The psychological impact of the COVID-19 pandemic: A comparison between the staff from two clinics, Urology and Obstetrics-Gynecology, in Târgu Mureș

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Abstract

Introduction and Objectives. In a previous article, we have discussed the psychosocial impact of the COVID-19 outbreak among frontline healthcare workers. This study offers a threefold perspective: firstly, an investigation on the relationships between fear of COVID-19, stress, fear of contamination, and other variables; secondly, a look over differences between two groups (urology and gynaecology staff) related to the level of COVID-19 fear, stress, and other characteristics; thirdly, a mediation model on whether the relationship between fear of COVID-19 and reaction to stress is explained by fear of danger at work.

Materials and Methods. The comparison between the two chosen groups started from a 21-items self-report questionnaire. The sample consisted of 208 healthcare workers, 105 of The Clinic of Urology, and 103 of The Clinic of Obstetrics and Gynecology, in Târgu-Mureș, surveyed in May – August 2020.

Results. Results showed that fear of COVID-19 was positively associated with fear of contamination in hospital, fear of going to work, fear of coming home, perceived stress, as well as with reaction to stress. On the differences between the two groups (urology and gynaecology staff), employees from both clinics define differently their level of fear, stress, avoidance, and perception, but they seem to have similar reaction to emotional distress. When testing the mediation model, results emphasized a partial mediation.

Conclusions. We have noticed relationships between the levels of fear/ stress, and other variables, and differences of perception between the employees from the Urology and Obstetrics-Gynecology in terms of fear, avoidance, and perception.

Keywords: fear of COVID-19; healthcare workers; Urology; Gynecology; stress reaction; mental health.

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Introduction and Objectives

Reported in the city of Wuhan (Hubei province, China), at the end of December 2019 [1], a new Corona virus, which will soon be named SARS-CoV-2 [2], proved to be the ultimate challenge for the contemporary world. Immediately after the identification of the virus, more countries have taken unprecedented measures to contain its spread. [3] In the first instance, some governments started a non-invasive temperature/ symptoms screening for travelers coming from China and/ or endemic areas. [4] Soon afterwards, these measures were escalated, with some countries declaring a state of national emergency. [5, 6] Furthermore, mass gathering events were cancelled or postponed (including the European Association of Urology, the American Society of Clinical Oncology, and the American Association of Urology annual meetings). [7]

Following the school shutdowns, and the medical conferences cancelled, also the medical training of residents was affected. There were several reports from Italy, for example, about how the pandemic affected the Urology residents [8, 9]. But the pressure on medical healthcare professionals was at a peak during these times all over the world, in British hospitals [10], and Singapore too [11]. We have also conducted a study, aiming to determine the impact of the COVID-19 pandemic on the mental health of healthcare workers from a Romanian hospital [12]. We still have the number of 511,620 daily cases reported on the 20th of March 2021 worldwide, and 5,344 in Romania [13]. This is one of the reasons why we think adequate to narrow down our search at two medical specialties, and two clinics, Urology and Obstetrics-Gynecology.

The present study tested three main objectives. Firstly, the goal was to investigate the relationships between fear of COVID-19, stress, fear of contamination, and other variables. Secondly, the aim was to identify the differences between the two groups (urology and gynaecology staff) related to the level of COVID-19 fear, stress, and other variables. Thirdly, we tested a mediation model on whether the relationship between fear of COVID-19 and reaction to stress is explained by fear of danger at work.

Materials and Methods

The present study is a cross-sectional survey undertaken for four months, May – August 2020, during what it seemed to be near-the-end COVID-19 pandemic. The sample consisted of two groups as follows: (1) one group formed of 105 healthcare workers of The Clinic of Urology of The Clinical County Hospital of Târgu-Mureș, unit that was reorganized completely for treating patients affected by SARS-CoV-2, starting March 2020; (2) a second group in which we included 103 employees of The Clinic of Obstetrics and Gynecology of The Emergency Clinical County Hospital of Târgu-Mureș, which was not involved into the care of the COVID-19 patients. We assessed the current mental health status, and thus the emotional distress level and the psychological impact of the disease on healthcare workers – medical and non-medical personnel – in the two surgical wards mentioned.

