INFLUENCE OF COVID-19 VIRUS ON STRESS LEVEL IN POPULATION GROUPS WITH DIFFERENT STATUS AND CHARACTERISTICS OF EMPLOYMENT

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Abstract Societal safety measures that have been used to prevent infections spreading, when too strict or prolonged, can have negative consequences, among which disruption of economy and income or jobs loss are the most severe. Certain research also suggests that the psychological footprint of COVID-19 probably will be more substantial than the medical footprint. Psychological responses, especially anxiety and fear, are important factors for an individual's behaviors. COVID stress syndrome is a complex phenomenon involving various types of fears. Fear and anxiety-related behaviors relating to the coronavirus pandemic was assessed with the newly developed multifactorial questionnaire, COVID Stress Scales (CSS). The focus of this study was to examine the relationship, if there any, between employment status and COVID-19-related experiences of stress. High perceived stress levels were associated with employment in companies with a majority share of private capital and with being retired, while unemployed participants and employed students seemed to be at least anxious. CSS could be valuable for health practitioners, policymakers and other researchers as a tool for determining who are at higher risk of psychosocial issues, in order to mitigate the impact of the pandemic on mental health and to tailor ergonomics interventions.

Keywords: COVID-19; pandemic; stress; employment status.

1. INTRODUCTION

The pandemic caused by the Covid-19 virus has greatly influenced the appearance of various changes in many spheres of human life and work. One of these changes is the occurrence of stress in humans, which is a consequence of both direct and indirect effects of this virus. One of the most important indirect consequences of the action of the Coronavirus is its effect on the global economy. The situation in the global economy directly reflects on the ability of a person to perform a certain work activity, as well as on employment. This fact is also reflected in the level of stress in the population.

The number of papers on the stress caused by the Covid-19 virus is relatively small at the moment, given the dimension of the problem globally (no paper has been published so far on this topic in the field of ergonomics), but can be expected a rapid increasing the number of published papers on this topic in the coming period. It is worth mentioning several papers that have taken into account the impact of Coronavirus on certain professions. Paper [1] dealt with the perception of quarantine and its

impact on occupational stress in India. It was found that the level of stress was higher among workers who work from home, because the employees were afraid that the employer could take disciplinary action at a certain moment due to the absence of workers from the company. In addition, workers who worked from home were afraid of criticism from their colleagues due to their absence, the possibility to work slower, lower performance, etc. The article [2] investigated the existence of stress caused by the virus pandemic in scientific researchers in China. The majority of study participants, 76.9%, indicated that their research was affected by the COVID-19 pandemic, and they had higher stress levels than those who were not affected. The paper [3] investigated the existence of psychological disorders in students in China, which are a consequence of the Coronavirus effect. It was found that 0.9% of the students were experiencing severe anxiety, 2.7% moderate anxiety, and 21.3% mild anxiety. It was concluded that the mental health of the students should be monitored during the pandemic.

2. GOAL OF THE RESEARCH

Numerous studies have established the negative impact of stress on workers and the work environment. Numerous physical problems (insomnia, headaches, cardiovascular disorders, gastrointestinal disorders), intellectual problems (loss of concentration, difficulties in decision-making, memory deficit, decreased motivation), emotional difficulties (anxiety, depression, irritability), behavioral problems (increased absenteeism, higher labor turnover, low morale), as well as organizational issues (increased employee complaints, worsening of the organizational climate), and problems with performances (lower productivity, higher error rate, safety issues) have been registered in workers.

It depends on the level of stress which of the previously described difficulties and problems will manifest. Their intensity also depends on stress levels. The aforementioned studies confirmed the hypothesis that Coronavirus causes stress in the population. However, it is necessary to determine which categories of the population are particularly susceptible to the occurrence of stress caused by this virus. In this regard, it is necessary to investigate whether there is a difference in the manifestation and in the level of stress between different structures of employees, e.g. in the population of permanently employed workers, in the population of workers who are currently out of work as a result of a pandemic, who have lost their jobs but have been returned after some time, taking into account also people who are continuously unemployed. The survey should also take into account dependents (part of the student population) as well as the retired elderly population. It can be expected that part of the population with unresolved or unstable employment status is more susceptible to pandemic stress than part of the population with stable employment. Given this, the aim of this paper is to determine the variations in pandemic-induced stress in populations with different statuses and characteristics of employment.

2. METHOD

Pandemics are a rarity. For this reason, there have not been many opportunities in the previous period to study the stresses caused by pandemics. Due to that, it is not easy to find a suitable tool that would be reliable for assessing stress in this case. At the time preceding this research, only a few questionnaires were in circulation, which could serve as a potential tool for determining stress levels.

Based on the review of the available literature, we opted for a questionnaire intended to assess stress caused by the Covid-19 virus, which passed the validity test [4].

