

OCCUPATIONAL HEALTH: THE ROLE OF DEMOGRAPHIC FACTORS IN THE CONDITION OF INCREASED RISK

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Abstract

Objectives: The paper analyses the impact of socio-demographic characteristics of the employees in conditions of uncertainty in the organizations. **Material and Methods:** The study was conducted on a sample of 210 employees using the *Mental Health Inventory – 38* (MHI-38), *Satisfaction with life scale* (SWLS), and the *Center for Epidemiological Studies – Depression* (CES-D). **Results:** The results showed that female respondents had significantly higher scores on ANX ($t = 2,278, p < 0.05$), while male employees had higher scores on life satisfaction ($t = 2.103, p < 0.05$). Older employees have a higher tendency for loss of emotional-behavioral control ($F = 4.427, p < 0.05$). Respondents who have satisfying living standards have also higher scores on SWLS ($t = 2.257, p < 0.05$). Respondents who have dissatisfying living standard have higher scores on generally positive affect ($t = 3.152, p < 0.01$), life satisfaction ($t = 3.571, p < 0.01$), psychological distress ($t = 2.929, p < 0.01$) and loss of emotional-behavioral control ($t = 2.361, p < 0.05$). Employees with different levels of educational background have similar tendencies in life satisfaction, mental health, and depressive symptoms ($p > 0.05$). **Conclusions:** The study showed that the specific socio-demographic profile of the employees is related to higher levels of mental health issues. Specifically, the mental health of female and older employees have been especially affected and disturbed by uncertain conditions. The results can be potentially used both in the terms of designing activities that support the mental health of the population, as well as in relation to the mental health of employees. *Int J Occup Med Environ Health.* 2023;36(2)

Key words:

anxiety, public health, satisfaction with life, depression symptoms, mental health, condition of risk

INTRODUCTION

Mental disorders are one of the most widespread stigmas among different cultures that affect the individual and work-related environment but also lead to economic cost and social marginalization [1].

World Health Organization (WHO) considers mental health as the basis of the overall health of the population. According to the WHO [2] health is “a state of complete physical, mental and social well-being and not merely the absence of disease.”

In general, different psychological models tend to improve the knowledge of understanding the way people react in specific situations over time, in order to determine which factors predict different aspects of health [3], especially in the time of uncertainty that can provide a serious threat to the mental and physical functioning of human.

A pandemic is a major worldwide challenge and it affects people in many aspects of personal and social functioning [4]. The coronavirus disease (COVID-19) has dramatically affected people’s well-being and mental health [5].

Received: November 10, 2021. Accepted: March 15, 2023.

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COVID-19 has caused anxiety among many people and it is expected that some of them will suffer from mental health problems even after the pandemic [6]. The reasons might be the restrictions, social distancing, or any other measure that was or still is effective during the pandemic. Also, after this crisis, a further increase in mental health problems is expected.

Only a few months after the COVID-19 outbreak, researchers over the world focused to determine levels of anxiety, stress, depression symptoms, and post-traumatic stress disorder during the COVID-19. Some of the researchers in different cultures showed the effects of COVID-19, comparing the results of mental health variables before and during the pandemic [7], while others pointed to present mental conditions during the COVID-19 [8–12] may cause some psychological disorders but not affecting all groups of the respondents equally. Some demographic subgroups showed little or no additional mental distress after lockdown, while other subgroups showed significant increases.

The occupational environment is a specific context where mental health issues of the employees may cause lower productivity [13], and higher rates of absenteeism [14]. The results of the previous study have shown that female employees are at higher risk of mental health problems under uncertain circumstances than male employees. Women showed significantly higher levels of stress and depressive symptoms, but both genders in younger age groups <35 years, reported higher emotional demands at work and physical exhaustion during periods of crisis [15,16]. Work uncertainty and financial insecurity are all indicated as factors that have amplified feelings of depression and sadness in young people during the pandemic [17]. Another study confirmed, that female gender and younger age, employees predicted lower levels of mental health [18].

