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Psychosocial Factors and Musculoskeletal Symptoms in Office Workers: Validating the Maastricht Upper Extremity Questionnaire

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Abstract

Background: Complaints of the arm, neck, and shoulder (CANS) in the workplace are becoming more prevalent among employees. The Maastricht Upper Extremity Questionnaire (MUEQ) validates upper extremity complaints in 7 domains—including workstation, body posture, break time, job control, job demands, work environment, and social support. The aim of the present study was to translate, adapt, and validate the Persian Version of MUEQ among Iranian office workers.

Methods: The psychometric evaluation of the Persian version of the MUEQ employed a comprehensive methodological approach comprising face and content validity assessments, confirmatory factor analysis (CFA), and Cronbach's alpha. A panel of 10 experts assessed the face and content validity of the instrument. In the second phase, through a cross-sectional study, the validity and reliability of the questionnaire were measured by CFA and Cronbach's alpha in a sample of 420 people from the target population in Tehran, Iran.

Results: The mean age of the participants was 41.40 ± 7.80 years. Examination of upper limb complaints showed that neck pain was the most common complaint among office workers, with a prevalence of 65%. The CFA results confirmed the questionnaire's structure, with 59 items grouped into 7 subscales, and with fit indices—comparative fit index, 0. 87; root mean square error of approximation, 0.08; goodness of fit index, 0.9. The questionnaire demonstrated strong internal consistency, as all items exhibited Cronbach's alpha values of ≥0.9.

Conclusion: The psychometric evaluation of the Persian version of the MUEQ showed that it is a valid and reliable tool for evaluating psychosocial factors in the work environment. Identifying psychosocial factors influential in musculoskeletal problems will lead to better planning to change behavior and design constructive interventions to improve behavior. By addressing psychosocial determinants of musculoskeletal issues at both the individual and organizational levels, we can enhance employees' awareness, self-efficacy, and ability to manage their musculoskeletal health and make informed decisions about their well-being.

Keywords: Office worker, Psychometric properties, Workplace, Musculoskeletal disorder, CANS, MUEQ

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Introduction

Changing working styles and prolonged sitting periods at work have contributed to a range of employee concerns, including weight gain (1) and musculoskeletal disorders (2). Improper posture while working with a computer for long periods (3) and employing a keyboard and mouse can result in neck, arm, shoulder, back, and wrist pain, alongside fatigue (4, 5). Upper extremity musculoskeletal disorders

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↑What is "already known" in this topic:
Despite the extensive research on musculoskeletal issues, previous work-related musculoskeletal disorders tools have failed to comprehensively address the psychological characteristics of the workplace. To address this gap, we aimed to translate, adapt, and validate the MUEQ among Iranian office workers.

→What this article adds:
The Maastricht Upper Extremity Questionnaire (MUEQ) has demonstrated reliability in assessing the prevalence of neck, shoulder, and arm complaints and psychosocial factors among office workers.

(CANS) are nonacute, nonsystemic musculoskeletal complaints of the neck and upper extremity (6), which reduce the individual's quality of working life and cause various problems such as illness, absenteeism (7), and job loss (8). CANS imposes a significant economic burden (9) and diminishes performance (7, 10).

During the 1970s, CANS emerged as a significant contributor to occupational disability (11). Recent studies show that many office workers are exposed to problems related to CANS. For example, the frequency of these complaints has been estimated at 42% to 83.5% for neck pain, 40% to 62.3% for shoulder pain, and 13.9% for wrist pain (3, 12). Within Iran, studies have demonstrated a heightened susceptibility of office workers to musculoskeletal disorders. A study by Rahnama et al found the prevalence of CANS to be highest in the neck region (64.4%), followed by the shoulders (60.9%) and the back (52%) (13). Similarly, another study showed a substantial frequency of complaints of neck pain (77%), back pain (73%), and shoulder pain (64%) (14).

Leigh et al's research highlights the overwhelming economic burden of occupational injuries and illnesses, with estimated costs far surpassing those of AIDS by a factor of approximately 5, Alzheimer's disease by a factor of 3, cancer by approximately 91%, and heart diseases by approximately 82% (15). Over the past 28 years, Iran has had the highest percentage increase in years lived with disability due to musculoskeletal disorders worldwide. Back pain stands as the most prominent contributor to this alarming trend. The high prevalence of occupational illnesses in Asia (estimated at 65%) (16) leads to significant financial and human loss, and it is crucial to take measures to prevent these illnesses and injuries.