The study was approved by the Local Ethics Committee of Târgu-Mureș, document no: 8042/18.05.2020; participants in the study were informed on the purpose and the general conditions of the study through an Informed Consent document attached to the questionnaire used.

We developed a 21-items questionnaire through which we collected information on demographic characteristics (age, gender, educational level, marital status, living environment, need of isolation), but also on mental health status which was addressed from two points of interests: (1) the fear of contracting the Corona virus and (2) the healthcare workers' abilities to cope with a new stressful situation. With this later purpose, we used two scales: The Fear of COVID-19 Scale [14] (Cronbach's $\alpha = 0.87$) and Tellegen's Multidimensional Personality Questionnaire – Emotional Instability – Stress Reaction (Tellegen's MPQ-SR) [15] – Cronbach's $\alpha = 0.59$, the latter being already validated on the Romanian population.

The information collected through the questionnaire was organized in a database with Microsoft Office Excel and statistically analyzed using IBM SPSS Statistics 26.0.

Results

The ages of the participants mentioned above ranged between 23 and 64 years old ($M = 42.43$, $SD = 10.56$) and 77.40% of them were women. The demographic data indicated that 51 participants (24.50%) were medical staff and 73 employees (35.10%) nursing staff. Also, from the total sample, 84 of the participants (40.40%) have more than 20 years of experience, 148 of them (71.20%) presented a family status, 100 of the personnel (48.10%) were living in apartments, and more than a half (56.30%) were living in the urban environment. More sample information was presented in Table 1.

To use the parametric tests, the conditions of normality and homogeneity assumptions were verified [16]. Regarding the normality condition, the distribution satisfied this condition in terms of the descriptors of shape (skewness and kurtosis). Also, the homogeneity of variance fulfilled, considering the variance assumption through the Levene test (p > .05) or Hartley's Fmax.

The first aim of the study was to identify the possible relationships between level of stress, fear of COVID-19, and its consequences from a personal and professional perspective.

Table 1. Demographic data of the sample.

		Urology		Gynaecology				Urology		Gynaecology	
		N	%	N	%			N	%	N	%
Gender	Female	68	64.8	93	90.3	**Family status**	Single	27	25.7	25	24.3
	Male	36	34.3	0	0		With Family	70	66.7	78	75.7
	Missing data	1	1.0	10	9.7		Missing data	8	7.6	0	0
Age	20 – 35 years	32	30.5	33	32.1	**Other adults**	No	73	69.5	83	80.6
	36 – 50 years	43	40.9	50	48.5		Other adults	17	16.2	10	9.7
	>50 years	28	26.7	20	19.4		Elderly	11	10.5	7	6.8
	Missing data	2	1.9	0	0		Both adults and elderly	2	1.9	3	2.9
							Missing data	2	1.9	0	0
Working experience in medical field	Less than 1 year	2	1.9	0	0	**Residence**	Apartment	42	42.0	58	56.3
	1 – 4.90 years	22	21.0	23	22.3		House	51	51.0	45	43.7
	5 – 9.90 years	19	18.1	11	10.7		Hotel	7	7.0	0	0
	10 – 19.90 years	27	25.7	20	19.9						
	More than 20 years	35	33.3	49	47.6						
Education Level	Middle school/ below	17	16.2	6	5.8	**Living space**	N/A	3	2.9	0	0
	Bachelor's degree	42	40.0	54	52.4		< 50 m	13	12.4	12	11.7
	Master's degree/ above	46	43.8	43	41.7		50-75 m	31	29.5	41	39.8
							76-100 m	16	15.2	21	20.4
							>100 m	40	38.1	29	28.2
Occupation	Non-Medical Personnel	46	43.8	38	26.9	**Living environment**	Missing data	2	1.9	0	0
	Nursing Staff	33	31.4	40	38.8		Rural	27	25.7	36	35.0
	Medical Staff	26	24.8	25	24.3		Urban	50	47.6	67	65.0
							Missing data	28	26.7	0	0