The occupation of the employees is considered an unstable category and can vary by social context, so the living

standard and education level are usually taken as indicators of the socioeconomic status (SES). It is known that low socioeconomic status is associated with mental health issues [16]. It is assumed that individuals with less financial and economic independence are faced with greater social demands, but are more exposed to the context that can be defined as a threat to their health [19]. Their low socioeconomic status makes them less endowed with coping resources. In addition, the condition of uncertainty also affect their effective response to the external demands and stress throughout life. The level of education usually shapes the future of the individual in different aspects. Higher education gives more opportunities in work-related environments which contribute to higher wages but on the other hand, professional jobs involve positions with more pressure and demands.

The positive effect of the living standard on mental health issues can be explained by the range of recourses that individuals with better socioeconomic status have in order to cope with the daily life challenges.

The results of the analysis of issues that disturb individuals with mental health problems have opened key questions for organizations and society as a whole: change in attitudes towards subjects with mental health problems as well as reconstruction of the approach to mental health [20]. The higher levels of negative aspects of mental health can cause errors, accidents, and a decrease in work output and productivity which can cause negative effects on the economy.

According to these statements this research is aimed to highlight the most vulnerable demographic profile of the employees which can be used in designing activities that support identified groups of employees to cope with distress in different environments in life and business so they can be more productive in the time and after the crisis.

The question that start the research is does the mental health of the employees improves with age if a person

knows more about himself, others, sustainability, possibilities. Are the women in the working environment more psychically vulnerable and have more tendencies to mental health issues, and do high-level education and material welfare of employees bring psychological well-being?

MATERIAL AND METHODS

The cross-sectional study included 210 employees in 3 privately-owned companies in the retail, health, and IT sectors in the Republic of Serbia. The gathered sample was mixed consisting of white-collar, but also blue-collar. The data collection was performed in the period between July and August 2020. The employees fill out the questionnaire in paper-pen form.

According to gender, the research included 98 (46.7%) male respondents and 112 (53.3%) female respondents. The age of the employees was 18–68 years ($M \pm SD = 36 \pm 11.903$). For the purposes of the analysis, the sample was divided into 3 age groups (18–28, 29–41, and 42–68 years). The overall sample was divided into 2 educational groups in order to achieve almost equal groups. University level implies BA and MA degrees. According to the education level of the participants, 114 (54.3%) employees finished high school and 96 (45.7%) of them finished university. Assessing the living standard, 110 (52.4%) respondents perceive their living standard as satisfying, and 100 (47.6%) respondents perceive it as not satisfying (Table 1).

Measuring variables included 3 scales in order to measure mental health, satisfaction with life, and depression symptoms, but also included the questions about the socio-demographic characteristics of the employees. Life satisfaction was measured with the *Satisfaction with Life Scale* (SWLS) [21] which is a 7-point Likert response scale. The scores have ranged 5–35 pts. Scores 5–9 pts lead to extreme dissatisfaction with life, 10–19 pts dissatisfaction, 20–25 pts represent a neutral point on the scale, 26–30 satisfaction, while 31–35 pts indicate extreme sat-

Table 1. Socio-demographic structure of the respondents – employees in 3 privately-owned companies in the retail, health, and IT sectors in the Republic of Serbia, July–August 2020

Variable	Participants (N = 210)		
	n	%	cumulative %*
Gender			
male	98	46.7	46.7
female	112	53.3	100.0
Age			
18–28 years	71	33.8	33.8
29–41 years	68	32.4	66.2
42–68 years	71	33.8	100.0
Education			
high school	114	54.3	54.3
university	96	45.7	100.0
Living standard			
satisfying	110	52.4	52.4
not satisfying	100	47.6	100.0

* Cumulative percent is same as valid percent.

isfaction of the respondents. The results of the research on the Serbian sample determined that SWLS is a discriminatory, valid, reliable, and homogeneous questionnaire, as an overall measure of life satisfaction. The reliability of the instrument was $\alpha = 0.83$ [22].

Mental health was measured with the *Mental Health Inventory – 38* (MHI-38) [23]. The questionnaire consists of 38 questions on a 5-point Likert response scale. According to the instrument, the model defines 2 factors:

- psychological distress (PD) measured by dimensions: anxiety (ANX), depression (DEP), and loss of emotional-behavioral control (LEBC),
- psychological well-being (PW) measured by dimensions: generally positive affect (GPA), emotional connections (EC), and life satisfaction (LS).

