THE PERCEIVED ASSESSMENT OF COVID-19 IMPACT ON MENTAL FUNCTIONING AND SUICIDALITY IN ADULT POPULATION OF SERBIA

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Received: 10.10.2023.
Accepted: 04.01.2024.

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ABSTRACT

The aim of the study was to determine the extent to which people in Serbia in the post-pandemic period assess the impact of coronavirus pandemic on their mental/professional functioning, and whether this assessment is correlated with the occurrence of suicidal ideation and behaviours. The retrospective-prospective study was conducted online via Google Forms during January 2023. The sample included 341 respondents from the general population, 250 women (73.3%) and 91 men (26.7%), aged from 19 to 72 (M=36.41, SD=14.72). Sociodemographic questionnaire, a questionnaire on the pandemic effects, and the Risk Assessment Suicidality Scale were used to obtain data. The respondents assessed the pandemic not to have exerted a significant effect on their mental life (M=1.19±0.84) and professional functioning (M=1.55±1.02). The women, university students, pensioners and single respondents reported a greater impact of the pandemic on mental functioning, while university students and single respondents reported a greater impact on professional functioning. The respondents who were assessed to be at suicide risk (15.8%) reported a higher effect of the pandemic on mental (U=5385, p<0.001) and professional functioning (U=5799, p<0.01). Multivariant binary logistic regression showed that having a family history of mental disorders (odds ratio 2.73), younger age (OR, 1.1) and not being in a relationship (OR, 0.49) increased suicide risk in this sample. Results are in line with previous findings indicating that women, university students and pensioners reported a higher effect of the pandemic on the level of stress, depression and anxiety symptoms. The study also speaks in favour of a specific vulnerability of people suffering from mental difficulties after the pandemic.

Keywords: *COVID-19, pandemic, mental functioning, suicidality.*

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UDK: 613.86-053.81(497.11)
UDK: 616.98:578.834
Eabr 2025; 26(1):085-091
DOI: 10.2478/eabr-2024-0001

INTRODUCTION

The COVID-19 pandemic has been the most serious pandemic in the last hundred years since the Influenza Epidemic of 1918. First cases were detected in Wuhan, China, in December 2019, after which the virus started to spread rapidly worldwide. The World Health Organisation declared the outbreak of COVID-19 to be a public health emergency on 30 January 2020, and on 11 March 2020 the pandemic itself was declared (1). The first case of COVID-19 in Serbia was reported in March 2020, and over 2.5 million of cases have been reported so far, with over 17.000 deaths (2).

Psychological risk in times of crisis

Unpredictability, uncertainty and lack of control are basic characteristics of every crisis (herein: in the event of a pandemic), representing some of the key stressors that can worsen the pre-existing mental disorders in individuals and/or result in the development of the new ones (3). During pandemics, individuals experience the fear of the unknown, fear of diseases and death, as well as the feeling of helplessness, which is an additional risk to mental health (4-6).

As in most countries round the world, preventive health measures were introduced to stop the spread of virus in Serbia, including restrictions to human mobility, travel restrictions and lockdowns. The introduction of such measures caused an increase of mental tension at the community level, along with intensified fear, feeling of isolation, worries about one's own life, as well as life and health of the beloved ones. On the individual plane, there was deterioration of mental health and/or worsening of the pre-existing symptoms and the occurrence of the new ones (5). Research results in Serbia indicate that there was an elevated level of stress, anxiety and depression during lockdowns (7).

The pandemic also exerted a great influence on professional functioning of people.[1] Many people were left jobless, many of them experienced fear of losing their jobs. A great number of people started working from home, schools and universities were shut down, which lead to distance learning, adaptation and a different organisation of everyday activities and habits (6, 8). All the stated thus potentially impacted on human mental health.

Suicidality

Suicidality represents a complex phenomenon referring to the existence of some form of suicidal behaviour. The form of suicidal behaviour that leads to death – suicide, represents an active or passive self-destructive act in which an individual consciously and deliberately takes their own life (9-10). Suicide attempts also relate to self-harm with a specific degree of suicidal intent, not resulting in death. As a rule, suicide and/or suicide attempt is preceded by suicidal thoughts.