Identifying risk factors, especially modifiable ones, is the first step in preventing the negative consequences of disease (16). According to previous studies, the significant risk factors for the development of CANS are poor body posture (17), repetitive tasks, and demanding psychosocial work conditions, including high job demands, low job control, and inadequate social support (18, 19). The Maastricht Upper Extremity Questionnaire (MUEQ) is one of the best assessment tools for CANS that considers workplace and psychosocial factors. Its validity and reliability have been measured and confirmed across countries (11, 13, 20). While other tools like the Nordic Musculoskeletal Questionnaire (NMQ) (21) and the Quick Exposure Check (QEC) (22) are also employed to investigate work-related musculoskeletal disorders, they fail to consider the physical and psychological characteristics of the workplace. Given the increasing importance of workplace health promotion, as emphasized in the Ottawa Charter (23), the utilization of psychometrics and the MUEQ in the workplace can help identify risk factors and develop appropriate programs. Therefore, the present study investigates the psychometric properties of the MUEQ in the Iranian office work environment.

Methods

The present study was conducted in 2022 in 2 stages, with a descriptive cross-sectional design. The first stage involved a panel of experts' translation, cross-cultural adaptation, and content validity assessment of the MUEQ. In a subsequent step of the cross-sectional study, the psychometric evaluation of the cross-cultural adaptation of the questionnaire to Persian was conducted after the guidelines proposed by Sousa et al (24). The questionnaire was translated into Persian by a joint effort of an occupational health specialist and an English language expert. Then, the Persian text was back-translated into English to identify any translation flaws. After the final agreement, the initial version of the questionnaire was prepared and provided to another independent translator to check for discrepancies. Finally, the approved version was compared with the original questionnaire and finalized by the research team. The Persian version of the questionnaire is provided in Appendix 1.

A pretest of the initial version of the MUEQ was conducted in a convenience sample to identify ambiguous items and possible errors. The process continued until none of the participants understood the questionnaire's content. Subsequently, the questionnaire was distributed among a panel of experts (in health education and health promotion, ergonomics, occupational health, industrial and organizational psychology) to assess the content validity of the MUEQ. In the second phase, a descriptive cross-sectional study was conducted to obtain a valid sample for confirmatory factor analysis.

Sampling and Data Collection

The target population was the employees working in the administrative departments of universities in Tehran. The inclusion criteria were as follows: office workers aged between 18 and 60 years, with at least 1 year of work experience, who worked in a similar position and used a computer for at least 4 hours during the day. Incomplete questionnaires and withdrawal from the study were the exclusion criteria.

Cluster sampling was employed to select a sample of male and female staff working in university-affiliated entities, including 3 faculties, 3 hospitals, 3 health centers, and 3 departments. The sample was randomly selected from the comprehensive list of employees. The minimum sample size recommended for conducting factor analysis is between 5 and 10 participants per item of the intended instrument (25). Considering the questionnaire consisted of 59 items, a final sample size of 590 was deemed appropriate. Ethical approval for the study protocol was obtained from the ethics committee of Saveh University before data collection. All participants provided informed consent before completing the questionnaire.

Instruments

The original version of the MUEQ consists of 59 items in 7 subscales: workstation (7 items), body posture (11 items), job control (9 items), job demands (7 items), break time (8 items), work environment (9 items), and social support (7 items) (7, 20). Each item was assessed using a 5-point Likert scale, ranging from always to never), or a dichotomous (yes/no) statement.

Statistical Analysis

Two indices were computed to assess the content validity of the study instruments: the item-level content validity index (I-CVI) and the scale-level content validity index (S-CVI). These indices were calculated based on the proportion of participants who responded with a rating of 3 or 4 to each item or scale. Based on the number of panel members (n = 10), items >0.7 were considered relevant (26). After data collection, the questionnaire results were entered into SPSS Version 22 for analysis. Frequencies (percentages) were used to describe qualitative variables, and means and standard deviations were employed to describe quantitative variables. A chi-square test was employed to evaluate the association between 2 qualitative variables. However, the Fisher's exact test was employed when the expected frequency for 25% of the cells was <5. Moreover, the nonparametric Mann-Whitney U test was used to compare the mean age by sex, given that the normality assumption was not met. The significance level was set at .05 for all tests. Confirmatory factor analysis (CFA) with the maximum likelihood approach was performed in Amos 24 to assess the instrument's construct validity. A comprehensive set of model fit indices—including the root mean square error of approximation (RMSEA), nonnormed fit index (NNFI), comparative fit index (CFI), goodness of fit index (GFI), and adjusted goodness of fit index (AGFI)—was employed to assess the adequacy of the data. RMSEA values <0.05 indicate good fit, and values between 0.05 and 0.08 indicate reasonable fit; NNFI and CFI values of ≥0.87 indicate good fit, and GFI and AGFI values <0.9 are considered acceptable (25). Cronbach's alpha was employed to assess the reliability of the questionnaire in SPSS. All subscales exhibited acceptable internal consistency, with alpha values >0.8 (26).

