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THE RELATIONSHIP BETWEEN NOISE EXPOSURE, FATIGUE AND SUBJECTIVE MENTAL WORKLOAD

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SUMMARY: *The aim of this study is to investigate the relationship between noise exposure, fatigue and subjective mental workload (SMWL) in bank employees. This study was performed on 113 bank employees in Iran. Noise pollution in the studied banks was estimated in accordance with the standard ISO 9612 (1997). To determine the SMWL, NASA-TLX method was used. The level of job fatigue of employees was determined using the Swedish Job Fatigue Questionnaire (SOFI-20) and the sensitivity of people to noise was measured using the Weinstein questionnaire. Finally, the predictor variables of mental workload were analyzed using simultaneous multiple linear regression test in SPSS-V16 software. The level equivalent to the noise exposure (Mean \pm SD) in the workstations of bank employees was 61.30 dB-A. The Mean \pm SD of the final score of SMWL in the studied employees was 71.91 \pm 12.79. The results of the simultaneous regression analysis test showed that the fatigue, noise sensitivity, and level of noise exposure predict a total of 0.61 of the variances of SMWL ($P < 0.05$, $df = 112$, $f = 16.43$). Increasing the noise can increase the SMWL of employees by having the effect of increasing fatigue, and this effect is increased by the sensitivity of employees to noise.*

Key words: *occupational exposure, noise pollution, mental health, fatigue, personal banking*

INTRODUCTION

Banks are one of the open office environments in Iran that cover a large part of the service sector.

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Due to the different architecture of banks, which is based on the requirements of its work, employees communicate with customers face to face and the exchange of information between them is done through conversations (Haapakangas *et al.*, 2008). As a result, creating a safe speaking environment is one of the basic needs of these work environments. Due to the nature of the work of banks and the specific duties of their employees, the concentration of people when doing work is very important. Banking is one of the busiest and most sensitive jobs in countries, especially Iran, in terms of workload and high accuracy required to do the job. Therefore, the working environment of these employees should be such that in addition to meeting the basic needs, it creates a suitable environment to maintain the mental efficiency and psycho-physiological capabilities of individuals (Rindel & Christensen, 2012).

Among the physical harms that have a significant effect on creating stressful conditions in the staff of open offices is noise pollution (*Mohammadpour et al., 2013*). Noise pollution is a major health problem in many industries that long-term exposure may cause physiological and psychological complications as well as basic cognitive impairments such as memory, attention, and other behavioral activities in people (*Tak et al., 2009*). Noise pollution is a factor affecting the mental and neuropsychological, physical, efficiency, and effectiveness of exposed employees in open office environments (*Babisch, 2003, Sundstrom et al., 1994*). Sources of noise production in banks include background noise (noise from out-of-bank traffic, the noise of ventilation systems and equipment in banks), activities of people, and their conversation with each other, which is a component of low-frequency noise (*Rindel & Christensen, 2012*).

Recent studies have shown that low-frequency noise, especially in jobs with complex tasks and requiring a lot of mental activity, can have negative effects on human performance (*Ljungberg & Neely, 2007*). Therefore, it is important to investigate the potential negative effects of low-frequency noise in workstations of control rooms and office work environments such as banks that require mental information processing and concentration (*Abbasi et al., 2018*). Decreased human function can be caused by fatigue due to environmental factors such as lack of noise, heat, and visual comfort. Fatigue is defined as any reduction in the body's maximum capacity to produce power or output (performance). In general, fatigue is actually a feeling of weakness, inability, and lack of energy in all activities of the body so that it appears as a physical and mental disability (*Burnley & Jones, 2018*). There are several methods for measuring fatigue, which is divided into two categories: objective and subjective methods. Objective methods of measuring fatigue are divided into direct and indirect methods for which there are specific tools (*Vøllestad, 1997*). The mental method of determining the amount of fatigue, especially for office environments, is based on standard questionnaires (*Akimoto et al., 2010, Fujii et al., 2001*).

