

# PERCEIVED IMPACT OF COVID-19 PANDEMIC ON THE LIFE AND WORK OF HEALTHCARE WORKERS IN SOME HEALTH FACILITIES IN HANOI, 2021

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**Objectives:** This study aims to assess the perceived impact of the COVID-19 pandemic on the life and work of health workers at some health facilities in Hanoi.

**Subjects and methods:** A cross-sectional study was carried out to collect data in 2021. The purposive sampling method was utilized to recruit 411 medical staff at Dong Da General Hospital and Thanh Nhan Hospital. The EFA was applied to assess the construct validity and define interpretable underlying sub-domains of measurement.

**Results:** Nearly two-thirds of the participants claimed that they had an increased workload, had to work overtime, and had more stress at work. HCWs who work in the emergency room, intensive care unit had a positive association with “Increased stress and discrimination due to COVID-19” and “Increased workload due to COVID-19”.

**Conclusions:** These results have shown the significant consequences of the COVID-19 pandemic on the life and work of HCWs in Hanoi. This study highlighted the need for the development of appropriate interventions to reduce burden and discrimination against medical staff.

**Keywords:** COVID-19, impact, healthcare workers, Hanoi.

## INTRODUCTION

COVID-19 is an acute human-to-human respiratory disease caused by the coronavirus (SARS-CoV-2). World Health Organization (WHO) declared it as a global pandemic in March 2020. As of December 13, 2022, there have been over 653 million cases of COVID-19, including approximately 6.6 million deaths from COVID-19 across 228 nations and territories<sup>1</sup>. The COVID-19 pandemic detrimentally affected every aspect of human life and work, especially healthcare workers (HCWs). By virtue of working conditions that require close contact with COVID-19 patients, healthcare workers

were more susceptible to SARS-CoV-2 infection<sup>2</sup>. Besides the increase in exposure risk, healthcare workers also face increased workload, stigma, and discrimination from relatives, family members to others in society or they are stigmatized in the workplace which may increase their likelihood of experiencing psychological disorders<sup>3</sup>.

Through several outbreaks, Vietnamese Government has taken many urgent actions to reduce the number of new cases. However, due to underdeveloped health infrastructure with limited financial and human resources, Vietnamese health workers face many difficulties, which were lack of personal protective equipment (PPE), surged workload, and increased responsibilities. During the COVID-19 pandemic, healthcare workers must spend more time at the hospitals caring for patients, which may result in less time for family, discrimination and decreased income<sup>4</sup>.

Hanoi is also one of the areas with the highest number of COVID-19 cases in Vietnam with more than 1.6 million cases<sup>5</sup>. To our knowledge,

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prior studies have been conducted focusing on understanding the knowledge, perception toward exposure risk of COVID-19, and the impact of COVID-19 on the health of medical staffs. However, limited research has been available on the impacts of COVID-19 on the life and work of hospital staff in Hanoi. Therefore, we carry out this study with objective “Describe the perceived impact of COVID-19 pandemic on the life and work of healthcare workers in some health facilities in Hanoi, 2021” to improving work performance and preventing the spread of the COVID-19 pandemic.

## SUBJECTS AND METHODS

**Study design:** A descriptive cross - sectional study was conducted from October 2022 to May 2023 at two hospitals in Hanoi, namely Dong Da General Hospital and Thanh Nhan Hospital.

**Subjects:** Healthcare workers at health facilities that treated COVID-19 patients in Hanoi.

**Inclusion criteria:** Healthcare workers (doctors, nurses) directly involved in examining, treating, and taking care of patients at hospitals that had COVID-19 patients in Hanoi, had worked at the current health facility for at least 6 months or more and were well-informed about the study and agreed to participate in the study.

**Exclusion criteria:** Healthcare workers who were infected with the SARS-COV-2.

### The sample size and sampling method

**The sample size:** Apply the sample size formula for estimating a population proportion with specified absolute precision:

$$n = Z_{1-\alpha/2}^2 \frac{p(1-p)}{d^2}$$

n: minimum research sample size required.

$Z_{1-\alpha/2}$ : the corresponding value of the confidence limit factor with a confidence level of 95% is 1.96.

p = 0.43 (percentage of HCWs who would be avoided because of their work in research on the impact of COVID-19 on private and public PCPs)6.

d: absolute precision of p, d = 0.05.

Thus, the sample size was 377.

**Sampling method:** Purposely choose two hospitals treating COVID-19 patients in Hanoi, including: one provincial/central hospital (Thanh Nhan Hospital) and one field hospital (Dong Da General Hospital). Then make a list of all HCWs in two hospitals that were suitable for inclusion criteria to recruit the study and direct interview using a questionnaire. In fact, we recruited 411 participants for the study. Specifically, 225 subjects at Dong Da General Hospital and 186 subjects at Thanh Nhan Hospital.

### Data collection tool and technique

**Technique:** Interview respondents through a pre-designed questionnaire.

**Tool:** A questionnaire consisting of 26 questions, which was developed according to the one used for assessing life and job impacts due to the SARS pandemic. Participants answered a range of questions, including:

- General information: age, gender, marital status, education level, qualification, working department, career age.