Results

Translation and Cross-Cultural Adaptation

There were no inconsistencies between the initial and final versions of the translated questionnaire (2 primary translations and a back-translation). The 2 versions had semantic, conceptual, and content equivalence, and no changes were needed. Accordingly, the research team used the second translation as the final version of the questionnaire.

Pretest

A total of 20 office workers who met the inclusion criteria participated in the pretest stage and completed the MUEQ Persian version. This study was conducted in the administrative department of the Faculty of Health. Overall, the participants had no problem understanding the questionnaire items' meaning. The pretesting process ensured that the Persian version of the MUEQ accurately reflected the original 59-item questionnaire in both semantic and conceptual terms."

Content Validity

The panel comprised 10 experts from occupational health, ergonomics, health education and health promotion, and industrial and organizational psychology. The content validity assessment returned average item-level and scale-level content validity index (I-CVI and S-CVI) values of 0.95 and 0.91, respectively, substantiating the robust content validity of the study instruments.

A total of 420 employees (127 men and 293 women) completed the questionnaire (response rate, 70%). The mean age of the participants was 41.4 years, with a standard deviation of 7.8 years. Table 1 presents the frequency and percentage distribution for the other demographic characteristics of the study participants.

The highest prevalence of musculoskeletal disorders among the employees during the previous year was neck, affecting 65.2% of the participants, followed by shoulder pain, which affected 63.8%. Also, pain in the elbow and arm was the least common among computer users (Table 2). Moreover, the average number of reported complaints was higher among men than women.

Table 3 presents the covariance, standard deviation, Z statistic, and correlation coefficient between the MUEQ subscales. The highest correlation coefficient was between the Break time and social support domains, and the lowest was between the body posture and job demand domains. All correlation coefficients between the domains were significant and >0.69.

Figure 1 shows all the path coefficients and covariance

Table 1. Characteristics of Participants

Variable		Frequency (%) Total (N = 420)	Men (N = 127)	Women (N = 293)	*P*-Value
Marital status	Married	292 (69.5)	91 (71.7)	201 (68.6)	0.118[1]
	Single	115 (27.4)	36 (28.3)	79 (27.0)	
	Divorced	9 (2.1)	0	9 (2.1)	
	Without husband	4 (1.0)	0	4 (1.4)	
Years in current work position	<5	8 (1.9)	3 (2.4)	5 (1.7)	
	6-10	91 (21.7)	19 (15.0)	72 (24.6)	
	11-15	127 (30.2)	53 (41.7)	74 (25.3)	
	16-20	176 (41.9)	48 (37.8)	128 (43.7)	0.010[2]
	>20	18 (4.3)	4 (3.1)	14 (4.8)	
Number of hours worked per day	6-8	335 (79.8)	94 (74.0)	241 (82.3)	0.054[2]
	>8	85 (20.2)	33 (26.0)	52 (17.7)	
Smoking	Yes	8 (1.9)	3 (2.4)	5 (1.7)	0.652[2]
	No	412 (98.1)	124 (97.6)	288 (98.3)	
Age	Mean ±SD	41.40±7.80	40.81±7.54	41.66±7.90	0.418[3]

[1]Fisher exact test; [2]chi-square test; [3]Mann-Whitney U test.

