IMPACT OF THE COVID-19 INFECTION ON THE LIFE QUALITY

Ivana Ćavar[1], Ivan Vasilj[1], Ivana Čović[1,2]

[1]Faculty of Health Studies, University of Mostar

[2]Instutute for Public Health Federation of Bosnia and Herzegovina, 88000 Mostar, Bosnia and Herzegovina

Received on 10.01.2023. *Reviewed on 27.01.2023.* *Accepted on 09.02.2023.*

SUMMARY

Introduction: Due to the consequences of the COVID-19 pandemic, experts have expressed concern for psychological functioning and well-being globally, with a particular reference to life quality disorder.

Aim: To determine the connectin of recovery and the degree of life quality.

Respondents and methods: A cross-sectional survey is carried out. The sample in the research consist of persons of both sexes at the age of 18, who have recovered from the infection, reviewing more than a year since the beginning of this research. The test survey was done by 384 respondents, which was carried out from October to December 2022. It was used a questionare survey, designed for research purpose, consisting of socio-demographich characteristics, characteristics of COVID-19 infection and consequences of COVID-19 infection.

Results: By the comparison of established frequencies of response, confirmations of agreement and disagreement of the claims examinated is established that significantly higher percentage of respondents have noticed, in their functioning after COVID-19 infection, the appearance of fatigue and muscles weakness (65,9%), significant hair loss (57,8) and higher level of symptoms of depression and anxiety (43,8%).

Conclusion: The COVID-19 pandemic has markedly influenced life quality and has affected all aspects of life and health.

Keywords: Life quality, pandemic, COVID-19, disease, consequences.

Individuals to exchange information: Ivana Ćavar, mag. Saint. Ing.

E-mail: ivana.cavar@fzs.sum.

INTRODUCTION

In the city of Wuhan, China, in December 2019 was discovered Coronavirus disease, which initiated emergency interventions globally in the publich health and it was declared, worldwide, as a pandemic by World Health Organisation (WHO). The pandemich has affected more than 200 countries including their economy and global health (1). The majority of infected population has experienced mild to moderate respiratory disease, excluding the need of special treatment. Eldery patients and those with more serious disesase such as cancer, diabetes, chronic disesase of respiratory system were developing serious symptoms and form of disesase and were hospitalised (2). The life quality, according to WHO is defined as ,, an individual perception of own life situation, understood in a cultural contex, value system and in relation to aims, expectations and standards of the certain society (3). From such a perspective, the life quality associated with health includes fields such as psychological state, physical health, level of one's self-reliance and independence (4). Due to the consequences of pandemic COVID-19, experts have expressed concern for psychological functioning and well-being globally, with a particular reference to life quality disorder (5). By the appearance of COVID-19 our everyday life is changed-life that consists of work and study, spending one's own time, social gathering and suchlike (6). From the beginning of the expansion of the virus from China, WHO has introduced a contagion as ,, an infodemia''. The expression ,,infodemia'' is used as a neologism from the words ,,information'' and ,,epidemic'' and it was supposed to indicate media construction of infection and to message the world that there are no excessive risk of COVID-19 (7). The most significant implemented measure was so-called quarantine that is, forcing people to stay at home by means of curfew of various lengths (8). Because of the pandemic progression the number of newly infected people was getting higher, as well as the number of the hospitalised people, people in critical conditions persons who succumbed to infection of Corona virus and standards in the world were becoming increasingly stringent. Latest and greatest state took over-complete lockdown (9). Strict compliance with preventive measures, including wearing protective masks, frequent hand washing, surface disinfection, and above all social distancing and quarantine of infected individuals have importantly influenced locking themselves inside their homes, to be able to work or to function from home, people were dependent on the internet connection (10). During the quarantine some individuals had a higher risk of increasing a wide range of negative emotions, such as fear, rage, guilt and the feeling of losing control over their own life (11). The aim of the research was to establish the link between recovery of COVID-19 and the degree of life quality.