- Perceived impact of COVID-19 on the life and work of healthcare workers: questions\* about 2 domains were identified by EFA, including: “Increased pressure and discrimination due to COVID-19” (6 items) and “Increased workload due to COVID-19” (3 items).

\*Each question had 5 options to respond (Likert scale rated on 5 levels: 1 "Totally disagree", 2 "Disagree", 3 "Confused", 4 "Agree" and 5 "Totally agree").

### Data management and analysis

The data were analyzed using STATA 15.0. Description statistics was used to calculate the mean, standard deviation, frequency. The exploratory factor analysis (EFA) was applied to assess the construct validity and define interpretable underlying sub-domains of measurement regarding the impacts of COVID-19 on the life and work of healthcare workers. Using multivariable regression models to define factors related to each domain of the EFA. p-value < 0.05 were considered as statistical significance.

### Ethical considerations

Participants were explained clearly about the purpose of the study. All participants signed a written informed consent form for their willingness

to participate. The study was only implemented officially after being approved by the Scientific Council of the Department of Occupational Health, School of Preventive Medicine and Public Health

## RESULTS

**Table 1.** Demographic characteristics of participants

		n	%
Gender	Male	113	27.5
	Female	298	72.5
Marital status	Single	76	18.5
		335	81.5
Educational	Lower than university	193	47.0
	University	178	43.3
	Higher than university	40	9.7
		<b>Mean</b>	<b>SD</b>
Average age		34.8	7.2

Table 1 depicts the demographic characteristics of the participants. Among 411 respondents, 72.5% were female, while male only accounted for 27.5%. Nearly half of the subjects had a lower than university education (47%), followed by university education with 43.3%, and postgraduates only accounted for 9.7 percent. The average age of the subjects was 34.8 years.

**Table 2.** Occupational characteristics of participants

		n	%
Qualifications	Doctor	131	31.9
	Nurse	280	68.1
Working department	Outpatient dept.	88	21.4
	Emergency room	67	16.3
	Internal medicine	82	19.9
	Intensive care unit	66	16.1
	Infectious disease dept.	55	13.4
	Others	53	12.9
		<b>Mean</b>	<b>SD</b>
Average career age		10.1	7.0
Working hours during pandemic		9.6	2.6

The participant's occupational characteristics are shown in Table 2. The mean career age of the respondents was 10.1 years. Approximately two-thirds of the participants were nurses, while doctors made up 31.9% of the group. The proportions of the subjects working in the outpatient department, internal medicine, emergency room, intensive care unit, and infectious disease department were 21.4%, 19.9%, 16.3%, 16.1%, and 13.4%, respectively. The average working time of the subjects was 9.6 hours.

**Table 3.** Perceived impact on life and work of respondents due to COVID-19

	Agree and Totally agree		Increased pressure and discrimination due to COVID-19	Increased workload due to COVID-19
	n	%		
Being afraid of telling about the exposed risks	126	30.7	0.647	
Being avoided because of work	118	28.7	0.778	
Relatives being avoided because of work	67	16.3	0.845	
Avoid telling about the occupational information	57	13.9	0.850	
Have increased workload	257	62.5		0.849
Have to work overtime	252	61.3		0.894
Have to do work that not normally done	230	55.9		0.851
More conflict amongst colleagues at work	73	17.8	0.695	
More stressful at work	157	38.2	0.609	
Cronbach's alpha			0.837	0.846
Mean			2.76	3.56
SD			0.69	0.64

Table 3 presents the construct validity of the questionnaire with regard to the impacts of COVID-19 on the life and work of healthcare workers. Two sub-domains, namely “Increased pressure and discrimination due to COVID-19” and “Increased workload due to COVID-19” were determined by the EFA. The reliability of the two aforementioned domains was good, with Cronbach's alpha values being 0.837 and 0.846, respectively. Table 3 also presents the proportion of participants who responded “Agree” and “Totally agree” with each item.

**Table 4.** Multivariate regression for factors associated with impact on life and work of respondents due to COVID-19

	Increased pressure and discrimination due to COVID-19		Increased workload due to COVID-19	
	Coef.	95%CI	Coef.	95%CI
<b>Gender (vs. Male)</b>				
Gender (vs. Male)	0.01	-0.14 - 0.17	-0.12	-0.27 - 0.02
<b>Age Group (vs. Under 25)</b>				
25 - 34	0.62***	0.29 - 0.96	0.41**	0.1 - 0.72
35 - 44	0.54***	0.18 - 0.91	0.36**	0.02 - 0.69
> 45	0.65***	0.22 - 1.08	0.48**	0.09 - 0.88
<b>Working Dept. ( vs. Outpatient dept.)</b>				
Emergency room	0.34***	0.13 - 0.56	0.35***	0.15 - 0.55
Internal medicine dept.	0.28***	0.07 - 0.48	0.14	-0.05 - 0.33