Table 2. Calculation of CANS Prevalence Rate

Localization of complaints		Frequency (%)			*P*-Value
		Total (N=420)	Male (N=127)	Female (N=293)	
Neck	Yes	274 (65.2)	79 (62.2)	195 (65.2)	0.390
	No	146 (34.8)	48 (37.8)	146 (34.8)	
Shoulder	Yes	272 (64.8)	85 (66.9)	187 (63.8)	0.540
	No	148 (35.2)	42 (33.1)	106 (36.2)	
Upper arm	Yes	132 (31.4)	43 (33.9)	89 (31.4)	0.480
	No	288 (68.6)	84 (66.1)	204 (69.6)	
Elbow	Yes	125 (29.8)	33 (26.0)	92 (31.4)	0.295
	No	295 (70.2)	94 (74.0)	201 (70.2)	
Hand	Yes	202 (48.1)	54 (42.5)	148 (50.5)	0.132
	No	218 (51.9)	73 (57.5)	145 (49.5)	
Wrist	Yes	211 (50.2)	59 (46.5)	152 (51.9)	0.308
	No	209 (49.8)	68 (53.5)	141 (48.1)	
Lower arm	Yes	219 (52.1)	73 (57.5)	146 (49.8)	0.149
	No	201 (47.9)	54 (42.5)	147 (50.2)	
CAN (mean ± SD)		9.10±1.94	9.22±1.85	9.05±1.99	0.423

Table 3. The Weights of the Variables

Factor	Covariance	SE	Z= b/SE	Correlation	*P*-Value
Work station↔ Job control	0.32	0.03	11.38	0.84	<0.001
Job control↔ Break time	0.76	0.06	12.12	0.85	<0.001
Body posture↔ Job demand	0.59	0.06	9.79	0.69	<0.001
Job demand ↔ Work environment	0.74	0.07	11.17	0.76	<0.001
Work station↔ Job demand	0.28	0.03	10.60	0.77	<0.001
Job demand↔ Social support	0.83	0.07	11.63	0.87	<0.001
Job control↔ Work environment	0.90	0.07	12.56	0.89	<0.001
Body posture↔ Break time	0.60	0.06	10.61	0.73	<0.001
Job control↔ Social support	0.86	0.07	11.98	0.86	<0.001
Body posture↔ Work environment	0.74	0.07	10.76	0.80	<0.001
Work station↔ Break time	0.28	0.02	11.24	0.78	<0.001
Work station↔ Work environment	0.36	0.03	12.12	0.89	<0.001
Body posture↔ Social support	0.64	0.06	10.18	0.70	<0.001
Work station↔ Social support	0.30	0.03	11.03	0.78	<0.001
Work station↔ Body posture	0.27	0.03	10.43	0.78	<0.001
Body posture↔ Job control	0.69	0.06	10.74	0.79	<0.001
Job control↔ Job demand	0.72	0.07	10.93	0.78	<0.001
Job demand↔ Break time	0.79	0.06	12.10	0.91	<0.001
Break time↔ Social support	0.86	0.07	12.80	0.93	<0.001
Break time↔ Work environment	0.80	0.06	12.36	0.82	<0.001
Work environment↔ Social support	0.87	0.07	12.16	0.83	<0.001

between the latent (standardized) factors. All coefficients are within a reasonable range; in other words, none of the standardized coefficients are more significant than 1 (Table 2).

The goodness of fit indicators are as follows: RMSEA, 0.08; GFI, 0. 96; CFI, 0.87. These statistics show that the research model fits the data well. The RMSEA equals 0.08, which is close to the standard value (27) (Table 4).

The standardized weights between the variables and items are reported in Table 5. As the data reveal, all the weights are statistically significant, and no item has been removed from the latent factors ($P < 0.001$). Furthermore, the item-total correlation, which reflects the association between each item and the overall score of the questionnaire after excluding that item, has been presented separately.

The questionnaire demonstrated excellent internal consistency, with a Cronbach's alpha of 0.91 for the entire instrument and alpha values ranging from 0.91 to 0.93 for the subscales (Table 5).

Discussion

Despite the extensive research on musculoskeletal complaints, few studies have investigated the psychosocial characteristics of the work environment in Iran. The MUEQ is a reliable tool for evaluating the prevalence of neck, shoulder, and arm complaints and other related factors.

The original version of the MUEQ has been translated into different languages such as Brazilian Portuguese (20), Arabic (9), and Greek (28), and the numerous translations of the questionnaire globally are a testament to its relevance and applicability. Cross-cultural adaptation of the questionnaire was successful, indicating that physical and psychosocial factors related to computer use are perceived similarly across cultures.

There are various tools for assessing musculoskeletal disorders in employees. For example, the QEC assesses work exposure to ergonomic risk factors (29). In addition, the Job Factors Questionnaire is a general tool for evaluating work-related factors that contribute to the development of musculoskeletal disorders (30). Moreover, the NMQ is used to analyze workers' symptoms of musculoskeletal disorders (31). However, the MUEQ remains the sole instrument that explicitly assesses biopsychosocial risk factors, particularly in computer users.