In banks, due to the nature of job duties, employees need to be highly focused to do their jobs,

and their health and comfort should be provided to the desired level. As mentioned, one of the most important factors disrupting the concentration and comfort of employees is noise pollution in these work environments, which has adverse effects on the mental (cognitive) performance of employees and seems to cause neurophysiological strains and oxidative stress in bank employees (*Golmohammadi et al., 2017*). Employees of such jobs, due to high exposure to various sources of noise, feel distracted, their performance is reduced, and need mental rest after a short period of time. Due to the expansion of open offices as work offices and the employment of a large amount of manpower in such offices, the provision of appropriate working conditions in terms of noise comfort is essential for the comfort of employees (*Nezami et al., 2015*).

AIM

Recently, several studies conducted in Iran regarding the noise pollution situation of employees of different departments with noise, each of which has examined a specific aspect of noise effects, especially auditory effects. However, the status of non-audible effects of noise, especially when exposed to low-frequency noise in real work environments, has not been well clarified so far. In general, there are very few studies on noise pollution in banks' work environment and its non-auditory effects on employees, and studies that have examined the relationship between noise pollution levels and fatigue and the SMWL of employees. Due to the importance of this issue, the present study was designed and conducted to investigate the level of noise pollution in banks and its effect on the level of SMWL and fatigue in bank employees.

MATERIAL AND METHODS

The present study was conducted as a cross-sectional and descriptive-analytical study in the banks of the cities of South Khorasan in eastern Iran. The present study was approved by the ethics committee of Birjand University of Medical Sciences. Prior to the evaluations, a consent form for participation in the study was prepared and distributed among the target staff.

All subjects completed and signed the consent form to participate in the study. Inclusion criteria were: no neurological disease, no hearing problems, acceptable general health, and more than one year of work experience. A researcher-made checklist was used to determine the inclusion criteria and demographic and occupational characteristics of individuals including age, weight, height, and work experience. In order to assess the general health of the employees, the General Health Questionnaire-28 (GHQ-28) was used and the employees whose final score of the questionnaire was less than 23 were considered as people with acceptable general health and were included in the study (Darvishi et al., 2019). The results of the study of Darvishi et al. (2016) were used to determine the sample size. In their study, the mean (standard deviation) of SMWL in bank employees was reported to be 64.2 (12.81) (Darvishi et al., 2016). Accordingly, the sample size was determined in terms of the standard deviation of 12.81 at a 95% confidence level and accuracy of 2.3 points using Equation 1:

$$N = \frac{(Z_{1-\frac{\alpha}{2}})^2 \times \delta^2}{d^2}$$

$$N = \frac{1.96^2 \times 12.81^2}{2.3^2} \approx 119$$

Where N= Sample Size, δ =Variance, α =Type 1 error, $Z_{1-\alpha/2}$ = Approximate value of the 97.5 percentile point of the standard normal distribution and d = Precision

According to this equation, the sample size was 119 people. Finally, in terms of inclusion criteria, 113 people were studied in this study. To determine and select the participants in the study, a simple random sampling method was used.

The equivalent level of 30 minutes of noise exposure (LAeq) in the workstations of the employees of the studied banks was estimated by the sound level meter TES-1358C and in accordance with the standard ISO 9612 (1997) in weighting network A (ISO 9612:2009, 2014). The noise spectrum of banks generally follows a continuous pattern. The spectrogram of background noise measured in the normal mode of operation of banks in Iran is presented in Figure 1, which shows the continuity of noise in the bank.

In order to determine the possible noise fluctuations in the employees' workstations and to increase the accuracy of the results, the LAeq index was used to determine the noise pressure level for 30 minutes in each station (Golmohammadi et al., 2017). Before each daily measurement, the sound level meter was calibrated using the TES 1356 calibrator.