The results showed that fear of COVID -19 was positively associated with fear of contamination in hospital (r = .59, p < .01), fear of going to work (r = .61, p < .01), fear of coming home after a day of work in the hospital (r = .49, p < .01), perceived stress (r = .50, p < .01) as well as with reaction to stress (r = .55, p < .01). The level of perceived stress was positively related to the fear of contamination in hospital (r = .54, p < .01), whereas friends' avoidance was associated with family avoidance (r = .56, p < .01). The fear of contamination in hospital was related to the fear of going to work (r = .62, p < .01), fear of coming home (r = .62, p < .01) and reaction to stress (r = .52, p < .01). Also, fear of going to work presented a positive relationship with fear of going back home (r = .61, p < .01). In contrast, low negative associations were found between perceived level of appreciation and fear of going to work (r = -.15, p < .05) and fear of COVID -19 (r = -.16, p < .05). The other relationships were presented in Table 2.

The second aim of the present research was to identify the differences between the two groups (urology and gynaecology stuff) related to the level of COVID-19 fear, stress and the other variables included in the research. The results showed that there were differences between the two groups regarding fear of COVID-19 (t = 2.61, df = 196.91, p = .010, 95% CI [.55, 3.96]), perception of stress level (t = 3.48, df = 201.12, p < .001, 95% CI [.15, .55]), fear of autoinoculation at workplace (t = 4.10, df = 201.75, p = .001, 95% CI [1.77, 5.03]), fear of going to work (t = 2.71, df = 191.94, p = .007, 95% CI [.11, .70]), fear of going back home (t = 2.67, df = 203.32, p = .008, 95% CI [.14, .95]), avoidance from family members (t = 2.86, df = 173.17, p = .005, 95% CI [.12, .67]), perception of protection (t = -3.97, df = 175.68, p < .001, 95% CI [-.74, -.24]) and perception of rest time (t = -3.91, df = 201.65, p < .001, 95% CI [-.91, -.30]).

The third aim of the study was to test a mediation model on whether the relationship between fear of COVID -19 and reaction to stress is explained by fear of autoinoculation at workplace. The fear of COVID

Table 2. Correlations between the study's variables

Measures	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1. Fear of COVID-19	—	.50**	.59**	.61**	.49**	.19**	.08	.09	.55**	-.16*	.17*
2. Perceived stress level	.50**	—	.54**	.43**	.43**	.23**	-.04	.12	.43**	-.06	.13
3. Fear of danger at work	.59**	.54**	—	.62**	.62**	.33**	.13	.18**	.52**	-.14	.11
4. Fear of going to work	.61**	.43**	.62**	—	.61**	.23**	.06	.03	.50**	-.15*	.12
5. Fear of going home	.49**	.43**	.62**	.61**	—	.38**	.12	.08	.41**	-.10	.12
6. Avoidance from family	.19**	.23**	.33**	.23**	.38**	—	.06	-.001	.23**	.08	.18**
7. Perceived protection	.08	-.04	.13	.06	.12	.06	—	.24**	.21**	-.02	.07
8. Perception of rest time	.09	.12	.18**	.03	.08	-.001	.24**	—	.15**	-.29**	.19**
9. Reaction to stress - MPQ	.55**	.43**	.52**	.50**	.41**	.23**	.21**	.15**	—	-.20**	.04
10. Perceived appreciation	-.16	-.06	-.14	-.15*	-.10	.08	-.02	-.29**	-.20**	—	.04
11. Increased amount of work	.17*	.13	.11	.12	.12	.18**	.07	.19**	.04	.04	—
12. Friends' avoidance	.26**	.27**	.31**	.27**	.40**	.56**	-.01	.07	.25**	.03	.12

Note. *$p < .05$; **$p < .01$.