Risk factors of musculoskeletal disorders include psychosocial, organizational, and physical aspects of the work

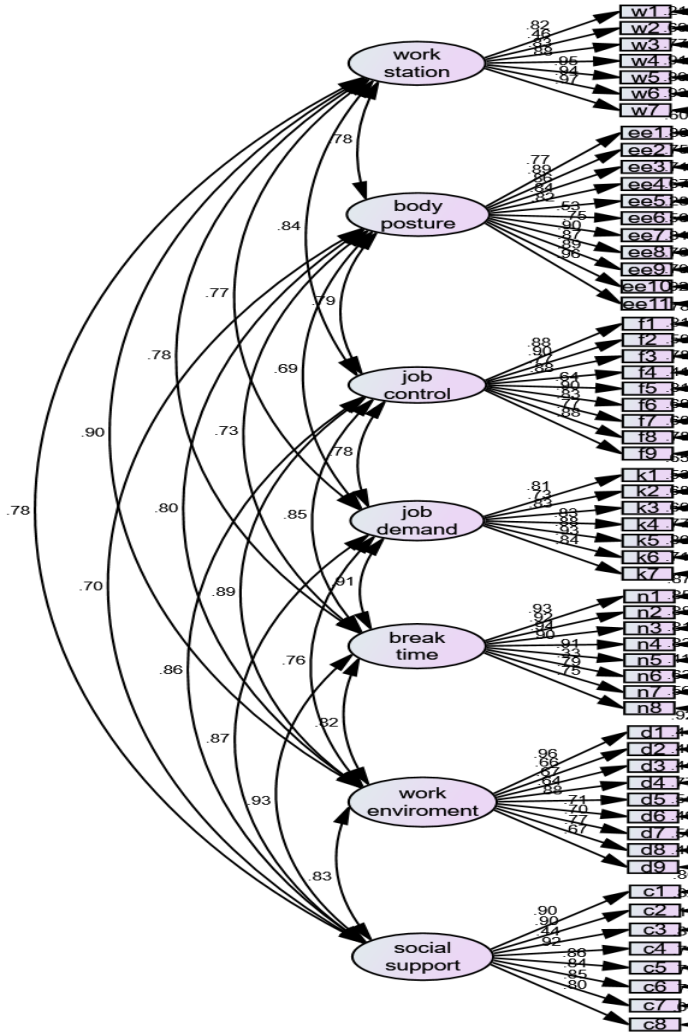

Figure 1. Confirmatory Factor Analysis of the Maastricht Upper Extremity Questionnaire (Factor loadings of each sectioned item and correlations)

Table 4. Goodness of Fit Indices for All 7 Sections Obtained by Confirmatory Factor Analysis (N = 420)

Index	Ch2	DF	CH2/DF	CFI	PCFI	GFI	AIC	BIC	RMSEA
value	6022.14	1513	3.98	0.871	0.77	0.96	6536.14	7574.49	0.08

environment, such as time spent on the computer, body posture, repetitive movements, break time, and demographic and personal characteristics. It is accepted that the progression and chronicity of musculoskeletal disorders are influenced by physical activity, posture, and working conditions (32).

A substantial body of research has established a link between job characteristics, including high job demands, low job control, limited break opportunities, and the development of neck pain (11). Examination of musculoskeletal disorders in this study showed that pain was more frequent in the neck and shoulder regions than in the arm, hand, and elbow. According to previous studies, the highest prevalence of musculoskeletal disorders in computer users is observed in the neck (55%-69%) and upper extremities (15%-52%) (33). In a 2015 study by Faryza et al, the MUEQ was used to investigate office workers' musculoskeletal disorders. Neck pain was the most prevalent CANS, followed by shoulder pain (34). The prevalence of CANS among computer workers ranges from 54% to 64% in Europe, similar to Asia, with 64% (7).

Our findings align with previous research, which has consistently demonstrated a higher prevalence of neck and upper extremity musculoskeletal symptoms among women than men (35, 36). On average, women are more likely to do repetitive tasks, while men are less likely to sit for prolonged periods compared with women. In addition, women are more exposed to stress from housekeeping and child care (11).