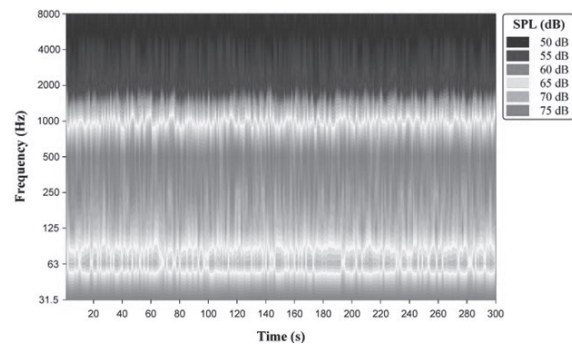


Figure 1. The spectrogram of background noise in Iranian Banks

Slika 1. Spektrogram pozadinske buke u iranskim bankama

The NASA-TLX index was used to determine the SMWL of bank employees while performing their duties (Hart & Staveland, 1988). The NASA-TLX method is the most widely used indicator of SMWL and estimates SMWL of employees easily and quickly and can be done easily in any work environment. This method is non-invasive and its accuracy has been confirmed in several studies. The NASA-TLX questionnaire consists of two parts. In the first part of the questionnaire, the total work stress of activity is divided into six scales: mental demand, physical demand, temporal demand, performance, effort, and frustration. Accordingly, individuals should rate these 6 scales with a score of 0-100. In addition to a sheet containing the rating scales, a page containing the definitions of the scales was provided to the bank staff as a marking reference. In the second part, these scales are compared in pairs, and employees must choose in each comparison, the scale that they consider more important than the other (maximum two-to-two comparison is 15 pairs). Then the number of choices of each scale is divided by 15 and the weight of each scale is determined. In the next step, the weight of each scale is multiplied by the score of that scale (obtained from the first step) and the weighted score is determined for

each scale. Finally, from the sum of the weighted scores of the 6 scales, the final SMWL score is obtained, which is a number between 0-100 (Hart, 2006). The higher the final score, the higher the SMWL in individuals (Darvishi et al., 2016).

The Swedish Job Fatigue Questionnaire (SOFI-20) was used to determine the mental fatigue of employees. The SOFI questionnaire is a multidimensional tool that is presented to assess the quality and severity of perceived acute fatigue. This questionnaire is able to assess the psychological and physical aspects (Winwood et al., 2005). This questionnaire has been used in several studies in various occupations and has been recognized as a reliable tool for determining mental fatigue (Geiger-Brown et al., 2012, Ghanbary et al., 2019, Winwood et al., 2006). This method has 5 dimensions of lack of energy, physical effort, physical discomfort, lack of motivation, and drowsiness, each of these dimensions consists of 4 questions (20 questions in total). Employees should grade each question from 0 to 10, and finally, the sum of the scores of the questions related to each dimension determines the final score of each dimension (given that each dimension consists of 4 questions, the maximum possible score for each dimension is 40 And the lowest possible score is zero (the final score of the feeling of fatigue, which is obtained from the sum of the scores of the constituent dimensions, can be a number between 0-200). The closer the final score is to 200, the higher the fatigue (and vice versa) (Javadpour et al., 2015).

One of the influential factors in the physiological response of people in the face of noise is the factor of noise sensitivity. The Weinstein noise sensitivity scale was used to determine the noise sensitivity of employees. This questionnaire consists of 21 questions that are graded like 5 to 1 (1 = strongly disagree, 5 = strongly agree). The minimum possible score for this questionnaire is 21 and the maximum score is 105. A higher score indicates a higher sensitivity to noise (Kishikawa et al., 2006).

SPSS statistical software version 16 was used to analyze the data. To investigate the normal distribution of the collected data, the Kolmogorov-Smirnov test was used. Kruskal-Wallis nonparametric test was used to compare the score (rank)

of SMWL, mental fatigue, and noise sensitivity at different levels of noise exposure. Multiple linear regression test was used to determine the predictors of subjective workload. All tests had a significance level of $\alpha = 0.05$.