According to the World Health Organisation reports, every year more than 700.000 people commit suicide, with over 20 suicide attempts accompanying each (11). Suicide is a multifactorial phenomenon. A great number of adoption and twin studies, neurotransmission research, together with suicide completers' case history, point to the importance of genetic predispositions (12, 13). On the other hand, unfavourable environmental factors, such as stressful life events (14,15) and trauma histories (16,17) contribute to a great extent to the development of self-aggression and suicidal impulses in individuals. Although suicide is typically related to persons with some mental disorders (18-20), many suicides occur in persons with no history of mental illnesses in times of psychological crises and/or inability to cope with stressful life events (15). The coronavirus pandemic is definitely a large-scale crisis, and the mentioned risk factors during the pandemic have been acknowledged as risk factors for the occurrence of suicidality (3). Knox (21) states that traumatic experiences may have a large effect on mental health and lead to suicidal behaviour that can be manifested immediately after the pandemic, but also after many years. Research into human behaviour upon catastrophes and massive crises (cf. 22) show that a period of disappointment, injustice and reorganisation frequently occurs after a period of active struggle with the traumatic event (characterised by hope, optimism, commitment and cooperation), which may last for a few years following the crisis, with the possibility of triggering mental health issues in survivors.

Studies conducted in Serbia reported on an increasing number of suicide attempts, as well as other forms of suicidal behaviour in the previous two years, when the pandemic was at its peak and most threatening to people (23-25). Besides, an elevated level of stress was also recorded, together with the increased level of anxiety, depression, fear of losing someone, loneliness, among the general population, but also the population of people with pre-existing mental health issues (3,6).

Suicidal behaviour may occur even in a longer period after the initial crisis is over if an individual does not cope with the consequences of such a crisis. Accordingly, the subject matter of this study is the assessment of the pandemic impact and suicidality in the period *following the pandemic*. The aim of this research was to determine the extent to which people in Serbia in the post-pandemic period assess the impact of coronavirus pandemic on their mental and professional functioning, and whether this assessment is correlated with the occurrence of suicidal behaviours.

[1] In this paper, *professional functioning* entails work as well as study duties, as well as all forms of work engagement such as full- or part-time jobs, freelancing, and studying.

MATERIALS AND METHODS

This retrospective-prospective study was conducted online via Google Forms during January 2023, the method of collecting the data was snowball sampling. The research was anonymous, the participation in it voluntary in line with the Declaration of Helsinki. The study was approved by the Ethics Committee for Psychology Research, University of Kragujevac (Decision no. 7/2022). Informed consent was obtained from all respondents.

Sample

The sample recruited for the study involved 341 respondents from the general population, out of which 250 women (73.3%) and 91 men (26.7%), aged from 19 to 72 (M=36.41, SD=14.72). Out of the total number of respondents, 111 of them reported to be single (32.6%), 120 to be married (35.2), 83 to be in a relationship (24.34%), 16 to be divorced (4.69%), 6 to be a widow/widower (1.76%), and 5 did not belong in any of the listed categories – others (1.46%).

With regard to the employment status of the respondents, the majority of them were employed, i.e. 186 of them (54.54%), then 124 university students (36.36%), 17 unemployed (4.98%) and 14 pensioners (4.1%).

Out of the total number of the respondents, 234 reported to have been infected with COVID-19, out of which 208 had a mild clinical course (60.99%), 22 were asymptomatic cases (6.45%), and 9 underwent hospital treatment (2.64%).

Instruments

All the respondents filled in a sociodemographic questionnaire (to determine their sex, age, education, marital and employment status, chronic somatic illness(es), family history of mental disorders etc), a questionnaire on the pandemic (whether they have been infected with COVID-19, what their clinical course was like, whether they have been vaccinated against the coronavirus etc). The respondents also answered two questions on a four-point scale (ranging from 1 – not at all to 4 – very much), where they had to assess the impact of the pandemic on their mental and professional functioning, and they also completed the RASS scale.