This Covid Stress Scale [4] contains a total of 36 questions. Items were ranked on a 5-point scale, ranging from 0 (not at all) to 4 (extremely). The research and traumatic stress items were assessed on a 5-point scale ranging between 0 (never) and 4 (almost always). Thus, a questionnaire with 36 questions and a scale of answers from 0 to 4 was also used in this research. However, in accordance with the aim of the research, this paper additionally included the aspect of status and characteristics of employment of people who participated in the research. In this regard, in addition to answering the questions, the following data related to their employment status were collected from the research participants:

a) Unemployed student
b) Employed Student
c) Unemployed
d) Employed in privately held company
e) Employed in a state-owned enterprise
f) Employed in a company with a majority share of private capital
g) Employed in a company with a majority share of state capital
h) Retired

2.1. Procedure

As mentioned, the study was conducted during the COVID-19 outbreak. All respondents provided informed consent prior to participation. The participants completed a self-report questionnaire COVID Stress Scales (CSS) [4,5] comprising questions about COVID-19-related experiences, distress, and coping. The CSS comprises 36-items distributed over six scales: (1) danger fears (DAN), (2) fears about socioeconomic consequences (SEC), (3) xenophobia (XEN), (4) contamination fears (5) compulsive checking and reassurance seeking (CHE), and (6) traumatic stress symptoms (TSS). For the fear-related items (domains 1–3) the participants were asked about various kinds of worries that they might have experienced over the past seven days related to the virus. Regarding CHE and TSS scales, respondents were asked to indicate how often they have engaged in compulsive checking or reassurance seeking behaviours, and how frequently they experience problems related to traumatic stress in the past week, which is in accordance with [4-6]. Higher scores thus indicate higher rates of depression, anxiety, and stress.

Respondents also completed a general demographics questionnaire wherein they indicated their age, gender, marital status, education level and employment status. The full sample comprised 150 adults aged 19–86 year (M = 46.1 years, standard deviation [SD] = 14.7). Most (64.7%) were female (Table 1). In addition, most of the respondents were from Belgrade, the capital where more than a fifth of Serbia's population is concentrated. There were 14 respondents older than 65 years in the sample.

Table 1. Gender structure of the sample.

gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	M	53	35.3	35.3	35.3
	F	97	64.7	64.7	100.0
	Total	150	100.0	100.0	

Employment status was coded in 8 categories in order to specifically examine and differentiate the effects of stress (Table 2).

Table 2. Employment status of the participants.

Employment status	Frequency	Percent	Valid percent	Cumulative percent
Unemployed student	8	5.3	5.3	5.3
Employed Student	2	1.3	1.3	6.7
Unemployed	7	4.7	4.7	11.3
Employed in privately held company	52	34.7	34.7	46.0
Employed in a state-owned enterprise	61	40.7	40.7	86.7
Employed in a company with a majority share of private capital	4	2.7	2.7	89.3
Employed in a company with a majority share of state capital	2	1.3	1.3	90.7
Retired	14	9.3	9.3	100.0
Total	150	100.0	100.0	

3. RESULTS AND ANALYSIS

The results from the questionnaire were analyzed using SPPS (version 21). Descriptive statistics for each item of the COVID Stress Scales, as well as the total sum of these scales (referred to as the total score), were calculated (Table 3).

Table 3. Descriptive statistics per subscales.

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
DAN	150	24.00	0.00	24.00	13.4400	7.02104	-.207	.198	-.857	.394
SEC	150	24.00	0.00	24.00	8.1933	7.57043	.561	.198	-.946	.394
XEN	150	24.00	0.00	24.00	11.3533	7.18886	.028	.198	-1.105	.394
CONT	150	24.00	0.00	24.00	11.3000	6.88130	-.059	.198	-.971	.394
TSS	150	24.00	0.00	24.00	6.1067	6.22201	.760	.198	-.291	.394
CHE	150	22.00	0.00	22.00	6.4667	5.87986	.765	.198	-.376	.394
CSStotal	150	135.00	0.00	135.00	56.8600	33.95497	.257	.198	-.868	.394
Valid N (listwise)	150									