RESULTS

Descriptive results of the demographic and occupational characteristics of the employees are presented in Table 1. The results showed that the average age of employees is 38.41 years. Also, the average body mass index and work experience of employees were 25.35 and 15.32, respectively. The results of noise measurement in employees' workstations showed that the average (standard deviation) of LAeq in employees' workstations in bank is 61.30 dB-A (6.41). Also, the lowest noise level was 50 dB-A and the highest level was 76 dB-A. Based on these results, the equivalent noise level in all surveyed banks was higher than the recommended standard for mental activity (45 dB-A). The results of noise sensitivity in the studied employees showed that the mean and standard deviation of this variable is equal to 71.52 and 14.18, respectively.

Table 1. Demographic and occupational characteristics of the surveyed employees

Tablica 1. Demografske i profesionalne karakteristike ispitanih djelatnika

Variables	Mean	Standard deviation	minimum	maximum
Age (years)	38.41	7.06	24.00	56.00
Height (meters)	1.73	0.08	1.55	1.95
Weight (kg)	76.50	12.87	46.00	110.00
BMI	25.35	3.60	16.80	36.00
Work experience (years)	15.32	7.58	2.00	28.00

The results of the study of SMWL in bank employees are presented in Table 2. The results showed that among the various dimensions of the NASA_TLX SMWL index, the highest average was related to the temporal demand dimension (74.19) and the mental demand dimension (73.14). Among the dimensions of the index, the lowest average was reported in relation to the performance dimension (32.25). The average (standard deviation) of the final score of SMWL in the studied employees was determined to be 71.91 (12.79), which indicates the high SMWL of bank employees.

Table 2. Descriptive results of the NASA_TLX Subjective Mental Workload Index

Tablica 2. Deskriptivni rezultati NASA_TLX indeksa subjektivnog mentalnog opterećenja

Variables	Mean	Standard deviation	minimum	maximum
Mental demand	73.14	38.40	20.00	80.00
Physical demand	42.28	25.14	15.00	60.00
Temporal demand	74.19	28.36	30.00	85.00
Performance	32.25	21.36	20.00	45.00
Effort	71.45	27.18	40.00	85.00
Frustration	43.55	29.12	35.00	65.00
SMWL	71.91	12.79	35.00	96.87

Descriptive results of the Swedish Job Fatigue Index are presented in Table 3. The results showed that among the various dimensions of this index, the highest mean is related to the dimensi-

on of lack of energy (17.75) and the lowest mean is related to the dimension of lack of motivation (12.41). The mean (standard deviation) of the final score of feeling fatigue in the studied employees was 69.61 (41.13).

Table 3. Descriptive results of the Swedish Fatigue Index SOFI-20

Tablica 3. Deskriptivni rezultati Švedskog indeksa umora SOFI-20

Index dimensions	Mean	Standard deviation	minimum	maximum
Lack of energy	17.75	9.96	8.00	40.00
Physical effort	13.24	9.60	6.00	35.00
Physical discomfort	13.34	8.30	6.00	38.00
Lack of motivation	12.41	8.87	4.00	36.00
Drowsiness	12.85	9.77	4.00	35.00
The final score of fatigue	69.61	41.13	25.00	162.00

Comparative results of mean SMWL, fatigue, and noise sensitivity at different levels of noise exposure are presented in Table 4 and Figure 2. These results also show that with increasing the level of noise exposure in the surveyed banks, a significant increase in the score of fatigue in bank employees has been created ($P_Value = 0.008$). It was also found that with increasing levels of noise exposure, the SMWL was reported by higher staff. But this increase is not statistically significant ($P_Value = 0.150$). In addition, with increasing the level of noise exposure in the surveyed banks, there was a significant increase in the noise sensitivity score of bank employees ($P_Value = 0.002$).