RESPONDENTS AND METHODS

A cross-sectional survey is carried out. The research sample includes persons of both sexes at the age of ≥ 18, who have recovered from the infection, reviewing more than a year since the beginning of this research. The survey includes male and female respondents, persons ≥ 18 years old and a certificate of a cured COVID-19 infection reviewing a previous year and more. The survey excludes persons younger than 18, persons who did not have COVID-19 and persons who have an infection in the period leading up to a year since the beginning of this research. The survey was created used software for administration survey Google Forms, a part of free internet package Google Docs Editors. Due to the nature of research organisation an ethical licence was not mandatory for this survey. Informed consent for participants had been introduced with their rights and with the possibility of abandonment of the survey at any moment. Participating in research and filling the survey shall be considered as a signed information participant's consent. The survey does not contain collection of personal data of participants (name, last name), what means that this research is absolutely anonymously. The aim and the purpose of research, as well as approximate time needed to fill survey are mentioned in introductory part of research, as well as covering note, where participants can find the link with access to survey. The survey is divides into two parts. First part contains participant's demographic characteristic (five questions; age, sex, address, educational and work status) and a certificate of an cured COVID-19 infection (two questions; nominal character; YES/NO and an essay question; the period of a present infection. The second part of survey refers to the presence of possible difficulties after the COVID-19 infection (8 questions). The life quality and consequences of the COVID-19 infection were tested through 16 self-created questions. The sample size is established via online programme available on the page https://www.openepi.com/SampleSize/SSPropor.htm. With the assumption that 50% of the participants will have impaired life quality as a result of COVID-19 infection, 95% confidence range, 5% absolute mistake the programme has calculated that are needed total of 384 participants.

Statistical analysis

The data were processed using the methods of descriptive and inferential statistics. The normality of data distribution was performed by visual inspection of the histogram. Categorical data are presented with absolute and relative frequencies, and the comparison of the obtained frequencies was tested with the Chi-square test. Quantitative data are presented with the arithmetic mean and standard deviation, and the comparison of the obtained values was tested with the Student's t-test for independent samples. The level of significance in all measurements was $p<0.05$. Data analysis was performed using the statistical program IBM SPSS Statistics for Windows, version 23.0 (IBM Corp., Armonk,

NY, USA). Microsoft Excel (version 14.0, Microsoft Corporation, Redmond, WA, USA) was used to display the results.

THE RESULTS

A total of 384 respondents answered the survey, women (59.9%) ountumbered men (40.1%). The largest percentage of respondents were between the ages of 18 and 30, with secondary education (60.1%), employed (61.1%), living in a city (57.8%). Other sociodemographic characteristics of the respondents are shown in table 1.

Table 1. Sociodemographic characteristics of respodentes.

Characteristics	Total Sample	
	N	%
Sex(n=384)		
Man	154	40,1
Woman	230	59,9
Age (n=381)		
18 – 30	230	60.4
31 – 40	103	27.0
41 - 50	31	8.1
51 - 60	17	4.5
Place of residence (n=382)		
Village	161	42.1
City	221	57.9
Education (n=383)		
Elementary school	6	1.6
High school	230	60.1
Undergraduate studies	110	28.7
Graduate study	33	8.6
*The rest	4	1.0
Working status (n=383)		
Disciple/student	88	23.0
Employed	234	61.1
Unemployed	56	14.6

Pensioner	5	1,3

*Not all respondents answered all statements; Other (masters of profession, doctors of science).

Almost all respondents have recovered from the COVID-19 infection, 98.2 % of them answered yes to this test question. Overcoming the COVID-19 infection was confirmed by all men, and only 1.8 % (n=7) of the women declared that they did not have a COVID-19 infection. The respondents mainly got over the infection of COVID 19 one year (44.5 %) and two (36.7 %), and the presence of the same infection half a year ago from the beginning of the research was confirmed by 18.8 % of the respondents Figure 1.