	Increased pressure and discrimination due to COVID-19		Increased workload due to COVID-19	
	Coef.	95%CI	Coef.	95%CI
Intensive care unit	0.06	-0.16 - 0.27	0.45***	0.25 - 0.65
Infectious disease dept.	-0.16	-0.39 - 0.06	0.24**	0.04 - 0.45
Others	-0.02	-0.25 - 0.21	0.21	-0.01 - 0.42
<b>On COVID-19 duty (vs. No)</b>				
Yes	-0.1	-0.32 - 0.11	0.22**	0.02 - 0.41
<b>Aver. working time during pandemic (hours)</b>	0.02	-0.02 - 0.05	0.04***	0.01 - 0.07

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Factors associated with “Increased pressure and discrimination due to COVID-19” and “Increased workload due to COVID-19” domain after confounding factor adjustment are presented in Table 4.

Compared to the group of employees under 25 years old, hospital workers in the other age groups had positively associated with the “Increased pressure and discrimination due to COVID-19” and “Increased workload due to COVID-19”. HCWs who work in Emergency room (Coef. = 0.34; 95%CI = 0.13 - 0.56) and Internal medicine (Coef. = 0.28; 95%CI = 0.07 - 0.48) got higher ratings on “Increased pressure and discrimination due to COVID-19” than those who work in the outpatient department. HCWs who work in Emergency room (Coef. = 0.35; 95%CI = 0.15 - 0.55), Intensive care unit (Coef. = 0.45; 95%CI = 0.25 - 0.65), and Infectious disease department (Coef. = 0.24; 95%CI = 0.04 - 0.45) tend to increase their workload more.

## DISCUSSIONS

Globally, the COVID-19 pandemic has had considerable consequences for socio-economics, politics, and other facets of human life. Health workers were one of the groups most affected by the pandemic because they have the highest risk of infection, have to work overtime and lack access to personal protective equipment.<sup>7</sup> Research indicated that 38.2% of respondents felt more stressed at work. Although this finding was lower than in some other studies<sup>8</sup>, the stress rates were notably high. Working circumstances during the pandemic might explain these mental health problems. Not only did this increase the risk of infection, but health professionals also faced other problems such as insufficient PPE, overwork, burnout, discrimination. Nearly two-thirds of the participants claimed that they had increased workload (62.5%) and had to work overtime (61.3%). This was higher than the result of a national e-survey in Italy, which 44% of health professionals have increased their workload.<sup>9</sup> The disparity might be attributed to the fact that the study

took place in 2021, during the intricate pandemic in Hanoi. Hospitals had to run at 150% capacity due to the quick surge of new cases. Additionally, due to the still-limited medical human resources in our nation, doctors' workloads are significantly increased when they must simultaneously treat COVID-19 patients and regular patients.

Research revealed that the higher age groups were under greater pressure and discrimination due to COVID-19, and the workload also increased compared to the age group under 25. According to a study by Esmail Shoja et al. on the pressure of health workers, age was directly proportional to the mental stress of health professionals<sup>10</sup>. The findings could be elucidated since the older a person was, the more experience they had, and was consequently required to handle burdens with greater responsibility.

People working in emergency room, and internal medicine department had “Increased stress and discrimination due to COVID-19” compared with those working in the outpatient department. Additionally, working in the outpatient sector had less



increased workload compared to other departments. This outcome was in line with a study in Italy in 2020, which pointed out that people working in high-risk areas had increased workloads<sup>9</sup>. However, a study on the impact of COVID-19 on health workers (2020) by Pham Thi Quan et al. revealed that medical staff working in infectious diseases department experienced increased work pressure due to COVID-19 compared to those working in the emergency room and intensive care unit<sup>4</sup>. The fact that studies were conducted at various points throughout the pandemic could explain differences in increased workload among departments. At the beginning of the pandemic, COVID-19 patients mainly had mild symptoms, only some severe cases needed to be admitted to the intensive care unit for treatment. Therefore, health workers working in the intensive care unit and the emergency room were not overloaded. While this study was conducted in the later stage of the pandemic, when the new strains of Delta and Omicron spread quickly, the number of new cases surged rapidly and was challenging to manage, along with severe cases requiring hospitalization for monitoring. The emergency room, the intensive care unit, and the infectious disease department were the departments that receive and care for severe COVID-19 patients, so the workload had increased significantly, as well as the pressure and discrimination that staff had to deal with.

However, there are some limitations should be considered. Firstly, the information collected in the study was based on self-reported HCWs, so it could be affected by the recall ability of the participants. Secondly, because it was a cross-sectional study, research might not reflect the impact of the COVID-19 pandemic on the life and work of HCWs during each other pandemic period. Therefore, further research, particularly longitudinal research, should be carried out.

## CONCLUSIONS

The COVID-19 pandemic has an significant impact on healthcare workers, leading to an increase in workload, pressure, and discrimination. Therefore, the government and hospital administrators need to come up with appropriate policies to support medical staff, especially those who work in high-risk settings such as emergency rooms, intensive care units, and infectious disease departments.

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