Risk Assessment Suicidality Scale (RASS) is an instrument assessing suicide risk in the general population, and in population of patients with mental disorders (26). The scale includes twelve items which describe suicide-related behaviour on a scale ranging from 0 (not at all) to 3 (very much), grouped into three subscales: Intention (e.g. *Do you make plans concerning the method to use in order to finish your life*?), Life (e.g. *Have you felt that it's not worth living?*) and History (e.g. *Have you ever attempted suicide during your whole life so far?*). The study employed the standardised version for Serbian population, consisting of 9 items, which displayed good internal consistency and construct validity (α=.87), as well as discriminative power (27). In this study the RASS internal consistency coefficient was (α=.84). This version of the scale retained the three-factor model, but the factors were expanded as follows: Intention and planning (4 items), Life evaluation (3 items), and History of suicide attempts (2 items). These factors were in moderate-to-high intercorrelation, which supports a three-facet construct (27). The scale makes use of standardised scoring of items (items are differently weighted because not all items have equal predictive value in relation to suicide risk). Based on the cut-off scores, the respondents who had a score higher than 253 were placed in the group with suicide risk.

Statistical analyses

Since the distribution of the scores of the main variables deviated from the normal distribution, differences in frequencies were computed by means of the Chi-square test, and differences in scores via Mann–Whitney and Kruskal-Wallis tests. The correlation was examined by Spearman correlation coefficients. Multivariate binary regression analysis was performed to identify the predictors of suicide risk. SPSS22 was employed to perform statistical analyses.

RESULTS

The impact of the pandemic

The majority of the respondents assessed the pandemic not to have exerted a significant effect on their mental life, and only 15 respondents (4.4%) reported that the pandemic had a large impact on their mental functioning (M=1.19, SD=.84, Sk=.076, Ku=-.835), whereas 70 respondents (20.5%) stated that the pandemic had a large influence on their professional functioning (M=1.55, SD=1.02, Sk=-.081, Ku=-1.091).

Low negative correlations were detected between the age of the respondents and the perceived impact of the pandemic on mental ($r=-0.139$, $p=0.01$) and professional functioning ($r=-0.160$, $p<0.01$).

The women from the sample reported a higher influence of the pandemic on mental functioning (M=1.24) than men (M=1.04), but this was a borderline difference ($U(341)=9847.5$, $p=0.044$). No difference in sex was found concerning the perceived effect of the pandemic on professional duties ($U(341)=10912.5$, $p=0.551$).

The respondents who were single estimated a greater impact of the pandemic on mental ($U=11608$, $p<0.01$) and professional functioning ($U=12085$, $p<0.05$) than those engaged in some type of a relationship.

Regarding the employment status of the respondents, significant differences were detected between the groups in the perceived influence of the pandemic on mental functioning ($H(3)=12.631$, $p<0.01$), with the university students (M=1.4) and pensioners (M=1.29) being at the forefront. Likewise, significant differences were found in the degree of the perceived impact of the pandemic on professional functioning ($H(3)=13.917$, $p<0.01$), where the university students

reported the greatest effect (M= 1.74), while the pensioners reported the smallest (M= 0.71).

According to the level of education criterion, no significant differences were detected in the perceived impact of the pandemic on mental (H(2)=3.548, p=0.170), nor professional functioning (H(2)=3.665, p=0.160).

Suicidality

Out of the total number of the respondents, 54 of them (i.e. 15.8%) were under suicide risk (RASS score higher than 253). Moreover, 58 respondents (i.e. 17%) reported the existence of suicidal ideations to a certain extent (Intention and Planning factor), while 33 respondents (i.e. 9.7%) reported that they had harmed themselves intentionally, and 5 of them (1.5%) attempted suicide.

Basic descriptive data for the total score on RASS, as well as the scores on each of the three factors have been presented in Table 1.