The goodness of fit indicators and factor analysis showed that the MUEQ confirmed the validity of the 7 subscales of this instrument, which is consistent with the findings of Bekiari et al (28). The values obtained for the GFI (0.96), RMSEA (0.08) and CFA (0.87) indicated that the model fits the observed data well. The CFI, GFI, and NNFI were used for the Brazilian Portuguese version of this questionnaire,

Table 5. Correlation and Cronbach's α for Questionnaire Items

Section (No. of questions)	Estimate	Item Total Correlation	Cronbach's α if an Item Is Deleted
Workstation (7)	0.82	0.87	0.93
	0.46		
	0.83		
	0.88		
	0.95		
	0.94		
	0.97		
Body posture (11)	0.77	0.80	0.92
	0.89		
	0.86		
	0.84		
	0.82		
	0.53		
	0.75		
	0.90		
	0.87		
	0.89		
	0.96		
Job control (9)	0.88	0.87	0.91
	0.90		
	0.77		
	0.68		
	0.64		
	0.90		
	0.83		
	0.77		
	0.88		
Job demand (7)	0.81	0.83	0.91
	0.73		
	0.83		
	0.93		
	0.88		
	0.93		
	0.84		
Break time (8)	0.93	0.89	0.91
	0.92		
	0.94		
	0.90		
	0.91		
	0.33		
	0.79		
	0.75		
Work environment (9)	0.96	0.74	0.92
	0.66		
	0.67		
	0.64		
	0.88		
	0.71		
	0.70		
	0.77		
	0.67		
Social support (8)	0.90	0.84	0.91
	0.90		
	0.44		
	0.92		
	0.86		
	0.84		
	0.85		
	0.80		
Mean Cronbach's α for all sections			0.91

and the value was equal to 0.9 (20).

Additionally, the Cronbach's alphas obtained in this study indicated the internal consistency of the items. More specifically, the Cronbach's alpha for all the subscales was more significant than 0.9, while it was between 0.52 and 0.89 for the Greek version of the questionnaire (28), between 0.54 and 0.85 for the Dutch version (11), and between 0.48 and 0.94 for the Arabic version (9). In a psychometric study conducted among 282 informatics employees in Iran, the reliability of the MUEQ was estimated to be >0.7 (37). A coefficient of at least 0.7 has been suggested as acceptable by Bett et al (38), while in the present study, the reliability of the subscales was more significant than 0.9.

Conclusion

The present research is the validation study for Iran's Maastricht Upper Extremity Questionnaire among office workers. The psychometric properties of the questionnaire in the study show that the MUEQ is a valid and reliable instrument for assessing the psychosocial factors of the work environment. It can be used in occupational health screenings to identify musculoskeletal complaints in office workers and design ergonomic interventions to detect which workgroups need comprehensive ergonomic analysis and intervention.

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Authors Contributions

Study concept and design, P.H & Z.M; Analysis and interpretation of data, R.N; Drafting of the manuscript, P.H; & Z.M, Critical revision of the manuscript for important intellectual content, M.K and P.H.

Ethical Considerations

This study received ethics approval from the Medical Science University of Saveh ethics board located in Saveh, Iran (Ethic Code: IR.SAVEHUMS.REC.1400.019). Moreover, written consent was obtained from the workers before the participant could take part in this study.

Conflict of Interests

The authors declare that they have no competing interests.

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Appendix 1.

جنس	مرد □ زن □
سن	
وضعیت تأهل	
سابقه خدمت	
ساعت کاری	
مصرف سیگار	□ خیر □بله

	اطلاعات مربوط به ایستگاه کار	
۱۰	میز کار من دارای ارتفاع مناسب و راحت است	□ خیر □ بله
۱۱	می توانم ارتفاع صندلی خود را تنظیم کنم	□ خیر □ بله
۱۲	وقتی که از موس استفاده میکنم، ساعدم بر روی میز کار قرار دارد	□ خیر □ بله
۱۳	صندلی من در محیط کار برای ناحیه کمر تکیه گاه مناسبی دارد	□ خیر □ بله
۱۴	صفحه کلید رایانه در هنگام کار دقیقا در مقابل من قرار دارد	□ خیر □ بله
۱۵	.صفحه نمایشگر رایانه در هنگام کار دقیقا در مقابل من قرار دارد	□ خیر □ بله
۱۶	.در دفتر کار فضای کافی برای انجام کار در اختیار دارم	□ خیر □ بله