Table 4. Comparative results of fatigue, SMWL and noise sensitivity at different levels of noise exposure

Tablica 4. Usporedni rezultati umora, SMWL i osjetljivosti na buku na različitim razinama izloženosti buci

	Level of Exposure to Noise (dB)	N	Mean	Mean of Rank	P-Value*
Subjective Fatigue	Leq<55	31	56.7	41.6	0.008
	55 < Leq< 65	50	81.74	61.9	
	Leq>65	32	84.87	64.28	
Mental Workload	Leq<55	33	67.88	47.40	0.150
	55 < Leq< 65	46	73.26	59.70	
	Leq>65	34	73.71	62.10	
Sensitivity to Noise	Leq<55	29	42.21	32.04	0.002
	55 < Leq< 65	43	59.34	45.18	
	Leq>65	41	72.12	58.13	

*Kruskal–Wallis H test

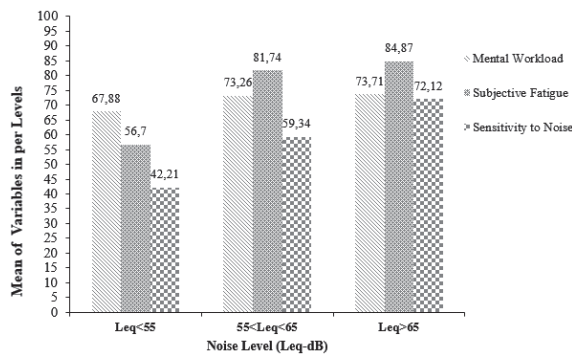


Figure 2. The Mean of Variables in Different levels of Noise

Slika 2. Srednja vrijednost varijabli u različitim razinama buke

The results of the multiple linear regression model for predicting SMWL by the variables of fatigue, noise exposure, noise sensitivity, age, and work experience are presented in Table 5. The results of the simultaneous regression analysis test showed that the three variables of fatigue, noise sensitivity, and equivalent exposure to noise have significant predictive power for the SMWL variable. This analysis showed that these three variables predict a total of 0.61 of the variances of SMWL ($P < 0.05$, $df = 112$, $f = 16.43$).

DISCUSSION

This study aimed to investigate the level of noise pollution in banks and its effect on the level of SMWL. Predicting SMWL was also assessed using variables such as fatigue, noise exposure, noise sensitivity, age, and work experience. The results of the present study show the effect of noise exposure on increasing SMWL. It seems that increasing the noise increases fatigue and the interaction of these effects with sensitivity to noise leads to an increase in SMWL in employees.

The results of the noise pollution level in employees' workstations showed that the average level equivalent to noise exposure is 61.30 dB-A. It was also found that the LAeq value in all studied banks is higher than the recommended standard for mental activity (45 dB-A). The examination of noise sensitivity also showed that the average of this variable is equal to 71.52. These results are consistent with the results of other studies conducted in Iranian banks. Gholami et al. (2014) reported that the average noise at bank employees' workstations was 62 dB-A. In their study, noise exposure in all stations was higher than the recommended limits. Also, the average

Table 5. Results of multiple regression analysis test simultaneously to predict SMWL

Tablica 5. Rezultati testa višestruke regresijske analize istovremeno za predviđanje SMWL

Predictor variables		Beta	T	P_Value	R2	f	df	P_Value
	Subjective Fatigue	0.12	1.93	0.046				
	Noise Exposure	0.15	3.44	0.016				
	Sensitivity to Noise	0.714	11.66	0.001	0.61	16.43	112	0.001
	Age	0.005	0.034	0.873				
Work Experience	0.049	0.314	0.754					