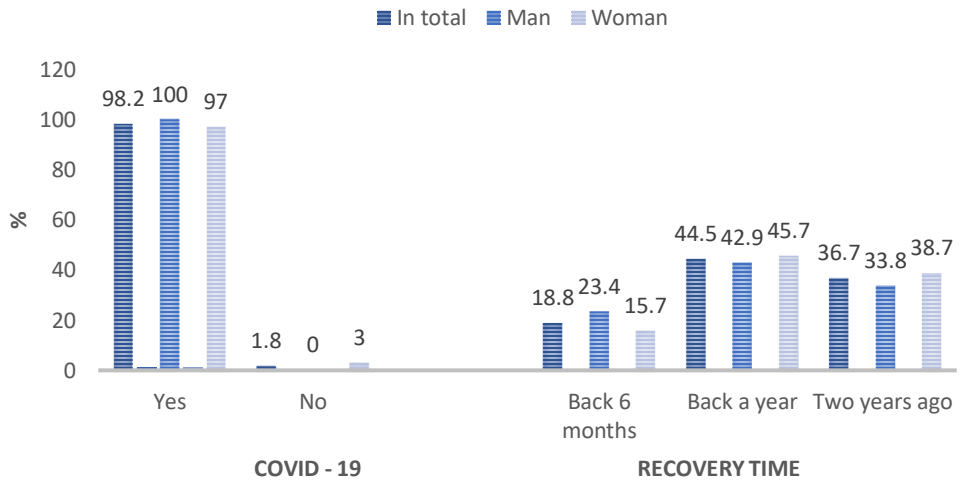

Figure 1. Representation of answers to test questions in relation to recovery from the COVID-19 infection.

The range of determined averages in the total sample in the tested claims ranged from 2.64 to 3.38; the highest average score was determined for the statement of observed more frequent occurrence of cough and headache (M=3.38, SD=1.34), and the lowest for the statement of the presence of greater fatigue and muscle weakness after COVID-19 (M=2.64, SD =1.44). On average, women had higher scores in all examined statements compared to men. By comparing the established averages, a statistically significant difference was confirmed in most of the claims, except for the claim that they noticed increased hair loss after COVID-19 (p=0.164). The results of the Student's t-test for independent analysis are shown in Table 2.

Table 2. Average values of physical and mental quality of life assessments.

	In total	Man	Woman	t	df	p
After COVID I notice:						
1. Greater fatigue and muscle weaknes	2,64±1,44	2,23±1,22	2,90±1,52	-4,54	371	<0,001
2. Sleep problems	3,05±1,40	2,73±1,33	3.22±1,40	-3,40	371	0,001
3. Increased hair loss	2,83±1,46	2,67±1,41	2,89±1,48	-1,39	371	0,164
4. Smell and taste disturbances	3,18±1,41	2,79±1,41	3,41±1,36	-4,28	371	<0,001
5. Feeling more depressed and anxious	3,21±1,33	2,92±1,33	3,39±1,30	-3,40	371	0,001
6. Problems with memory and concentration	3,04±1,36	2,64±1,34	3,25±1,32	-4,38	372	<0,001
7. Breathing difficulties (rapid breathing, shortness of breath for no reason)	3,02±1,47	2,58±1,40	3,26±1,44	-4,53	373	<0,001
8. More frequent occurrence of cough and headache	3,38±1,34	3,17±1,31	3,50±1,34	-2,36	373	0,019

t - value of the Independent Student t test; df – degrees of freedom; p – statistical significance ($p<0.05$)

When we interpret the same statements on a Likert scale, it is noticeable that there are no major oscillations in the representation of affirmative and negative answers. A sufficient percentage of respondents who got over COVID-19 were reserved, that is, they neither agreed nor disagreed with the stated statements (Table 3).

Table 3. Interpretation of examined physical and mental characteristics of the subjects.

	The number of respondents who confirmed that they have recovered from COVID-19 N=377				
	Totally agree	Agree	Restrained	I don't agree	Completely disagree
After COVID I notice:	N (%)	N (%)	N (%)	N (%)	N (%)
1. Greater fatigue and muscle weaknes *	105 (28,2)	100 (26,8)	62 (16,6)	41 (11,0)	65 (17,4)
2. Sleep problems*	64 (17,2)	85 (22,8)	82 (22,0)	63 (16,9)	79 (21,2)
3. Increased hair loss*	97 (26,0)	78 (20,9)	70 (18,8)	59 (15,8)	69 (18,5)
4. Smell and taste disturbsnces*	60 (16,1)	75 (20,1)	78 (20,9)	69 (18,5)	91 (24,4)
5. Feeling more depressed and anxious *	45 (12,1)	83 (22,3)	81 (21,5)	81 (21,5)	83 (22,3)
6. problems with memory and concentration†	66 (17,6)	78 (20,9)	88 (23,5)	73 (19,5)	69 (18,4)
7. breathing difficulties (rapid breathing, shortness of breath for no reason)§	84 (22,4)	69 (18,4)	73 (19,5)	67 (17,9)	82 (21,9)
8. More frequent occurrence of cough and headache§	40 (10,7)	71 (18,9)	76 (20,3)	89 (23,7)	99 (26,4)