So far, no evaluation and adaptation of the MHI-38 questionnaire on the population of the Republic of Serbia have

been conducted, but the model of the shortened version of the Mental Health Inventory – 5 (MHI-5) questionnaire was evaluated in the same cultural environment where this questionnaire had satisfactory internal consistency $\alpha = 0.83$ [24].

The depression symptoms were measured with a scale the *Center for Epidemiological Studies – Depression* (CES-D) [25]. The CES-D is a 20-item measure that asks respondents to rate how often over the past week they experienced symptoms associated with depression. Scores range 0–60 pts: 0–9 pts represent a not depressed state, 10–15 pts – a mildly depressed state, 16–24 pts – a moderately depressed state and >24 pts – severe depressed state. The scale is conducted on a normal population, so the higher scores do not indicate the psychiatric disorder, but it represents the tendency to the depressive symptoms which can be diagnosed. The instrument has shown high reliability in the Serbian sample $\alpha = 0.96$ [26].

Statistical methods

The statistical software package for social sciences SPSS, v. 24 was used in order to analyze the data. The analysis included descriptive statistics and statistical inference. Descriptive statistics included frequencies in order to give the sample structure (frequency and percent), descriptive measures that included minimums, maximums, means, and standard deviations of the scores measured by the instruments. The t-test on the independent samples, and one-way ANOVA were used to determine statistically significant differences among scale measured variables.

Ethics

According to the Helsinki Declaration, the respondents were informed about the purpose and goals of the research. Confidentiality was guaranteed to all the participants. Informed consent was signed by each respondent before data collection.

RESULTS

Descriptive statistics

Based on average scores, it can be determined that life satisfaction and depressive symptoms are average expressed. Regarding mental health and its aspects, in relation to the mean scores of minimum and maximum, it can be determined that the subscales of psychological well-being are more pronounced in relation to psychological distress. The subscales within psychological well-being are slightly higher than the mathematical average, as opposed to the psychological distress scale whose scores are lower. Based on the results, it can be concluded that the respondents nurture positive aspects of mental health and satisfying life, but that on the other hand, at some moments they still have the tendency to show very severe depressive symptoms with reference to the CES-D score accompanied by anxiety and loss of the emotional – behavior control. The reliability of all 3 scales is acceptable (Table 2).

Gender differences

The next result was aimed at determining whether there are differences between men and women in life satisfaction, depression symptoms, and mental health. Based on the results, statistical significance indicates that there are differences between male and female respondents on SWLS ($t = 2.103$, $p < 0.05$) and ANX ($t = 2.278$, $p < 0.05$). Male respondents expressed higher satisfaction with life, but women had higher scores in anxiety. Within the subscale of psychological well-being, life satisfaction had a result on the verge of significance, characteristic of men. The significance of testing the remaining mean scores ($p > 0.05$) still indicates the uniformity of tendencies of men and women in their expression (Table 3).

Age differences

The results of one-way ANOVA have shown that there are mean differences between the respondents of different age groups in loss of emotional-behavioral control

Table 2. Descriptive statistic and the reliability of the satisfaction with life, depression symptoms and mental health scales of 210 employees in 3 privately-owned companies in the retail, health, and IT sectors in the Republic of Serbia, July–August 2020

Variable	Scale score				
	Min.	Max	M	SD	α
Satisfaction with life	15.00	35.00	24.26	4.374	0.742
Depression symptoms	16.00	47.00	33.84	9.521	0.765
Psychological well-being	26.00	78.00	47.80	11.642	0.660
Generally positive affect	19.00	47.00	34.80	5.686	0.634
Emotional connections	2.00	10.00	6.85	1.676	0.670
Life satisfaction	2.00	5.00	3.67	1.048	0.674
Psychological distress	21.00	52.00	38.48	6.322	0.625
Anxiety	9.00	38.00	20.07	5.731	0.697
Depression (MHI-38)	11.00	28.00	18.97	3.199	0.636
Loss of emotional-behavioral control	11.00	35.00	21.27	4.874	0.612

MHI-38 – *Mental Health Inventory – 38*.