Table 1. Descriptive statistics of RASS scores

	Min	Max	M	SD	Sk	Ku
RASS score	0	885	121.80	172.698	2.108	4.601
Intention and planning	0	400	29.09	79.134	3.305	11.001
Life evaluation	0	300	81.79	91.428	.894	-.466
History of suicide…	0	200	10.92	34.500	3.325	11.364

Significant differences by the sex criterion were detected only on the Life evaluation factor (U=9619, p=0.023), with females reporting higher scores. Single respondents reported significantly higher scores on all dimensions in comparison with the others (U_{ip}=11611.5, p<0.001; U_{le}=9978, p<0.001; U_{h}=13095, p<0.001) and the total score (U=9859, p<0.001). No significant differences were found in accordance with the level of education criterion.

Significant differences by the employment status criterion were detected in the total score (H(3)=28.198, p<0.001), Intention and Planning (H(3)=24.752, p<0.001), and Life Evaluation (H(3)=26.238, p<0.001). The lowest scores were found in the pensioners, the highest in the university students.

The following were found to be significantly correlated with the RASS score: age (r=-.35, p<.001), and family history of mental disorders (r=-.18, p<0.01). The respondents at suicide risk reported a greater influence of the pandemic on mental (U=5385, p<0.001) and professional functioning (U=5799, p<0.01) in comparison with the respondents not being at such risk.

Predicting suicide risk

After grouping all respondents into two groups (with or without suicide risk), multivariant binary logistic regression showed that having a family history of mental disorders (odds ratio [OR], 2.73), younger age (OR, 1.1) and not being in a relationship (OR, 0.49) increased suicide risk (cf. Table 2, Step 2).

Table 2. Multivariate binary logistic regression analyses of variables predicting suicide risk

							95% C.I. for EXP(B)	
		B	S.E.	df	Sig.	Exp(B)	Lower	Upper
Step 1	Age	-.095	.021	1	.001**	1.009	1.055	1.146
	Sex	.103	.392	1	.793	1.108	.515	2.387
	Work status	.740	.462	1	.109	2.096	.847	5.184
	Family history of mental disord.	.986	.421	1	.019*	1.332	.931	1.907
	Relationship status	-.754	.340	1	.026*	2.125	1.092	4.136
	Constant	19.066	4.269	1	.000	3.273		
Step 2	Age	-.094	.021	1	.001**	1.098	1.054	1.144
	Family history of mental disord.	1.004	.406	1	.013*	2.730	1.232	6.054
	Relationship status	-.723	.336	1	.031*	.485	.251	.937
	Constant	18.096	4.504	1	.000	3.603		

** p<.01, * p<.05

CONCLUSION

The effect of the pandemic on mental and professional functioning

Our study showed that women, single persons, university students and pensioners assessed the impact of pandemic on mental functioning as higher. The obtained results are in line with other studies whose findings indicate that symptoms of depression and anxiety were detected in women, and that women reported a higher effect of the pandemic on the level of stress and mental health in general (28-31). Recent research shows that a negative effect on mental health also reflects on university student population, which is visible in a growing number of depression and anxiety symptoms, a higher level of stress, together with more frequent alcohol and psychoactive substances abuse (28, 31, 32). A study conducted in Serbia points to the existence of a high number of symptoms of depression, anxiety and stress in university student population, who listed the fear of infecting the beloved ones and the fear of endangering their families as the most frequent fears (33). A special position of retired persons relates to the fact that in Serbia this population experienced the most restrictive measures against the spread of COVID-19. Large presence of chronic and acute illnesses in terms of percentage, a reduced level of social interaction and dependence on others, along with the previously stated special position of pensioners in Serbia, are concordant with the results of our research, as well as other studies in which this population reported on a great effect of the pandemic on their mental health (34). In further support of this is the fact that more than 25% of persons who sought psychosocial help via a helpline were aged from 71 to 80 (35). Finally, social problems caused by the COVID-19 pandemic and the level of social support are factors playing a significant role in the occurrence of psychiatric disorders during the coronavirus pandemic (3, 36, 37), which may account for a higher level of suicide risk and awareness of a negative effect of the pandemic on mental life in the respondents without a partner.