noise sensitivity in their study in bank employees was higher than the average and 60.07, which is consistent with the results of the present study (Gholami et al., 2014). Zare et al. (2019) also reported that the average noise at bank employees' workstations was higher than the recommended limit and 78.72 dB-A. In another study, Golmohammadi et al. (2017) reported a mean sound pressure level inside banks of 64.11 dB-A. In addition to contacting each other, the bank's employees also have conversations with the bank's customers, and these conversations take up most of their working time. As a result, banks have noise sources such as customer noise, employee calls, air conditioning, telephone ringing, traffic noise outside banks, and computer systems. Also, the use of materials with low absorption coefficient in banks, such as glass barriers between employees and customers, the use of ceramics in the floor, stone and wooden surfaces and walls, and the use of iron chairs can lead to increased reflections and reverberation time in Bank and eventually intensify the noise. The sum of these effects can increase the noise of banks' interior space to levels above the permissible limits for mental activity (45 dB-A) (Gholami et al., 2014).

The results of the SMWL study showed that among the various dimensions of the NASA_TLX SMWL index, the highest average was related to the temporal demand dimension (74.19) and mental demand (73.14) is in the next rank. The average final score of SMWL in the surveyed employees was determined to be 71.91 (12.79), which indicates the high SMWL of bank employees. These results are consistent with the results of other studies. Darvishi et al. reported that the average SMWL of bank employees was higher than the average of 64.2. In their study, temporal demand and mental demand with a higher mean than other dimensions were reported (Darvishi et al., 2016). In another study, Sasongko et al. reported an average SMWL of more than 80 in bank employees (Sasongko et al., 2017). Shafiee Motlagh et al. also reported a SMWL of 64 for bank employees, which is consistent with the results of the present study (Shafiee Motlagh et al., 2019). The nature of banking requires that bank employees be highly focused while working and able to perform several tasks in a row and sometimes simultaneously. These employees, on the one

hand, must perform financial calculations, cash registers, and traditional administrative work, and on the other hand, they have to meet the needs of customers. As mentioned, the results of studies confirm the increase in SMWL in bank employees and show that with the increase of various activities during the day, the SMWL of employees also increases.

The results of comparing the average SMWL, feeling of fatigue, and sensitivity to noise in different levels of noise exposure show that with increasing the level of noise exposure in the studied banks, a significant increase in the score of fatigue, SMWL, and sensitivity to noise in Bank staff is created. The results of multiple linear regression model simultaneously to predict SMWL by the variables of fatigue, noise exposure, sensitivity to noise, age and work experience indicated that the three variables of fatigue, noise sensitivity, and noise exposure level are significant predictors of the SMWL variable. This analysis showed that these three variables predict a total of 0.61 of the variances of SMWL. Other studies have also confirmed increased SMWL, fatigue, and sensitivity to noise due to increased exposure to noise. Gholami et al. showed that the sensitivity to noise increases with the increasing exposure of bank employees to noise and this can lead to increased fatigue in employees (Gholami et al., 2014). Zare et al. also stated that the feeling of fatigue in the bank employees increases with the increase of the equivalent level of noise and this causes the mental discomfort of the employees (Zare et al., 2019). In office environments such as banks, people are exposed to low-frequency noise, and the results of several studies indicate the non-auditory effects of exposure to these noises, such as stress and anxiety, fatigue, sleep disorders, increased SMWL, and decreased mental function. Recent studies have shown that low-frequency noise can have negative effects on performance, especially in jobs with complex tasks that require a lot of mental activity. As a result, the increase in the SMWL of bank employees in the present study may be due to exposure to low-frequency noise at medium levels. Other studies have shown that office occupations, despite having a noise level of less than 85 dB-A, but most employees suffer from a mental disorder (decreased concentration and distraction), SMWL, increased human error, stress