Table 3. Differences in life satisfaction, depression symptoms and mental health in employees in 3 privately-owned companies in the retail, health, and IT sectors in the Republic of Serbia, July–August 2020

Variable	Participants (N = 210) [n]	Scale score			
		M	SD	$t_{(208)}$	p
Gender					
satisfaction with life				2.103	0.037
male	98	24.93	4.770		
female	112	23.67	3.909		
depression symptoms				0.824	0.222
male	98	34.01	8.762		
female	112	33.71	9.743		
psychological well-being				0.835	0.404
male	98	47.09	11.359		
female	112	48.43	11.888		
generally positive affect				0.380	0.704
male	98	34.96	5.771		
female	112	34.66	5.633		
emotional connections				0.247	0.805
male	98	6.88	1.667		
female	112	6.83	1.692		

Table 3. Differences in life satisfaction, depression symptoms and mental health in employees in 3 privately-owned companies in the retail, health, and IT sectors in the Republic of Serbia, July–August 2020 – cont.

Variable	Participants (N = 210) [n]	Scale score			
		M	SD	t ₍₂₀₈₎	p
Gender – cont.					
life satisfaction				1.956	0.052
male	98	3.82	1.015		
female	112	3.54	1.064		
psychological distress				0.824	0.222
male	98	34.00	8.762		
female	112	33.71	9.743		
anxiety				2.278	0.024
male	98	19.12	5.301		
female	112	20.91	5.981		
depression (MHI-38)				0.101	0.920
male	98	19.04	2.942		
female	112	18.95	3.420		
loss of emotional-behavioral control				1.033	0.303
male	98	21.64	4.570		
female	112	20.946	5.123		
Perception of living standard					
satisfaction with life				2.257	0.025
satisfying	110	23.56	4.444		
not satisfying	100	24.90	4.190		
depression symptoms				1.475	0.142
satisfying	110	34.74	9.184		
not satisfying	100	32.86	9.325		
psychological well-being				1.827	0.069
satisfying	110	46.41	12.213		
not satisfying	100	49.34	10.821		
generally positive affect				3.152	0.002
satisfying	110	33.65	5.361		
not satisfying	100	36.08	5.788		
emotional connections				1.095	0.275
satisfying	110	6.73	1.595		
not satisfying	100	6.99	1.760		

Table 3. Differences in life satisfaction, depression symptoms and mental health in employees in 3 privately-owned companies in the retail, health, and IT sectors in the Republic of Serbia, July–August 2020 – cont.

Variable	Participants (N = 210) [n]	Scale score			
		M	SD	t ₍₂₀₈₎	p
Perception of living standard – cont.					
life satisfaction				3.571	0.000
satisfying	110	3.43	1.065		
not satisfying	100	3.94	1.042		
psychological distress				2.929	0.001
satisfying	110	37.09	5.911		
not satisfying	100	40.02	6.432		
anxiety				1.631	0.104
satisfying	110	19.46	6.086		
not satisfying	100	20.75	5.261		
depression (MHI-38)				0.967	0.335
satisfying	110	18.77	3.350		
not satisfying	100	19.20	3.025		
loss of emotional-behavioral control				2.316*	0.022
satisfying	110	20.53	4.799		
not satisfying	100	22.08	4.850		
Education level					
satisfaction with life				0.019	0.885
high school	114	24.27	4.220		
university	96	24.23	4.558		
depression symptoms				1.343	0.181
high school	114	50.90	9.804		
university	96	49.13	9.126		
psychological well-being				1.689	0.093
high school	114	46.57	11.086		
university	96	49.28	12.151		
generally positive affect				0.042	0.767
high school	114	34.82	5.271		
university	96	34.79	6.171		
emotional connections				0.719	0.473
high school	114	6.78	1.676		
university	96	6.94	1.681		

Table 3. Differences in life satisfaction, depression symptoms and mental health in employees in 3 privately-owned companies in the retail, health, and IT sectors in the Republic of Serbia, July–August 2020 – cont.