Beside its impact on mental functioning, the university students from this study assessed the effect of the pandemic on professional functioning to the greatest degree. Other studies also confirm this finding (38,39). Changes in modes of studies, reorganisation of learning activities, reduced motivation for the studies, increased pressures to learn independently, reduced contact with family and friends, among many, are the factors that made an effect on university students (8, 40). The abovementioned research conducted on university student population in Serbia shows that 14.6% of university students reported a great influence of the pandemic on their student duties, while 17.7% of them stated that they found it more stressful to complete their duties than in normal conditions prior to the pandemic (33). Apart from a lack of immediate contact, university students list technical problems in online classes, such as Internet accessibility and speed, not having adequate and reliable devices, and issues connected with practical classes and/or seminars, as well as inability to learn in face-to-face seminars (38, 39).

The pandemic and suicidality

The factors that singled out as being significantly associated with suicide risk in this study were the family history of mental disorders, relationship status and age. Furthermore, the persons assessed to be at suicide risk reported a larger effect of the pandemic on mental and professional functioning than the respondents not assessed to be at such risk.

Similar research during the pandemic shows that women, aged 18–29, student and unemployment status, prior psychiatric history, and those reporting a greater negative impact of pandemics on their quality of life, were at higher risk for increased anxiety and depression symptoms (28). The results of research conducted in Malaysia show a significant connection of suicidal behaviour with the relationship status, level of education, work status, depression, anxiety and sex (41). The findings of a study carried out in Portugal (42), indicate that the following are associated with suicide risk: the level of education, work status (the unemployed), existence of a psychiatric diagnose, existence of a chronic illness, as well as impact of the pandemic on mental functioning.

Studies investigating the rate of suicidal behaviours in the recent few years, suggest that the highest degree of suicidal ideations were in 2020 in comparison with the previous years, and that its number started declining slowly in 2021 and later (43). On the other hand, a meta-analysis that has synthesised international reports on suicidal behaviours in the recent years, speaks in favour of an upward trend of suicidal ideation and suicide attempts during the COVID-19 pandemic, with the suicide rate remaining stable (44). A study conducted in Serbia reports that the Psychiatric Clinic "Dr Laza Lazarević" had more suicide attempts registered in the period between March and July 2020 in comparison with the same period in the previous year (23). A similar study was carried out at the Psychiatric Clinic of the University Clinical Centre of Niš, which reported significantly more suicide attempts in 2020 than in prior years (24). The scale detecting suicidality in this research associated more that 40% of the respondents with some form of suicidal behaviour. By means of comparing the mean total scores on RASS from this study and the study conducted in 2016, upon validation of the scale (27), it has been established that the mean total scores, as well as scores on individual subscales are higher than in the previous period. With a hedge as regards the imbalance of these two samples, these data may point to an increase in suicide risk in the general population of Serbia in comparison with the period of seven years ago as well a potential connection of suicide risk with the outbreak of COVID-19.

Study limitations

One of the limitations of the current study is the nature of the sample (voluntary), where women outnumbered men, and university students made up more than a quarter of the sample. Another limitation refers to the study design (cross-sectional study). One more limitation relates to the fact that one question was used for the assessment of the pandemic

impact on mental and professional functioning, although the previous studies determined that subjective perception of pandemic-related distress is associated with the development of suicidality (3).

CONCLUSION

The results of the current study show that persons at suicide risk assessed the effect of the pandemic on mental and professional functioning to be higher than the respondents not being at such risk. The greatest impact was reported by the university students, who scored the highest on RASS at the same time. This speaks in favour of a specific vulnerability of this group. In addition, by comparing the results gathered in this study with the results obtained in the previous research conducted upon scale validation in 2016, what can be noticed is that the mean total scores as well as the mean scores on the individual factors are higher.

CONFLICTS OF INTEREST

The authors report no conflict of interest.

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