Obviously, the dimension of the dangerousness of COVID-19, which includes fear of coming into contact with fomites potentially contaminated with SARSCoV2, received the highest mean scores, following by the mean scores for contamination and xenophobic fears that foreigners are spreading the virus. The traumatic stress symptoms associated with direct or vicarious traumatic exposure to COVID-19 (nightmares, intrusive thoughts, or images related to COVID-19), and COVID-19 related compulsive checking and reassurance seeking dimensions received the lowest mean scores. Worry about socioeconomic costs of COVID-19 (e.g., worry about personal finances and disruption in the supply chain) - mean scores have been taken values between those aforementioned. The focus of this study was to examine the relationship, if there any, between employment status and COVID-19 related experiences of stress. Considering the CSS total score, the participants employed in a company with a majority share of private capital show the highest CSS total score (95.8) in comparison to all other employment status categories. Also, retirees show high CSS total scores (75.9), while the lowest score received employed students (23.5) following by unemployed respondents (43.1) (Figure 1).
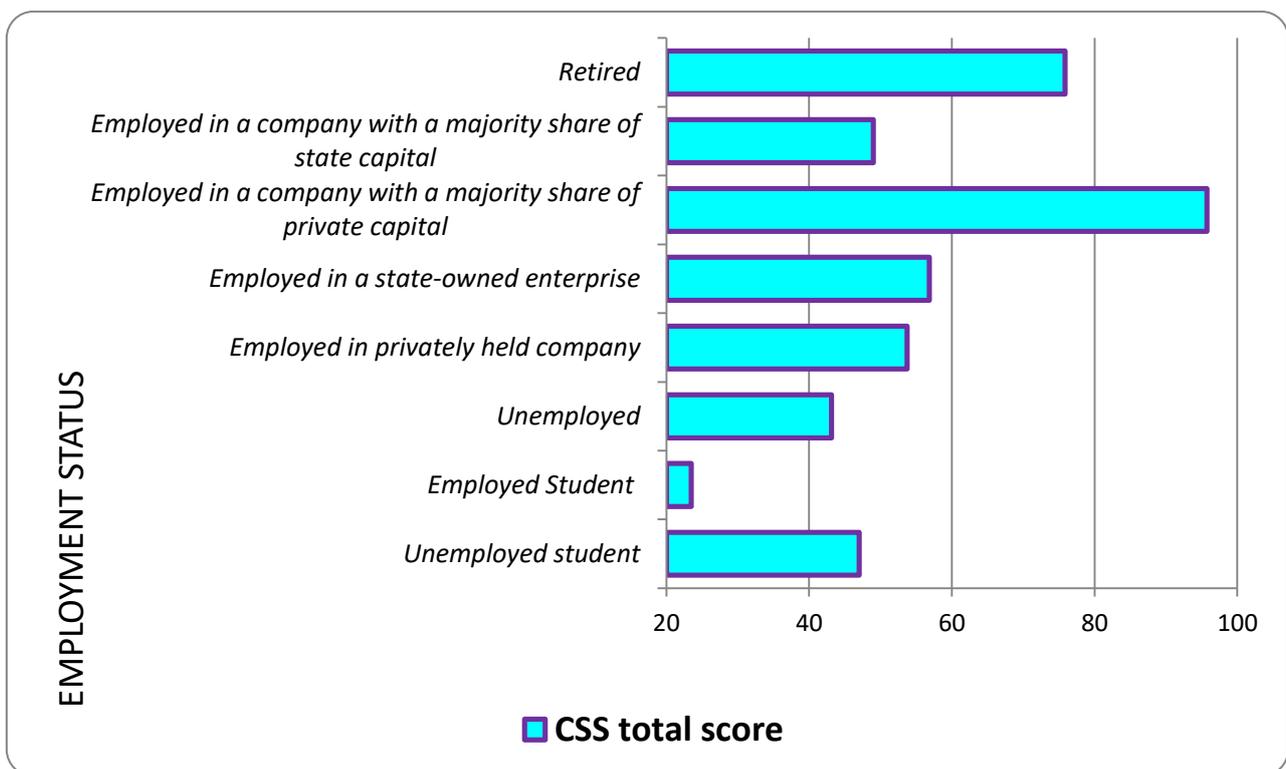

Figure 1. CSS total scores distribution according to employment status.

Across five scales of the CSS, as well as the CSS total score, with the exception of traumatic stress symptoms associated with direct or vicarious traumatic exposure to COVID-19, respondents employed in a company with a majority share of private capital and retired people scored consistently the highest. On the traumatic stress symptoms subscale employed in a company with a majority share of state capital show the highest scores. Employed students tended to score the lowest on all indices of the CSS, as well as on CSS total score, except on the compulsive checking and reassurance seeking