Variable	Participants (N = 210) [n]	Scale score			
		M	SD	t ₍₂₀₈₎	p
Education level – cont.					
life satisfaction				0.011	0.891
high school	114	3.67	1.008		
university	96	3.65	1.100		
psychological distress				0.036	0.772
high school	114	38.50	5.816		
university	96	38.46	5.564		
anxiety				1.397	0.164
high school	114	19.57	5.367		
university	96	20.67	6.108		
depression (MHI-38)				0.965	0.336
high school	114	18.78	2.974		
university	96	19.20	3.448		
loss of emotional-behavioral control				1.973	0.053
high school	114	20.66	4.516		
university	96	21.98	5.200		

MHI-38 – *Mental Health Inventory* – 38.

df – degrees of freedom.

* $p < 0.05$.

($F = 4.427$, $p < 0.05$). The scores of the respondents of different age groups were not significantly different in life satisfaction, depression symptoms, and all the other sub-scale on the mental health inventory (Table 4).

Multiple comparisons (Table 5) have shown that there are differences between the youngest group of the respondents (aged 18–28 years) and the oldest group of the respondents (aged 42–68 years), where older respondents have shown a higher tendency to lose control than the younger respondents ($p < 0.05$).

Living standard

The next part of the results was related to the examination of the differences between respondents of different

perceptions of their living standards in the expression of life satisfaction, mental health, and depressive symptoms (Table 3). Based on the results, respondents who assess their living standard as unsatisfactory show higher tendencies on the scales of psychological well-being, general positive affect, and life satisfaction, but also have higher scores on the general score of psychological distress and its leading aspect related to loss of emotional and behavioral control ($p < 0.05$).

Thus, respondents who consider their living standard satisfactory and those who consider their living standard unsatisfactory equally evaluate themselves through the SWLS scale, but they are equal when it comes to the manifestation of depressive symptoms.

Table 4. Differences between the respondents of different age groups in life satisfaction, depression symptoms, and mental health in 210 employees in 3 privately-owned companies in the retail, health, and IT sectors in the Republic of Serbia, July–August 2020

Variable	SS	MS	F	p
Satisfaction with life	3987.067		1.087	0.339
between age groups	41.427	20.713		
within age groups	3945.640	19.061		
Depression symptoms	18 938.095		0.416	0.660
between age groups	75.885	37.943		
within age groups	18 862.210	91.122		
Psychological well-being	28 300.381		1.400	0.249
between age groups	377.727	188.864		
within age groups	27 922.654	134.892		
Generally positive affect	6758.381		0.324	0.724
between age groups	21.077	10.538		
within age groups	6737.304	32.547		
Emotional connections	587.714		1.938	0.147
between age groups	10.801	5.401		
within age groups	576.913	2.787		
Life satisfaction	229.981		1.621	0.200
between age groups	3.547	1.773		
within age groups	226.434	1.094		
Psychological distress	8354.457		0.464	0.629
between age groups	37.314	18.657		
within age groups	8317.143	40.179		
Anxiety	6864.781		0.434	0.649
between age groups	28.639	14.320		
within age groups	6836.142	33.025		
Depression (MHI-38)	2138.881		0.498	0.609
between age groups	10.232	5.116		
within age groups	2128.649	10.283		
Loss of emotional-behavioral control	4965.529		4.427*	0.013
between age groups	203.662	101.831		
within age groups	4761.867	23.004		

MHI-38 – *Mental Health Inventory* – 38.

SS – sum of squares; MS – mean square.

* $p < 0.05$.

Education differences

The last part of the results was related to the examination of the differences between employees of different education

levels in the expression of life satisfaction, mental health, and depressive symptoms (Table 3). Based on the results, all respondents with different levels of educational back-

Table 5. Multiple comparisons of the respondents of different age groups in subscale of mental health – loss of emotional-behavioral control in 210 employees in 3 privately-owned companies in the retail, health, and IT sectors in the Republic of Serbia, July–August 2020

Variable	I	J	Difference (I–J)	p
Loss of emotional-behavioral control score (M)	19.58 (18–28 years)	20.83 (29–41 years)	–1.25	0.125
	19.58 (18–28 years)	21.97 (42–68 years)	–2.39*	0.003
	20.83 (29–41 years)	19.58(18–28 years)	1.25	0.125
	20.83 (29–41 years)	21.97(42–68 years)	–1.14	0.162
	21.97 (42–68 years)	19.58(18–28 years)	2.39*	0.003
	21.97 (42–68 years)	20.83(29–41 years)	1.14	0.162

* $p < 0.05$.

ground have similar tendencies in life satisfaction, mental health, and depressive symptoms ($p > 0.05$).