** 373 respondents who have recovered from COVID-19 answered the test statement;*

† 374 respondents who recovered from CVOID-19 answered the test statement;

§ 357 respondents who recovered grom COVID-19 answerd the test statement;

By comparing the established frequencies of responses confirming agreement and disagreement with the examined statements, it was determined that a significantly higher percentage of respondents in their functioning after COVID-19 noticed the appearance of greater fatigue and muscle weakness, more significant hair loss, a greater level of symptoms of depression and anxiety, and the appearance of more frequent coughing attacks and headaches. In the other statements, there was no significant difference in the negative answers with which the respondents evaluated the observed changes in physical and mental characteristics in everyday functioning. The determined frequencies and the results of the Chi-square test analysis are shown in Table 4.

Table 4. Results of the analysis of the determined frequencies of agreement and disagreement with the presence of consequences.

After COVID I notice*:	I Agree N (%)	I don't agree N (%)	X_2	df	p
1. Greater fatigue and muscle weaknes	205 (65,9)	106 (34,1)	30,39	1	<0,001
2. Sleep problems	149 (51,2)	142 (48,8)	0,003	1	0,954
3. Increased hair loss	175 (57,8)	128 (42,2)	5,44	1	0,020
4. Smell and taste disturbamces	135 (45,8)	160 (54,2)	2,98	1	0,084
5. Feeling more depressed and anxious	128 (43,8)	164 (56,2)	5,37	1	0,020
6. Problems with memory and concentracion †	144 (50,3)	142 (49,7)	0,055	1	0,815
7. Breathing difficulties (rapid breathing, shortness for no reason)§	153 (50,7)	149 (49,3)	0,013	1	0,909
8. More frequent occurrence of cought and headache§	111 (37,1)	188 (62,9)	21,05	1	<0,001

***** *Answer Restrained excluded from the analysis*

DISCUSSION

In addition to the significant impact on health systems around the world, the COVID-19 pandemic has also strongly influenced the lifestyle and habits of the population (12). In order to contain the spread of the virus, the whole world was affected by strict infection prevention measures, which included increased care for hygiene and mandatory wearing of protective masks, maintenance of social distance, then lockdown or partial closures (13). The feeling of insecurity due to the uncertainty of the pandemic situation as well as the described measures to prevent the spread of the virus had a negative impact on the mental health of the population, but also caused economic problems and further damaged the mental health and habits of the population (14). The seriousness of the disease, insecurity, unpredictability, social isolation and financial difficulties, according to Ravi Philip's research, are some of the main factors that contribute to the negative impact of the pandemic on mental health (15). Research conducted in Spain shows that approximately 43% of patients treated in an intensive care unit develop depression and post-traumatic stress (16). Previous studies have indicated that the massiveness, uncertainty and low predictability of the coronavirus, along with restrictive protection measures, in addition to threats to physical health, represent significant threats to mental health, causing negative cognitive assessments and emotions, as well as more frequent occurrence or worsening of psychopathological symptoms (17). Measures to prevent the spread of the virus result in frequent and long-term stays in closed spaces, isolation, reduced physical activity, as well as problems with food procurement, which can affect eating habits and generally significantly change the lifestyle of the population (18). After two months of the declaration of quarantine, a descriptive survey of an average of 279 Moroccan citizens was conducted, which shows the results of the COVID-19 epidemic. The data was collected through a questionnaire distributed on the Internet, and a short-form health survey (SF-12) was used as a determinant of the quality of life, which shows the results of the COVID epidemic. – 19 (19). The participants who took part in the research conducted in Morocco provided their sociodemographic data and their knowledge regarding the COVID-19 pandemic and whether they had chronic health problems. The quality of life of all participants was moderately impaired during the COVID-19 pandemic with a mental health score of 34.49 (± 6.44) and a physical health score of 36.10 (± 5.82). Participants with chronic diseases scored lower with 29.28 (± 1.23) in mental health and 32.51 (± 7.14) in physical health (20). Through this survey, it was shown that after COVID-19, 43.8% of respondents have feelings of depression and anxiety, 50.3% of respondents have problems with attention and concentration, and greater fatigue and muscle weakness were confirmed by 65.9% of respondents. While research data from Denmark confirm that the quality of life of respondents is impaired due to the increased concern of the general population due to financial