dimension. Unemployed people and unemployed students had the lowest scores on the CHE subscale. The results are summarized in Figure 2.
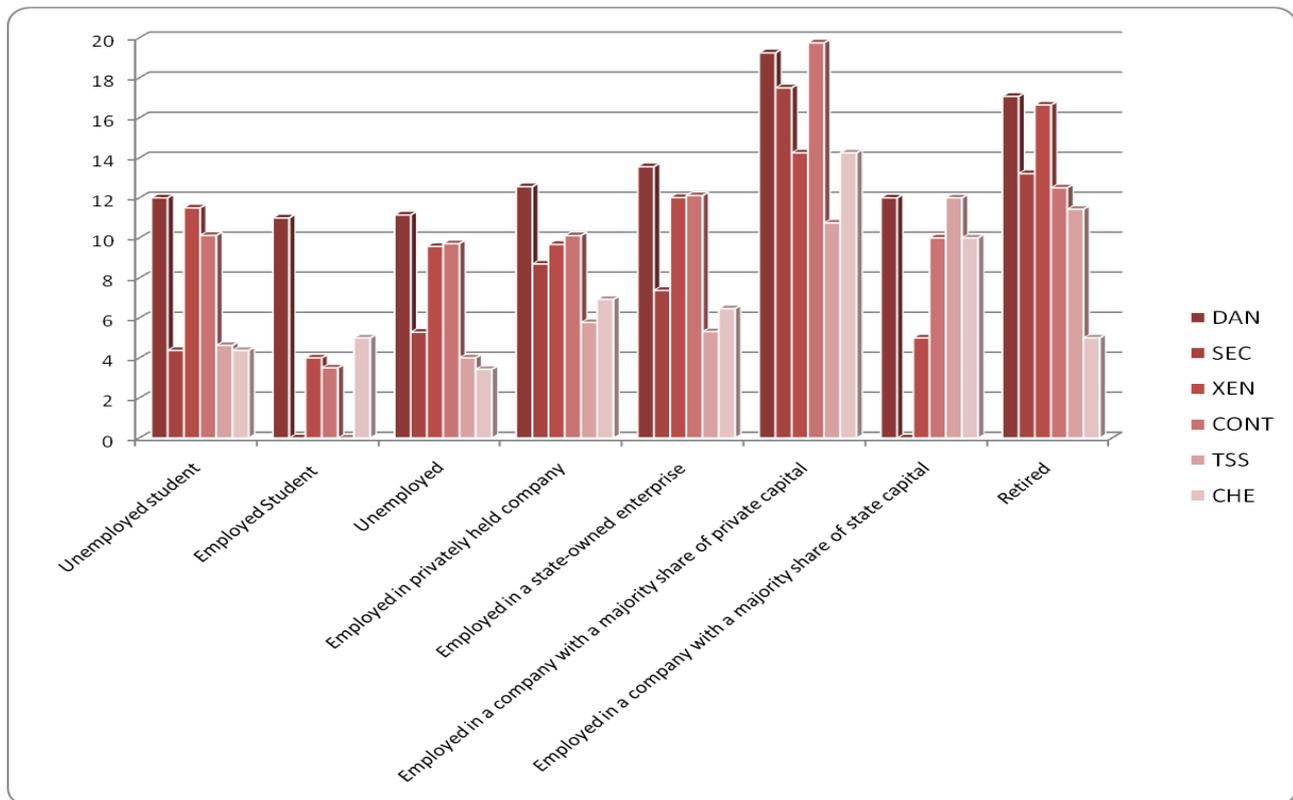

Figure 2. Distributions of CSS scores between groups of different employment status.

Unemployed participants and employed students seemed to be at least anxious, since these groups received the lowest scores across all dimensions. Danger fears are most pronounced among all employment status categories, with the exception of the group of employees in a company with a majority share of private capital which tended to score highest on CONT subscale, that in some versions of COVID Stress Scales are considered together (as the one dimension) having a similar meaning.

4. DISCUSSION AND CONCLUSION

High perceived stress levels were associated with employment in companies with a majority share of private capital and with being retired. They are in the most vulnerable position for economic distress due to the possibility of job or income reduction or loss. Finally, the least frightened are employed students and unemployed individuals. This finding contradicts previous studies which indicated that COVID-19-related stress tends to be higher in those who are female, younger, unemployed, less educated, and non-White [5,6,7]. On the other hand, it is in line with the results of the study of Vicario-Merino and Muñoz-Agustin [8] who find that stress levels have a tendency to increase as the age ranges increases, arriving at its maximum for the 56-65 ages. Bearing in mind these contradictory findings, it is urgent for professionals in psychology mental health and ergonomics to find tools to

identify who is at higher risk of psychosocial issues, as well as, the levels of individual and collective risk, in order to mitigate the effects on mental health that the pandemic will have [9], to guide in where the funds be allocated and how rapid mental health-related actions should be taken, as the crisis phase evolves over time. Furthermore, economic forecasts are predicting reduced economic growth [10]. As fear may be a central construct in explaining these negative individual and societal consequences of the coronavirus pandemic, it is important to better understand what people are exactly afraid of and establish relevant predictors [11]. The results of this study have justified our initial hypothesis and they indicate that there is a need for further research in that direction.

Acknowledgements

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