	وضعیت بدنی در هنگام انجام کار	همیشه	اغلب	گاهی	به ندرت	هرگز
۱۷	وضیعت بدنی راحت و مناسب را در هنگام انجام کار حفظ میکنم					
۱۸	مدت زیادی در هنگام کار در یک وضعیت خاص می نشینم					
۱۹	بیش از دو ساعت در روز در وضعیتی که شانه های خود را بالا کشیده ام، مینشینم.					
۲۰	به هنگام کار کردن، در وضعیت بدنی نامناسبی می نشینم.					
۲۱	در هنگام کار، وظایف تکراری انجام می دهم					
۲۲	از لحاظ فیزیکی، کار من خسته کننده است					
۲۳	زمانیکه با صفحه کلید کار میکنم دست و ساعد من در یک راستا قرار دارند.					
۲۴	سر من در هنگام کار با رایانه، خمیده است					
۲۵	در هنگام کار با رایانه سر به طرف چپ یا راست خم شده است					
۲۶	تنه در هنگام کار به سمت راست یا چپ خم شده است					
۲۷	تنه من در هنگام کار در حالتی نامتقارن قرار دارد					
	کنترل شغلی					
۲۸	من شخصا در مورد نحوه اجرای امور کاری خود تصمیم می گیرم.					
۲۹	من در تصمیم گیری با دیگران شرکت میکنم					
۳۰	در مورد تغییر وظایفم، شخصا تصمیم میگیرم.					
۳۱	من شخصا زمان و سرعت انجام وظایفم را تعیین میکنم					
۳۲	من شخصا مشکلات کاری خود را حل میکنم					
۳۳	شغل من باعث افزایش تواناییهای من میشود					
۳۴	من در کار خود، چیزهای جدید یاد میگیرم					
۳۵	من باید در کار خود خلاق باشم					
۳۶	من در کار خود وظایف متفاوتی را انجام میدهم.					
	نیاز شغلی					
۳۷	من تحت فشار کاری زیادی کار میکنم					
۳۸	برایم سخت است که وظایف کاری ام را به موقع به پایان برسانم					
۳۹	من برای انجام وظایف کاری نیاز به اضافه کاری دارم					
۴۰	من زمان کافی برای اتمام وظایف کاری خود ندارم					
۴۱	من برای اتمام وظایف خود در موعد مقرر با سرعت بیشتری کار میکنم					
۴۲	وظایف شغلی من دشوار هستند					
۴۳	وظایف شغلی بسیار زیادی دارم					
	زمان استراحت					
۴۴	من می توانم زمان استراحت خود را شخصا برنامه ریزی کنم					
۴۵	من می توانم زمان کاری خود را تقسیم بندی کنم					
۴۶	من می توانم زمان استراحت خود را تعیین کنم					
۴۷	من وضعیت بدنی خود را در حین کار تغییر میدهم					
۴۸	من می توانم ترتیب انجام وظایف شغلی خود را تغییر دهم					
۴۹	من وظایف شغلی خود را بدون رایانه انجام میدهم					
۵۰	بعد از دو ساعت کار، من ده دقیقه استراحت می کنم					
۵۱	من به اندازه کافی زمان استراحت دارم					
۵۲	محیط کار من مناسب است					
۵۳	هوای داخل دفتر بیش از اندازه خشک است					
۵۴	هوای داخل دفتر کارم بیش از اندازه سرد است					
۵۵	هوای نامطبوع در داخل دفتر وجود دارد					
۵۶	هوای تازه در محیط کار من در دسترس است					
۵۷	محیط کار من پر سرو صداست					
۵۸	محیط کار من بیش از اندازه روشن است					
۵۹	من به صفحه رایانه خیره میشوم					
۶۰	صفحه رایانه نور اتاق کار منعکس میکند					
	حمایت اجتماعی					
۶۱	امور کاری روان پیش می روند					
۶۲	من می توانم در کار خود پرس و جو کنم					
۶۳	وظایف کاری من به همکاران دیگر وابسته است					
۶۴	جو کاری من راحت است					
۶۵	اگر در انجام وظایف کاری خود مرتکب اشتباه شوم، از حمایت همکارانم برخوردار میشوم.					
۶۶	اگر در وظایف کاری خود مرتکب اشتباه شوم، از حمایت سرپرست خود برخوردار میشوم.					
۶۷	همکاران من صمیمی هستند					
۶۸	سرپرستان من صمیمی هستند					