and complain about stress and fatigue from noise (Habibi et al., 2013; Nasiri et al., 2014). Exposure to intermediate levels may also cause serious disorders such as harassment and loss of comfort, work dysfunction, fatigue, lack of concentration, and increased workload (Elmenhorst et al. 2014). The results of studies have confirmed the increase in neurophysiological strains due to exposure to noise in banks and have expressed an increase in SMWL and fatigue as an aggravating factor. Darvishi et al. showed that with increasing LAeq by 1 decibel, noise annoyance rate is increased by 1.2 percent, noise-induced mental fatigue rate by 0.6 percent, and SMWL by 0.8 percent (Darvishi et al., 2019). Shafiee Motlagh et al. stated that exposure of bank employees to noise in the workplace can lead to increased employee stress and impaired autoimmune function and the SMWL created by noise can be an aggravating factor in creating these effects (Shafiee Motlagh et al., 2019). One of the most important limitation in this study was gathering information in the form of self-reporting (questionnaire). This method may be affected by the wrong response of individuals and had negative effects on the study. Also, in the present study, we did not examine all the factors affecting the mental workload. Assessing the SMWL using more objective and accurate tools as well as factors such as sleep quality, stress, and anxiety, and job satisfaction in the form of regression models may provide more realistic results. In the present study, in order to reduce the intervening effects, it was tried to examine people who have a suitable general health status. This can be considered as a strength of study. Finally, it can be said that the exposure of bank employees to noise can lead to increased fatigue and SMWL in employees, which can also be exacerbated by the unfavorable acoustic conditions of banks.

CONCLUSION

The results of this study showed a direct relationship between the noise level of banks and increasing the level of fatigue and SMWL in bank

employees and these three variables predict a total of 0.61 of the variances of the SMWL. As a result, increasing the noise exposure can increase the SMWL of employees by increasing fatigue, and this effect is increased by the sensitivity of employees to noise. It is recommended to implement noise control measures in the workplace by improving the acoustic condition of banks to reduce the exposure of employees to noise.

Conflict of interest

The authors declare no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

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Originality statement

We certify that the content of this article is we own work. This article has not been submitted for other journals. We certify that the intellectual content of this article is the product of we own work and that all the assistance received in preparing this article and sources have been acknowledged.

Ethics committee approval

This study was approved by Ethics Committee of Birjand University of Medical Sciences with reference number of IR.BUMS.REC.1397.104.

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ODNOS IZMEĐU IZLOŽENOSTI BUCI, UMORA I SUBJEKTIVNOG MENTALNOG OPTEREĆENJA

SAŽETAK: Cilj ovog rada je istražiti odnos između izloženosti buci, umora i subjektivnog mentalnog opterećenja (SMWL) kod zaposlenika banaka. Istraživanje je provedeno na 113 zaposlenika banaka u Iranu. Onečišćenje bukom u bankama procijenjeno je u suglasnosti sa standardom ISO 9612 (1997.). Kako bi se utvrdio SMWL, korištena je NASA-TLX metoda. Stupanj zamora poslom zaposlenika određen je korištenjem Švedskog upitnika o umoru na poslu (SOFI-20), a osjetljivost ljudi na buku mjerena je Weinstein upitnikom. Konačno, prediktorske varijable mentalnog opterećenja analizirane su korištenjem simultanog testa višestruke linerane regresije u SPSS-V16 softveru. Ekvivalent izloženosti buci (Mean \pm SD) na radnim mjestima zaposlenika banke bio je 61,30 dB-A \pm 6,41. Mean \pm SD konačnog rezultata SMWL kod ispitanih zaposlenika bio je 71,91 \pm 12,79. Rezultati simultane regresije testa analize pokazali su da umor, osjetljivost na buku te razina izloženosti buci predviđa ukupno 0,61 varijance SMWL ($P < 0,05$, $df = 112$, $f = 16,43$). Povećanje buke može povisiti SMWL kod zaposlenika imajući učinak povećanog umora, a taj učinak povećan je osjetljivošću zaposlenika na buku.

Ključne riječi: profesionalna izloženost, onečišćenje bukom, mentalno zdravlje, umor, osobno bankarstvo

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