	0,82
TI	5,73 (0,84)	5,45 (0,77)	5,11 (0,87)	5,07 (1,00)	0,66
FFJ	5,52 (0,97)	5,06 (1,02)	4,9 (0,99)	4,72 (1,13)	0,8
JC	3,9 (1,27)	4,06 (1,22)	4,05 (1,18)	3,63 (1,09)	0,43
IP	5,81 (0,71)	5,8 (0,91)	5,36 (0,91)	4,78 (1,24)	1,03
PS	5,11 (1,02)	4,8 (1,01)	4,62 (0,97)	4,1 (1,19)	1,01
SV	5,64 (0,75)	5,39 (0,91)	5,24 (0,95)	4,75 (1,22)	0,89
Spec	4,70 (1,10)	4,58 (0,98)	4,6 (0,94)	4,31 (1,07)	0,39
SS	5,46 (0,78)	5,31 (0,88)	4,98 (0,85)	4,71 (1,08)	0,75
II	4,46 (1,32)	4,53 (1,16)	4,14 (1,12)	4,10 (1,32)	0,43
RI	4,77 (1,26)	4,81 (1,08)	4,4 (0,95)	4,48 (1,2)	0,41
IOO	4,86 (1,04)	4,78 (1,25)	4,23 (1,39)	4,12 (1,48)	0,74

Scale	Top management N=44	Middle management N=54	Specialist N=161	Ordinary employee N=220	Max difference
FFO	4,59 (1,49)	4,37 (1,29)	4,17 (1,24)	4,17 (1,35)	0,42
Ergo	5,26 (0,94)	4,60 (1,41)	4,45 (1,08)	4,42 (1,24)	0,84
PD	3,61 (1,36)	3,40 (1,52)	3,31 (1,5)	3,61 (1,72)	0,3
WC	5,46 (0,84)	5,09 (1,3)	4,92 (1,12)	4,78 (1,26)	0,34
EU	3,83 (1,29)	3,82 (1,32)	3,94 (1,25)	3,6 (1,31)	0,68

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Larisa V. Mararitsa – conceptualization, methodology development and conduct of the study, writing-reviewing and editing of the manuscript.

Tamara A. Kinunen – methodology development and conduct of the study.

Svetlana D. Gurieva – Scientific supervision of the study, funding, conceptualization, final text approval, revision according to journal requirements.

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Conflict of interest Information

The authors have no conflict of interest to declare.