conditions and the consequences of the pandemic on the emotional state of individuals, through this research was shown that isolation and closure from the rest of the world was confirmed by 85.6% of respondents, women expressed a higher percentage of agreement that social distance impaired the normal functioning of life compared to men (X2 (1) = 21.10; p<0.001) (21). In a study conducted by the Faculty of Philosophy of the University of Zagreb, the researchers came to the conclusion that during the pandemic and lockdown, children missed friends and their peers, family and spending time in nature the most (22). Research in Italy found that among all respondents there were 67.2% non-smokers and 32.8% smokers, with 5.6% of smokers smoking more during the COVID-19 pandemic, 23.5% of smokers smoking the same before pandemic, while 3.7% of smokers smoked fewer cigarettes than before the pandemic (23). People feeling insecure and anxious during big changes in their environment. In outbreaks of infectious diseases when the cause and outcome of the disease are unclear, there is an increased level of anxiety and fear among members of society (24). An Australian study from 2020 found that social, work and financial disruptions caused by the COVID-19 epidemic are associated with significant damage to community mental health (25).

CONCLUSION

The COVID-19 pandemic has had consequences on all aspects of life and health. The consequences that remain affect humanity both physically and psychologically. The conducted research is in support of numerous researches that have been conducted on similar topics. It was confirmed that among the respondents, the normal functioning of life was impaired, which was reflected in a number of physical and psychological consequences. Thus, we have proven difficulties with breathing, fatigue, muscle weakness, as well as difficulties with memory and concentration, symptoms of depression and anxiety. All of the above confirms the fact that the COVID-19 pandemic has significantly affected the quality of life, and has reduced it.

REFERENCES

1. Brečić P, Jendričko T, Vidović D, Markić P, Ćurković M, Ćelić I. Impact of the COVID-19 pandemic on patients with anxiety and depressive disorders. Medicus. 2020;29(2):237-242.
2. Wang C, Horby PW, Hayden FG, Gao GF. A novel coronavirus outbreak of global health concern. Lancet, 2021;3(9):470-473.
3. Bubaš M, Krunoslav C. Return of health and strength after Covid-19, Donja Stubica. 2022:8.
4. Cucinotta D, Vanelli M. WHO declares COVID-19 a pandemic. Acta Biomed. 2020;9(1): 157-160.
5. Zhang SX, Wang Y, Rauch A, Wei F. Health, distress and life satisfaction of people in world one month into the COVID-19 outbreak. Psychiatry Res. 2020;2(3):88-112.
6. Sher L. Post – COVID syndrome and suicide risk. QJM an Int J Med. 2021;114(2):95-8.
7. Xu Z, Li S, Tian S, Li H, Kong LQ. Full spectrum of COVID-19 severitly still being depicted. Lancet. 2021;4(16):947-948.
8. Bedford J, Enria D, Giesecke J, Heymann DL, Ihekweazu C. COVID-19: towards controlling of a pandemic. Lancet. 2021;1(1):1015-1018.
9. Galea S, Merchant RM, Lurie N. The mental health consequences of COVID-19 and physical distancing: the need for prevention and early intervention. JAMA Internal Medicine. 2018;1(2/3):164-265.
10. Bao Y, Sun Y, Meng S, Shi J, Lu L. 2019-nCoV epidemic: Address mental health care to empower society. Lancet. 2020:37-58.
11. Shimizu K. 2019-nCoV, fake news, and racism. Lancet. 2021;1:685-696.
12. Power K. The COVID-19 pandemic has increased the care burden of Maroccan population. Science Practice and Policy. 2020;16(1):67-73.
13. Xu Z, Li S, Tian S, Li H, Kong LQ. Full spectrum of COVID-19 severity still being depicted. Lancet. 2021;4(16):947-948.
14. Zhang SX, Wang Y, Rauch A, Wei F. Health, distress and life satisfaction of people in world one month into the COVID-19 outbreak. Psychiatry Res. 2020;2(3): 88-112.
15. Rajkumar RP. COVID-19 and mental health; A review of the existing literature. Asian J Psychiatar.2020;52:102066.
16. Nguyen HC, Nguyen MH, Do BN, Tran CQ, Nguyen TTP. People with suspected COVID-19 symptoms were more likely depressed and had lower health-related quality of life: The potential benefit of health literacy. J Clin Med. 2020;4(7):9-65.
17. Losada-Baltar, A., Jiménez-Gonzalo, L., Gallego-Alberto, L., Pedroso-Chaparro, M.D.S., Fernandes-Pires, J., Márquez-González, M. “We’re staying at home”. Association of self-perceptions of aging, personal and family resources and loneliness with psychological distress during the lock-down period of COVID-19.J. Gerontol. B. Psychol. 2020.