-19 was the independent variable, reaction to stress the dependent variable, and fear of autoinoculation at workplace was the mediator (Figure 1). These three variables presented significant associations, so it was appropriate to run the mediation analysis. Analysing the results, the effect of fear of COVID-19 on fear of contamination at work was a = .58, t(205) = 10.54, p < .01, 95% CI [.47, .69]. The effect of the mediator on the reaction to stress was b = .29, t(204) = 4.19, p < .001, 95% CI [.15, .42]. The indirect effect was positive (a*b = .17, 95% CI [.09, .25]), meaning the higher the scores on The Fear of COVID-19 Scale, the higher the scores on The MPQ-RS. The estimated direct effect of fear of COVID-19 on reaction to stress in the presence of the mediator was c' = .37, t(204) = 5.50, p < .001, 95% CI [.24, .50]. Also, the total effect was c = .54, t(205) = 9.53, p < .001, 95% CI [.42, .65] emphasizing the effect of fear of COVID-19 on reaction to stress, without fear of autoinoculation at workplace in the model.

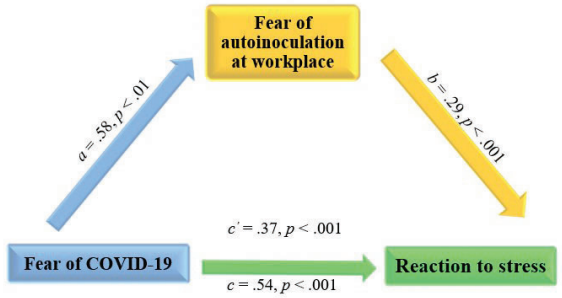


Figure 1. The mediation model.

Discussions

This study was undertaken at approximately three months after the pandemic outbreak, towards what it seemed to be, at that time, the end of that 'era'. Collecting the data, we noticed an intense verbalization rate of change in healthcare workers' attitude towards the virus and its implications after adjusting to the new conditions of work. Also, when we initiated contouring the questionnaire, we found several methodologies using different assessment scales, like Depression, Anxiety, and Stress Scales (DASS-21), the Impact of Events Scale–Revised (IES-R) [17], the Social Support Rate Scale (SSRS), the Self-Rating Anxiety Scale (SAS), the Stanford Acute Stress Reaction (SASR), the Pittsburgh Sleep Quality Index (PSQI) [18]. We chose the Fear of COVID-19 Scale because of its targeted objective, fear, which previously proven to increase anxiety and stress levels, particularly during a pandemic, in both healthy individuals and those with pre-existing psychiatric disorders [19]. Furthermore, a stress scale dedicated to the impact of this new disease was not yet developed at that time. Although we find ourselves at an approximately one year later, things have not changed in a great manner, therefore we consider that revealing new aspects concerning the psychological impact on healthcare workers is still needed.

We categorized the sample into two groups using as a criterion the membership of the individual to one of the two hospitals. The Clinic of Urology of The Clinical County Hospital of Târgu-Mureș, although it is the only of its kind treating urological patients in the area, was turned into a department of care for suspected or positive COVID-19 patients. All healthcare workers were trained and reorientated towards this purpose, as other reports have previously revealed [20]. The Clinic of Obstetrics and Gynecology of The Emergency Clinical County Hospital of Târgu-Mureș remained faithful to its original purpose, without the interference of the new disease. The characteristics of the two specialties are similar, these being the reasons of their choosing. After reviewing the demographic variables of the two groups, we found similar data, which confirmed the right choice of the two mentioned specialties. We, also, decided to include nurses and physicians in the 'medical staff' group and maintenance workers, administrators, clerical staff, technicians, pharmacists, in the 'non-medical personnel' group, considering that the level of knowledge, scientific as much as non-scientific, would be similar inside the subgroups.