DISCUSSION

At the beginning of the COVID-19 pandemic, many researchers assumed that it will cause mental health problems more frequently than usual and that will have effects on the different life circumstances even after the crisis ends.

This paper specifically deals with the mental health in the occupational context, because previous research has shown that mental health issues among the employees are the most common causes of negative organizational outcomes such as lower productivity [13,27] and higher rates of absenteeism [14] that may cause economic costs.

The results of this study have confirmed that employees from the Serbian sample are facing mental health issues during uncertain times [8]. The employees nurture positive aspects of mental health and satisfying life, but still, they do have the tendency to show very severe depressive symptoms accompanied by anxiety and loss of the emotional – behavior control.

In addition, the research confirmed that female employees are more vulnerable than men in times of uncertain conditions. The male population expressed higher satisfaction with life, which means that they are capable to maintain positive feelings with the regard to their global

evaluation, not caring too much about the current unstable situation which is certainly transient.

Even before the crisis, Parker and Roy [28] pointed out that women are more likely to have mental health issues, but other research also has shown higher scores in anxiety in female employees during the crisis [29]. Beside of the crisis it cannot be forgotten that women have broad responsibilities besides their professional roles, such as the main role in the household and childcare, so it can potentially influence on psychological distress levels.

Mental health issues of the older labor resources have been in focus. In order to maintain economic independence, they sometimes are forced to work even if they do not feel capable to do it. The study has shown that older employees might suffer from mental health issues [30]. It seems that during the crisis older labor force is still more vulnerable than the young employees, opposite to the previous researches that have shown that younger employees are more vulnerable to the crisis [15,16]. It seems that financial insecurity and the work uncertainty during the crisis has a cumulative effect on developing negative feelings in older employees who are more prone of losing control over their cognitive and emotional aspects of functioning.

The living standard has also had significant status on mental health and life satisfaction among the sample of employees. It is interesting that unsatisfying living stan-

dard is related to higher tendencies to generally positive affect and life satisfaction opposite to the previous results that have shown that low socioeconomic status influence on mental health issues [16].

This result can be affected by the limited possibilities in life for employees with the lower income, so the crisis did not affect their routine, unlike the employees with higher living standards who were able to enjoy their wealth on a daily basis not only to satisfy the basic needs, but the loss of emotional and behavioral control is a psychological danger for employees with the lower living standard.

Previous studies have shown that higher education buffers the mental health issues [10,18]. It was assumed that higher education usually positively shapes the future of the employees because it gives more opportunities in work-related environments which contribute to higher wages, but it seems that the situation of uncertainty does not differ in levels of psychological well-being or psychological distress among the employees.

CONCLUSIONS

The changes that are happening in the economic, social, and health spheres create preconditions for significant changes in the attitude towards mental health and even its definition. As an indicator of human survival and development, mental health is the basis of the quality of life and productivity of the individual, family, community, and nation, so research on mental health is extremely important from the 2 perspectives – public health and economic and social stability.

The study showed that the specific socio-demographic profile of the employees is related to higher levels of mental health issues. Specifically, mental health of female and older employees have been affected and disturbed by the pandemic. The results can be potentially used both in the terms of designing activities that support the mental health of the population, as well as in relation to the mental health of employees. The result can

be implied in designing activities that support identified groups of employees to cope with distress in different environments life and business so they can be more productive in the time during and after the crisis.

A limitation of this study is that it was a cross-sectional study with a relatively small sample and therefore causal relationships could not be identified, it could be only discussed the result which is related to the sample.

The conditions of uncertainty and risk will increase the negative aspects of mental health among specific socio-demographic characteristics of the employees, and how this will affect the behavior of employees in organizations even after this specific context, remains to identify in future studies. Mental health must be viewed in a global context, not as an isolated phenomenon, because it is related to all segments of life, and is the most important part of public health.

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