18. Abdel-Moneim AS. Middle-East respiratory syndrome coronavirus: Is it worth a world panic? World J Virol. 2015;4:185-187.
19. Peter LS, Shah E, Leon G, Martin M. Bearing the brunt of covid-19: older people in low and middle income countries. BMJ. 2021;3(6):8-52.
20. Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. The Lancet. 2020;9(5):912- 920.
21. Murayama H, Okubo R, Tabuchi T. Increase in Social Isolation during the COVID-19 Pandemic and Its Association with Mental Health: Findings from the JACSIS 2020 Study. Int J Environ Res Public Health. 2021 Aug 4;18(16):823-8.
22. Dziechciaż M, Filip R. Biological psychological and social determinants of old age: biopsycho-social aspects of human aging. Ann Agric Environ Med. 2014;21(4):835-8.
23. Ayalon, L., Chasteen, A., Diehl, M., Levy, B.R., Neupert, S.D., Rothermund, K., Tesch-Römer, C. &Wahl, H.W.Aging in times of the COVID-19 pandemic: Avoiding ageism and fostering intergenerational solidarity, The Journals of Gerontology: Series B. 2020.
24. Gavin B, Lyne J, McNicholas F. Mental health and the COVID-19 pandemic. Ir J Psychol Med. 2020 Sep;37(3):156-15.
25. Dawel A, Shou Y, Smithson M, Cherbuin N, Banfield M i suradnic: he Effect of COVID-19 on Mental Health and Wellbeing in a Representative Sample of Australian Adults. Front Psychiatry. 2021 Jan 21;11:619331

UTJECAJ PANDEMIJE COVID-19 NA KVALITETU ŽIVOTA

Ivana Ćavar[1], Ivan Vasilj[1], Ivana Čović[1,2]

[1]Fakultet zdravstvenih studija Sveučilišta u Mostaru

[2]Zavod za javno zdravstvo Federacije Bosne i Hercegovine, 88000 Mostar, Bosna i Hercegovina

SAŽETAK

Uvod: Zbog posljedica pandemije COVID – 19 stručnjaci za mentalno zdravlje izrazili su zabrinutost za psihološko funkcioniranje i dobrobit zajednice u cijelom svijetu s posebnim osvrtom na poremećaj kvalitete života.

Cilj: Utvrditi povezanost preboljenja COVID-19 i stupanj kvaliteteživota.

Ispitanici i metode: Provedeno je presječno online istraživanje. Uzorak u istraživanju čine osobe oba spola, životne dobi ≥ 18 godina koje su preboljele COVID-19 infekciju unatrag godinu i više od početka ovog istraživanja. Na ispitnu anketu odgovorilo je 384 ispitanika, a istraživanje je provedno od listopada do prosnica 2022. godine. Korišten je anketni upitnik osmišljen u svrhu istraživanja, koji se sastojao od sociodemogfarskih obilježja, obilježlja COVID – 19 infekcije i posljedica COVID - 19 infekcije.

Rezultati: Usporedbom utvrđenih frekvencija odgovora potvrde suglasnosti i nesuglasnosti sa ispitivanim tvrdnjama utvrđeno je da je značajno veći postotak ispitanika u svom funkcioniranju nakon COVID - 19 opazio pojavu većeg umora i slabosti mišića (65,9 %), značajnije opadanje kose (57,8 %) i veću razinu simptoma depresivnosti i anksioznosti (43,8 %).

Zaključak: Pandemija COVID-19 izrazito je utjecala nakvalitetu života i ostavila je posljedice na sve aspekte života i zdravlja.

Ključne riječi: kvaliteta života, pandemija, COVID-19, bolest, posljedice.

Osoba za razmjenu informacija:

Ivana Ćavar, mag. sanit. ing.

E-mail: ivana.cavar@fzs.sum.ba