We found multiple correlations between the variables. Both fear of COVID-19 and level of stressed, perceived, but also objectified through the MPQ-RS scale, correlated positively, in a statistically significant manner, with the fear of autoinoculation in the hospital, proving that this new aspect added to the work of healthcare professionals is one of the most important in determining high psychological distress. Furthermore, higher levels of fear of autoinoculation in the hospital, led to higher levels of fear of going to work, but just as revealing, to higher levels of fear of coming back home to their families and friends, showing that care for their own well-being is just as important into one's mind as the well-being of their loved ones, turning into even more significant emotional distress. As to what it was to be expected, the higher level of fear, the greater the stress recognized and manifested by the questioned personnel, but what it was most interesting was to negatively correlate fear of COVID-19 to levels of perceived appreciation for their work in the hospital. We consecutively understood that fear prevented the

individual from recognizing and acknowledging the positive characteristics of the environment.

Analyzing and comparing the two groups, the healthcare workers treating COVID-19 patients in the Clinic of Urology vs. the non-affected COVID-19 personnel of the Clinic of Obstetrics and Gynecology, we found statistically significant differences concerning both levels of fear and stress, thus confirming our hypothesis stating that the first group mentioned, and its psychological balance, were more influenced by the pandemic situation. We found statistically significant higher scores on both fear scale and stress scale in the representatives of the first group. These respondents also reported higher levels of fear of autoinoculation at workplace and higher levels of fear of going to work and coming back home after a day of work in the hospital. They are the ones who experienced a lower perception of protection in the hospital and a lower quality of rest time, confirming the data obtained by Xiao H. et al. [21], where higher levels of stress leaded to higher levels of anxiety, which negatively impacted self-efficacy and sleep quality. These respondents are also the ones who chose to avoid their families and friends during these times in an attempt of protecting them, but also the ones who experienced patterns of avoidance in the behaviour of their loved ones, without being their choice, and moreover, increasing their anxiety and fear levels.

Furthermore, checking the mediation model, we revealed more relationships between the variables. These results assume that the person under greater fear of COVID-19 reported higher chances to develop a stress reaction. Given the fact that the direct effects were smaller than the total effect, fear of inoculation at workplace acted as a mediator in this model. Overall, the results emphasized a partial mediation because, as Hayes & Rockwood (2017) emphasized, results for c' were significant. In this way, the data explained the effect of fear of COVID -19 on reaction to stress through fear of inoculation at workplace. Given the fact that it was a partial mediation, fear of inoculation at workplace explained the relationship between fear of COVID -19 and reaction to stress, but not completely. Thus, even if this proposed model was appropriate to the pandemic situation, there could be other variables that interfere in the relation between fear of COVID -19 and reaction to stress.

When analyzing the entire process of the research, we found both limitations and strengths. We consider having met the criteria of good representativeness of the sample, although one may find a rather small cohort. We would also take caution when exceeding the barriers of this geographic area. Also, our study did not take into consideration the socioeconomic status which may influence some results. Further studies with larger samples are still needed, to also include prospective observation of the variables and to evaluate progression or even a potential rebound effect of psychological symptoms, since the virus is still active, one year later. In this manner, we could ensure the 'active monitoring' attitude that previous studies have underlined as necessary [22].

Conclusions

We found correlations between variables like fear of COVID-19, levels of perceived and objectified stress, levels of fear of autoinoculation at workplace and fear to go to work and coming back home after a day of working in a higher contaminated environment. Also, healthcare workers oriented towards care of infected patients are more at risk of developing psychological symptoms like fear, anxiety, stress, impaired sleep quality. A partial mediation was found between independent variable fear of COVID-19, dependent variable reaction to stress and the mediator fear of autoinoculation at workplace.

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